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**DOCTORS IN THE PEOPLE'S  
REPUBLIC OF CHINA: A RESEARCH  
OF PROFESSION AND  
PROFESSIONALIZATION**

**LI ZHENG**

**PhD**

**The Hong Kong Polytechnic University**

**2018**

**The Hong Kong Polytechnic University**

**Department Of Management And Marketing**

**Doctors in The Peoples' Republic of  
China: A Research of Profession and  
Professionalization**

**LI Zheng**

A thesis submitted in partial fulfilment of the requirements for the degree of  
Doctor of Philosophy

**September 2018**

# **CERTIFICATE OF ORIGINALITY**

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# ABSTRACT

Since 1985, China's healthcare system has experienced more than thirty years' reforms. To reach the goals of the reforms, doctors, ever defined as workers of the state in the post-Mao era, have also gone through three decades of professionalization. The objective of this research is to investigate the extent to which doctors have been professionalized and the current progress of professionalization of doctor in the People's Republic of China.

Following Friedson's ideal model of profession, the doctor profession in this research is examined from an institutional perspective, and the research integrates one quantitative study and one qualitative study.

Under the background of professionalization of doctor profession, the objectives of the quantitative study are to assess and understand the doctor profession from fifteen key categories (professional commitment, intention to leave profession, prosocial motivation, etc.) and explore the mechanisms through which doctors' intention to leave profession is affected. A survey method was adopted to collect data. Under the support of Chinese Hospital Association, 24 general hospitals all over China were selected, and around 80 doctors at different professional ranks in each hospital were randomly selected to fill the questionnaire of the survey. SPSS 22.0 and SmartPLS 3 were used to analyze the data.

Regarding the qualitative study, the main objectives are to comprehensively and deeply understand the professionalization of doctor profession from four themes, including profession selection, profession's work, profession's status, and profession development. Based on Grounded Theory (GT), three rounds' semi-structured face-to-face interviews were conducted for the purpose of data collection. The round one interview was conducted in five "third grade-class A" public general hospitals in Beijing covered with 112 doctors in four different professional ranks. The second-round interview was held in the same five hospitals and their stakeholders-presidents and vice presidents were interviewed. The third-round interviews were implemented in two medical colleges in Beijing targeting at five college stakeholders. The software NVivo was used to assist in the management of

the collected data.

This research opens a door that let the world understand the doctor profession in China from diverse categories. It not only identities the common ground and differences of doctor profession between China and western developed countries, but also it provides the China's governments, medical colleges, hospitals with rich and reliable data for the future development of professionalization of the doctor profession.

# ACKNOWLEDGEMENT

I would like to express my gratitude to all those who helped me during the writing of this thesis.

My deepest gratitude goes first and foremost to Prof. Carlos Lo, my Chief supervisor, for his constant encouragement and guidance. He has walked me through all the stages of the writing of this thesis. Without his consistent and illuminating instruction, this thesis could not have reached its present form.

Second, I would like to express my heartfelt gratitude to Dr LIU Wu, who guided me to finish the quantitative study. I am also greatly indebted to Prof. Peter Yuen, my co-supervisor, for his help in the past four years.

Last my thanks would go to my beloved family for their loving considerations and great confidence in me all through these years. I also owe my sincere gratitude to my friends and my fellow colleagues who gave me their help and time in listening to me and helping me work out my problems during the difficult course of the thesis.

# TABLE OF CONTENTS

## Contents

COVER PAGE .....	i
TITLE PAGE.....	ii
CERTIFICATE OF ORIGINALITY .....	iii
ABSTRACT.....	1
ACKNOWLEDGEMENT .....	3
TABLE OF CONTENTS .....	4
CHAPTER 1-INTRODUCTION .....	11
1.1 Introduction .....	11
1.2 Background to Research .....	12
1.3 Research Objectives .....	13
1.3.1 Quantitative Study Objectives.....	13
1.3.2 Qualitative Study Objectives.....	13
1.4 Research Questions .....	14
1.5 Integration of Quantitative and Qualitative Approach .....	14
1.6 Overview of the Thesis Structure.....	15
1.6.1 Chapter 1: Introduction .....	15
1.6.2 Chapter 2: Literature Review .....	15
1.6.3 Chapter 3: Methodology .....	16
1.6.4 Chapter 4: Analysis and Finding of Quantitative Study Data .....	16
1.6.5 Chapter 5: Analysis and Findings of Qualitative Study Data .....	17
1.6.6 Chapter 5: Integrated Analysis of Quantitative and Qualitative Study Data .....	17
1.6.7 Chapter 6: Conclusions .....	17
1.7 Summary .....	17
CHAPTER 2 – LITERATURE REVIEW .....	18
2.1 Introduction .....	18
2.2 Profession, Professionalization, and Professionalism.....	18
2.2.1 Profession.....	18
2.2.2 Professionalization .....	19
2.2.3 Professionalism .....	19
2.3 Institutional Theories.....	21
2.3.1 Institutions.....	21



2.3.2 Profession, Professionalization, Professionalism: An Institutional Perspective .....	22
2.4 The Historical Development of Medical Profession in China .....	24
2.4.1 The Generation of The Embryo of Doctor Profession .....	24
2.4.2 The Deprofessionalization of Medical Profession in Mao's Era .....	26
2.4.3 The Reprofessionalization of Medical Profession in Deng's Era .....	30
2.5 Key Constructs .....	32
2.5.1 Professional Commitment .....	32
2.5.2 Intention to Leave Profession.....	35
2.5.3 Job Autonomy .....	36
2.5.4 Job Involvement .....	38
2.5.5 Patient Safety Priority .....	39
2.5.6 Learning Orientation .....	40
2.5.7 Prosocial Motivation .....	41
2.5.8 Intrinsic Motivation.....	42
2.5.9 Professional Activities.....	43
2.6 Hypotheses .....	45
2.6.1 Theoretical Frameworks.....	45
2.6.2 Hypothesizes Development.....	48
CHAPTER 3 - METHODOLOGY .....	53
3.3 Research Methodology.....	53
3.3.1 Quantitative Research Methodology-Quantitative Study .....	53
3.3.2 Qualitative Research Methodology-Qualitative Study .....	53
3.4 Data Collection Methods.....	55
3.4.1 Data Collection Method of Quantitative Research .....	55
3.4.1.1Construct Operationalization .....	55
3.4.1.2 Sampling Method .....	58
3.4.1.3Data Collection Steps .....	58
3.4.2 Data Collection Method of Qualitative Research .....	60
3.4.2.1 In-depth Interview approach .....	60
3.4.2.2 Sampling Method .....	61
3.4.2.3 Data Collection Steps .....	63
3.4.2.4 Coding of Qualitative Data .....	65
CHAPTER 4 – ANALYSIS AND FINDING OF QUANTITATIVE STUDY ....	67
4.1 Introduction .....	67
4.2 Descriptive Analysis of Quantitative Data .....	67

4.2.1 Quantitative Data Summary .....	67
4.2.2 Construct Reliability and Validity .....	69
4.2.3 Professional Activities.....	74
4.2.3.1 Exploratory Factor Analysis.....	74
4.2.4 Comparison of doctors at general hospitals (GH) and infectious hospitals (IH).....	76
4.2.5 Comparison of doctors in Beijing and outside Beijing .....	78
4.2.6 Comparison of doctors by gender .....	80
4.2.7 Comparison of doctors by marital status.....	82
4.2.7 Comparison of doctors by educational level .....	84
4.3 Hypothesizes Test.....	86
4.3.1 Analytical Approach.....	86
4.2.2.2 Measurement Model.....	86
4.2.2.3 Common Method Bias .....	90
4.4 Findings and Discussions of the Quantitative Model .....	93
4.4.1 Extension of Career Motivation Theory.....	93
4.4.2 The interaction effect of prosocial motivation and patient safety priority on professional affective and normative commitments-from an institutional perspective.....	95
CHAPTER 5 – ANALYSIS AND FINDING OF QUALITATIVE STUDY .....	98
Analysis and Findings of Data from Individual Doctors .....	99
5.1 Theme One: Profession Selection .....	99
5.1.1 Choice of Profession .....	99
5.1.2 Leave of Profession.....	107
5.2 Theme Two: Profession’s Daily Work .....	112
5.2.1 Doctors’ Favorite categories at work .....	112
5.2.2 Doctors’ Abhorrent categories at work .....	115
5.2.3 Difficulties at work.....	120
5.2.4 Needed skills, ability, and knowledge at work.....	122
5.3 Theme Three: Professional Status.....	124
5.3.1 The level of current economic status of doctor profession .....	124
5.3.2 The level of current social status of doctor profession.....	124
5.3.3 The reasons why doctor profession deserves high economic and social status .....	125
5.3.4 Discussion: The Status and Prosociality.....	126

5.3.5 Law Protection .....	128
5.4 Theme Four-Development of Doctor Profession .....	129
5.4.1 Development Difficulties Faced By Doctor Profession.....	129
5.4.2 Career Goals For The Next Five To Ten Years .....	131
5.4.3 Responsibilities Of Doctor Association .....	132
Analysis and Findings of Data from Hospital Presidents and University Presidents .....	134
5.5 Theme One: The Role of Doctor Profession in Chinese Society .....	134
5.5.1 The Identification Of The Role Played By Doctor Profession...	134
5.5.2 The Effectiveness Of Role Play Of Doctor Profession .....	137
5.5.3 The Causes Of The Ineffectiveness Of The Role Play Of Doctor Profession In China .....	138
5.5.4 The Responsible Objects Of Doctor Profession.....	139
5.5.6 The Expected Relationships Between Doctor Profession And Patient.....	140
5.5.7 The Expected Relationship Between Doctor Profession And Hospital .....	141
5.5.8 The Expected Relationship Between Doctor Profession And Government.....	142
5.6 Theme Two: The Ethics of Doctor in China .....	142
5.6.1 Existed Ethic Issues Of Doctor Profession .....	142
5.7 Theme Three: The Current Situation of Doctor Profession in China....	143
5.7.1 The Statues Of Doctor Profession In China .....	143
5.7.2 The major issues faced by doctor profession .....	144
5.7.6 The role of doctor association .....	145
Table 52 The Role Of Doctor Association .....	146
CHAPTER 6 – INTEGRATED ANALYSIS OF QUANTITATIVE AND QUALITATIVE STUDY .....	147
CHAPTER 7 - CONCLUSION .....	153
7.1 Introduction .....	153
7.2 Summary of Findings .....	153
7.3 Research Limitations.....	160
APPEXDICES.....	161
Appendix 1-Interview Agenda .....	161
Appendix 2-Quantitative Study Questionnaire .....	165
Appendix 3-Measurements .....	168

REFERENCE .....	172
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## List of Figures

Figure 1 Integrative Model.....	47
Figure 2 Research Model .....	52
Figure 3 Overview Of Sem Coefficients (Standardized) .....	90
Figure 4 The PLS Model For Assessing Common Method Bias .....	91
Figure 5 The Original Theoretical Model Of Career Motivation Theory ....	94
Figure 6 The Supported Model Of The Quantitative Study .....	94

## List of Tables

Table 1 The Classification Of The Variables.....	48
Table 2 The Locations Of The Respondents .....	68
Table 3 The Demographics Of The Respondents.....	68
Table 4 The Measurement Model Results.....	70
Table 5 The Loadings And Cross Loadings .....	70
Table 6 Discriminant Validity Analysis.....	73
Table 7 KMO And Bartlett's Test .....	74
Table 8 Dimensions Solution After Varimax Normalized Rotation .....	75
Table 9 The Square Root Of Each Construct'S AVE .....	75
Table 10 Test Of Homogeneity Of Variances .....	76
Table 11 Comparision Between Geneneral Hospital And Infectious Hospital	77
Table 12 Test Of Homogeneity Of Variances.....	78
Table 13 Comparision Of Doctors Between Hospitals In Beijing And Hospitals Outside Beijing.....	79
Table 14 Test Of Homogeneity Of Variances.....	80
Table 15 Comparision Of Doctors Between Male and Female.....	81
Table 16 Test Of Homogeneity Of Variances.....	82
Table 17 Comparision Of Doctors By Marital Status .....	83
Table 18 Test Of Homogeneity Of Variances.....	84
Table 19 Comparision Of Doctors By Educational Level.....	85
Table 20 The Structural Model Results.....	87
Table 21 Results Of Assessing The Common Method Bias.....	92
Table 22 The Time Nodes That An Individual Decides To Be A Doctor ....	102
Table 23 The Motivations That An Individual Decides To Be A Doctor ....	103

Table 24 The Motivations That A Doctor Insists On Being A Doctor .....	106
Table 25 Ever/Never Considering Leaving Doctor Profession.....	107
Table 26 Motivations Of Ever Considering Leaving Doctor Profession ....	108
Table 27 Motivations Of Never Considering Leaving Doctor Profession ...	110
Table 28 Conditions Of Leaving Doctor Profession .....	111
Table 29 Doctors' Favorite Categories At Work .....	113
Table 30 Changes Of The Favorite Categories In The Last Three Years .....	114
Table 31 Doctors' Abhorrent Categories At Work .....	118
Table 32 Changes Of Abhorrent Categories In Last Three Years .....	119
Table 33 Difficulties At Work .....	122
Table 34 Needed Skills, Ability, And Knowledge At Work .....	123
Table 35 The Level Of Current Economic Status Of Doctor Profession ....	124
Table 36 The Level Of Current Social Status Of Doctor Profession .....	125
Table 37 The Reasons Why Doctor Profession Deserves High Economic And Social Status .....	125
Table 38 Experience Of Medical Tangle.....	129
Table 39 Development Difficulties Faced By Doctor Profession .....	130
Table 40 Career Goals For The Next Five To Ten Years.....	132
Table 41 Responsibilities Of Doctor Association .....	133
Table 42 The Identification Of The Role Played By Doctor Profession.....	135
Table 43 The Effectiveness Of Role Play Of Doctor Profession .....	138
Table 44 The Causes Of The Ineffectiveness Of The Role Play Of Doctor Profession In China .....	139
Table 45 The Responsible Objects Of Doctor Profession.....	140
Table 46 The Expected Relationships Between Doctor Profession And Patient .....	140
Table 47 The Expected Relationship Between Doctor Profession And Hospital .....	141
Table 48 The Expected Relationship Between Doctor Profession And Government.....	142
Table 49 Existed Ethic Issues Of Doctor Profession.....	143
Table 50 The Statues Of Doctor Profession In China .....	144
Table 51 The Major Issues Faced By Doctor Profession .....	145
Table 52 The Role Of Doctor Association .....	146
Table 53 Professional Commitment .....	168
Table 54 Intention to Leave Profession.....	168

Table 55 Job Autonomy.....	168
Table 56 Job Involvement .....	169
Table 57 Patient Safety Priority .....	169
Table 58 Learning Orientation .....	169
Table 59 Prosocial Motivation .....	170
Table 60 Intrinsic Motivation.....	170
Table 61 Professional Activities.....	171

# **CHAPTER 1-INTRODUCTION**

## **1.1 Introduction**

This research investigated the characteristics and progress of the professionalization of doctor in China. Participants, including doctors, hospital presidents, and medical university presidents and vice presidents, were asked to provide their perceptions of the current situation and further development of doctor profession in China. Furthermore, this research, from the perspective of institutional theory, analyzed the process of doctor professionalization. In this research both quantitative and qualitative paradigms were applied for data collection and analysis. The data collection methods were questionnaire survey and semi-structured face-to-face interview. Chapter 3 stated the research methodology, data collection methods and analysis. This chapter describes the background to the research, the research objectives, the research questions and an overview of the thesis structure.

## 1.2 Background to Research

Doctor, as a unique profession saving people's life from diseases, undertakes great social responsibilities in every country. Since the founding of the People's Republic of China in 1949, doctors in China have been being under political control and been treated as medical workers rather than a profession. Although there have been some progresses in the development of doctor professionalization in China, doctor now is still characterized by heavy workload, inadequate protection of doctors' rights, insufficient respect from society and government, heavy administrative interference in medical practice, education, and scientific research, etc. Doctor associations in China are nominally social organizations but are actually given governmental functions that serve as an instrument of the state in governing the doctors. Indeed, there is still a big gap of doctor professionalization between China and developed nations such as the United States.

Different from capitalist nations, China is a developing socialist country and has been actively carrying out marketization reforms. With the progress of China's reform and opening up stated from 1978, the development of medical service industry has been moving forward rapidly. As a result, a new kind of medical professional with Chinese characteristics was indispensable. In the last decades, the Chinese central government has been carrying out a lot of positive and meaningful work, including the legislation of the Law of the Peoples Republic of China on Medical Practitioners in 1998, which was intended to strengthen the building of doctor profession, to improve the professional ethics and professional qualities of doctor, to safeguard the legitimate rights and interests of doctors, and to protect the people's health. As a result, doctors' social status and economic status have been being improved gradually, the training and establishment of the team of general practitioners are in progress, and the first medical group emerged in 2014. Such developments have greatly improved the professional identity of doctors in China.

This research of professionalization of doctors in the PRC aims to explore the development of the doctor profession, and to evaluate the progress of professionalization of doctor. Depending upon comprehensive literature on profession, professionalization, and professionalism, the institutional development of a doctor profession in China is reviewed and assessed from an institutional perspective. To truly evaluate the profession, I chose individual doctors, hospital



stakeholders, and medical university stakeholders in China as the research samples, and adopted the survey and in-depth interviews as research tools. Basing on the collected data, not only does this research make people understand the Chinese doctors' attitudes toward their profession, but also it comprehensively reveals the current situation of their work. The findings of this research provide insights into establishing a reasonable and achievable direction of the professionalization of doctor in China, rather than imitate the models of western countries.

## **1.3 Research Objectives**

### ***1.3.1 Quantitative Study Objectives***

The quantitative study has two objectives. One is to identify the mechanisms through which doctors' intention to leave profession is affected. The other is to investigate the doctors' views on the important categories related to their profession, and to compare the differences of views between doctors in Beijing and outside Beijing, and between doctors in infectious hospitals and general hospitals, respectively. The quantitative study involves more than 2000 doctors working at 24 hospitals all over China, and questionnaire survey was adopted to collect data. The software SPSS 22 and SmartPLS 3 were applied to save and analyze the collected data.

### ***1.3.2 Qualitative Study Objectives***

The qualitative study explored the profession of doctor in China from an institutional perspective. The objectives of this qualitative study were to build on the existing cognition relating to the professionalization of doctor in China. The recollections of doctors, presidents of general hospitals and medical universities relating to both their perceptions of and their vision for the current development progress and the future development of the medical profession. A qualitative study involving 112 doctors, 5 presidents of hospitals and 2 presidents of medical universities was conducted to address the research objectives. Semi-structured, face-to-face interviews with individual respondents were adopted to collect data. The storage and analysis of collected data were done by the application of the software NVivo.

Based on a Chinese context, this qualitative study has the following objectives:

1. To assess the current state of doctor profession from the perspectives of individual doctor, hospital president, and medical university president
2. To propose a reasonable and achievable direction of development for the professionalization of doctor in China
3. To study impacts of institutional constraints on the doctor professionalization in China

## **1.4 Research Questions**

The quantitative study objectives are translated into four research questions:

1. What are the mechanisms through which doctors' intention to leave the profession is affected?
2. What are the views of doctors on the categories which are important to their profession?
3. What are the differences of the above views between doctors in Beijing and those outside Beijing, and between doctors in infectious hospitals and those in general hospitals, respectively?

The qualitative study objectives translate into four research questions:

1. Is doctor a profession in the Chinese context?
2. What is the current progress of professionalization of doctor in China?
3. what is the direction of doctor profession development in China?

## **1.5 Integration of Quantitative and Qualitative Approach**

Quantitative approach and qualitative approach have their own applicability. For quantitative approach, not only does it allow researchers to quickly carry out a large-scale social investigative (e.g. investigating 2000+ doctors in this research),

but also it, depending on statistical and mathematical analysis, precisely and accurately tests the degrees of variables (e.g. Degree of doctors' intention to leave the profession in this research), compares the differences between diverse types of interviewees (e.g. Difference of doctors' intention to leave the profession between doctors in a general hospital and infectious hospital), and explains the causality among variables (e.g. The mechanisms through which doctors' intention to leave the profession is affected). It, however, should be noted that there is a precondition for applying quantitative approach that the research variables should be known. In contrast, a qualitative approach is appropriate if the research objective is to identify unknown variables and get a boarder and deeper understanding of quantitative research . For instance, we are able to quickly and accurately identify doctors' motivations of leaving the profession by a qualitative approach-interviewing doctors. Then we can continue to apply a quantitative approach to propose hypothesizes of the mechanisms through which doctors' intention to leave profession is affected. Hench, quantitative study and qualitative study are complementary in this research project, and the integration of the two approaches can help us comprehensively and deeply understand the doctor profession in China.

## **1.6 Overview of the Thesis Structure**

This thesis is presented in seven (7) chapters. The purpose of each chapter is shown as follows.

### ***1.6.1 Chapter 1: Introduction***

This chapter introduces the research background, the research objectives, the research questions and an overview of structure of the thesis

### ***1.6.2 Chapter 2: Literature Review***

This chapter presents a literature review that reviews (1) the developments of profession, the professionalization and professionalism; (2) the institutional theories; (3) the historical development of doctor profession in China; and (4) the theoretical frameworks and key constructs of the research. The objective is to build on a theoretical basis from an institutional perspective to establish an analytical

framework for this research. The chapter commences with reviews of the key concepts, including profession, professionalization, and professionalism, an overview of institutional theories, and reviews the doctor profession development in China. It then explores the theoretical frameworks which is applied to build the research model of the quantitative study, and introduce nine key constructs: professional commitment, intention to leave profession, job autonomy, job involvement, patient safety priority, learning orientation, prosocial motivation, intrinsic motivation, and professional activities. These constructs reflect the current situations of doctor profession is under in China. Finally, hypotheses of the mechanisms through which doctors' intention to leave the profession is affected by their professional commitment are proposed.

### ***1.6.3 Chapter 3: Methodology***

This chapter describes the research methodology of this research. This research is an integration of one quantitative study and one qualitative study conducted in 2015. The quantitative study adopts questionnaire survey as the research tool. It includes one round data collection with 1900+ doctors allover China. The software SPSS and SmartPLS were used for organizing and analyzing the collected data. The qualitative study adopts semi-structured interviews to collect data from 112 individual doctors, 5 hospital presidents and 2 medical university presidents. Software QSR Nvivo 9 was employed to organize and analyze data.

### ***1.6.4 Chapter 4: Analysis and Finding of Quantitative Study***

#### ***Data***

This chapter firstly details the coding procedure forming the basis for the analysis of quantitative data collected. The quantitative data were analyzed through descriptive statistics and Structural Equation Modeling (SEM). Secondly, the findings were presented. The supported hypothesizes and discussion of the quantitative study were interpreted in detail.

### ***1.6.5 Chapter 5: Analysis and Findings of Qualitative Study Data***

This chapter illustrates the analysis and findings of qualitative data which was based on the text data transcribed from transcriptions of interviews undertaken with respondents. The procedures that how the data were analyzed and coded to establish emergent themes are presented. Then, the principal themes, categories, and subcategories emerged from the data analysis procedures. Detailed discussion was presented with the each part.

### ***1.6.6 Chapter 5: Integrated Analysis of Quantitative and Qualitative Study Data***

### ***1.6.7 Chapter 6: Conclusions***

This chapter presents a summary of research findings that identified China's current progress of doctor professionalization and the way of its future. The strengths and limitations of this research are presented, along with suggestions for further research

## **1.7 Summary**

This chapter began with the research background, the research objectives, the research questions and an outline of the thesis structure. The quantitative and qualitative research methods of this research were described, including the data collection and analysis methods applied. Chapter 2 presents a review of literature relating to this research

# CHAPTER 2 – LITERATURE REVIEW

## 2.1 Introduction

This chapter presents the literature review. For this research, the focus is on the professionalization of doctor profession in China. I will first review three key concepts—profession, professionalization, and professionalism by reviewing their origins, relevant studies and classical findings. Then institutional theories will be reviewed to demonstrate why the implementation of this research is based on an institutional perspective. Finally, I reviewed the theoretical frameworks and the nine key constructs.

## 2.2 Profession, Professionalization, and Professionalism

### 2.2.1 *Profession*

Profession, in the Oxford English Dictionary, is defined as a paid occupation, especially one that involves prolonged training and a formal qualification. In the late of the 20th century, scholars in social science had started studies on professions (Leicht and Fennell, 1997). Parsons (1951) was one of the inaugural theorists who identified how the capitalist economy, the rational -- legal social order, and the modern professions were all interrelated and mutually balancing in the stability and maintenance of a delicate social normative order. Unlike Parsons, Hitchcock and Hughes (1989) regarded the differences between occupations and professions as degree's differences rather than kind.

Johnson (1972) theorized about professions in Anglo-American societies and concentrated on law and medicine. It has been a special attribute of analysis of the medical profession (e.g. Larkin, 1983) where researchers have interpreted relationships between health professionals as a part of medical dominance as well as gender relations (e.g. Davies, 1995). Annandale (1998) has queried medical dominance's features and has linked this with restratification, growing hierarchy and diversity within the medical profession itself -- that is only a number of doctors can become dominant, along with a number of midwives and some nurses.

Researches of the accounting profession in imperialism seem of enduring value, because they follow accounting profession's role in helping constitute nationhood's specific opinions (Dyball, Poullaos, & Chua, forthcoming). Professional relations between different were also studied-the relationship between the UK profession and the embryonic US profession has been studied by Previts and Merino (1998) and Miranti (1990).

### ***2.2.2 Professionalization***

Professionalization is a locus in the study of professions. In 1928, Saunders firstly proposed professionalization in his speech at Oxford that presented the necessary steps of professional development (Alexander M, 1928). After that, scholars have done a series of socio-historical analyses of both established and emerging professions in the U.S., the U.K., and continental European countries (Lo, 2005).

The attribute or trait model, the process model, and the power model are the three major models which can be identified in the studies of professionalization (Chow, T., 2011), and each model assesses professionalization from different perspectives. The attribute model examines professionalization based on the professional attributes of a profession. The most influential study adopting attribute model was done by Hall. From structural and attitudinal categories of a profession, he reviewed essential attributes of professionalization and summarized that professionalization could be interpreted as bureaucratization. The process model, from a historical perspective, assessed professionalization based on the stages of development, and relevant studies emphasized the importance of education and training (Chow, T., 2011). The attribute model and process model, however, neglected a key factor-professional autonomy, which is a significant indicator reflecting the degree of professionalization of a profession. By contrast, the last model-the power model-studied professionalization by analyzing the impacts of institutions on the delivery of professional power which is translated as professional autonomy (Johnson, 1972).

### ***2.2.3 Professionalism***

Professionalism as an ideology only started in the early 19th century in North America and Western Europe (Lori, 2012). As a key concept in understanding a profession, professionalism was as early as 1933 described by Alexander M. Carr-

Saunders and PA Wilson (1933) as 'Serving Power with Knowledge'. However, it was not until the late 1960s that theorization of this notion remained with merely functional or taxonomic statements. Until 1970, Eliot Freidson's classic study on the medical profession (Freidson, 1970.) broke down such a situation. Freidson proposed that the unique criterion that distinguishes professions from other occupations is autonomy, which is a position that legitimates work. Accordingly, professionalism exists and sustains when an organized sector owns the power to decide who will be engaged in a series of well-defined work to prevent others from doing such work and to control the standards of evaluation (Freidson, 2001). This view regards professionalism as a concept of sexuality and internality. That is to say, regardless of the social structure of a profession or the external influences from customer and nation is not necessarily related to the autonomy of the profession. As long as a profession has the unique legitimacy of power monitoring and evaluating their work, the professional autonomy is guaranteed (SiDa LIU, 2006).

In the last decades, western scholars and institutions have done a lot of researches on medical professionalism. A typical example is the Medical Professionalism Project jointly launched by European Federation of Internal Medicine, the American College of Physicians and the American Society of Internal Medicine in 2002. As a result of the project, a Charter of Medical Professionalism (CMA) was published. It indicated that the basis of medicine's contract with society is professionalism, and it placed the interests of patients above those of the physician, set and maintained standards of competence and integrity, and provided expert advice to society on matters of health (Participants in the Medical Professionalism Project 2002a, 2002b). The CMA institution document specifies three major features of medical professionalism benefitting society: 'the ethic of service, clinical autonomy and self-regulation'. Following the CMA, medical professionalism's essence was further defined by Miettinen (2003) as acting (in related matters and health care) with all of the desirable qualities that can reasonably be expected of a physician, given the circumstances and his/her specialty; it thus is acting in all respects in accord with good practices, engagement only in normative practices..Depending on cluster analysis, Wear and Aultment (2006) categorized medical professionalism into seven clusters: Nostalgic, Entrepreneurial, Academic, Lifestyle, Empirical, *unreflective*, and *Activist*. These studies provide insights for China on establishing an assessment criterion for doctor professionalism.



## 2.3 Institutional Theories

### 2.3.1 Institutions

Institutions refer to the rules of the game in a society. 'or more formally, are the humanly devised constraints that shape human interaction' (North 2005). A more concrete definition of institutions is proposed by Scott (1995):

- ◆ Institutions are social structures having attained a high degree of resilience
- ◆ Institutions consist of cultured-cognitive, regulative and normative elements that, together with resource and associated activities, provide stability and meaning to social life
- ◆ Institutions are transmitted by diverse types of carriers, including symbolic systems, relationship systems, routines, and artifacts
- ◆ Institutions operate at jurisdiction's multiple levels, from the world system to localized interpersonal relationships
- ◆ Institutions by definition connote stability but are subject to change processes, both incremental and discontinuous.

Institutions, as mechanisms or structures of social order, shape the behavior of a set of individuals within a given community, and are identified with transcending individuals, intentions and a social purpose by mediating the rules shaping living behavior (Hindriks, 2013). Scott (1995) first addressed the influential power of institutions in the mid-nineteenth century. Then, DiMaggio and Powell (1983) suggested that coercive, mimetic, and normative are the three forces generating significant impact on human behavior. Following the line of the three forces, Scott (2001) proposed a three-pillar framework, including regulative, normative, and cultural-cognitive pillars, to differentiate institutional studies.

Economists employed regulative pillar to solve compliance issues. North (1990) indicated that the although regulatory pillar can trace unethical behaviors, the actor may impose greater influence on others by using a threat in the form of regulatory ways. Thus it is necessary to concern political structure and its efficiency on enforcement. And within the institutional framework, exploring the role of the state and how the state interacts with other actors are the critical (Scott, 2001). Regarding the normative pillar, it is based on personal and social obligations that values and

norms are the two key factors. Values are defined as 'preferred or desirable, together with the constructions of standards to which behavior or existing structures can be compared and assessed' (Scott 2005). Scholars applying this pillar emphasize the power of social values which maintains social stability. Moving to cultural-cognitive pillar, studies focus on exploring cognitive dimensions of human-existence (Scott 2001). It is important to first understand how the actors interpret the institutions, after which the institutions affect the actors.

An institution is not an eternal existence. In order to reveal the reason that some institutions persist and other institutions exist in certain contexts only, it is necessary to understand institutional change's drivers. Acemoglu, Johnson and Robinson (2004) emphasized that institutional change is endogenous. Basing on the distribution of resources across preexisting political institutions and society, they figured out a framework for institutional change. The society and preexisting political institutions decide de jure and de facto political power, respectively. North (2005) attributes institutional change to "political entrepreneurs". These entrepreneurs weigh the expected costs of altering the institutional framework against the benefits they can derive from the change (O'Brien, 1994).

### ***2.3.2 Profession, Professionalization, Professionalism: An Institutional Perspective***

From Parsons (1938) to Freidson (2001), institutional theory has dominated the study of professions. The institutional perspective provides a theoretical link among profession, professionalization, and professionalism (Lo, CWH, & Snape, E. 2005). From this perspective, profession is defined as the key institutional characteristics instead of functions and traits (Freidson, E. 1983). Professionalization is considered to be the process through which an occupation achieves professionalism's end (Torres, D. 1991). And professionalism is deemed as a set of institutions for demonstrating individuals' professionalization, guaranteeing service quality, and controlling the work performance (Abbott, A. 1991). Freidson (2001) emphasized that besides the code of ethics, moral problems caused by economic, political, social and ideological circumstances should also be concerned about professionalism of a profession. Specifically, "practical ethics" and "institutional ethics" are great

concerns. Practical ethics refer to “deal with problems of work that are faced by individual practitioners addressing ethical issues familiar to everyone but which have assumed exotic guises that need sorting out and recognizing”, and institutional ethics refer to “are concerned with moral legitimacy of the institutions and institutions that constrain the possibility to practice in a way that benefit others and serve transcendent value of discipline” (Freidson 2001). Following this way, harmonious working relationship and ideology consensus among professionals can be built through the balance between internal development and external institutional development of the profession (North 2005).

Different from those western countries, such as the U.S. which is a capitalist country where two parties take turns to govern, China is an one-party ruling, highly centralized socialist country. Most of professions in China are highly governed by the state, and a professional’s development and its professionalization are greatly affected and determined by the institutions established by the state. Lo and Snape’s study (2005) shows that institutional constraints from the state have a negative impact on the development of the lawyer profession, and one of the great concerns is the low autonomy of lawyer associations. Doctor profession in China is under a similar situation. Chinese Doctor Association, as the highest-level association of doctor in China, take up many heavy responsibilities such as continuous medical education, doctor regular assessment, and academic conference, it, however, does not have a high degree of autonomy to decide how to take the responsibilities. More precisely, the state assigns tasks to the association with institutions established by the state itself, and the association merely performs the tasks under these rules. In general, doctor profession in China is dominantly shaped by the state in the form of state institutions, as well as the professionalism of and the process of doctor professionalization. In a Chinese context, it is appropriate and necessary to study doctor profession from an institutional perspective.

## **2.4 The Historical Development of Medical Profession in China**

From historical perspective, the development of doctor profession in China experienced three stages: the generation of the embryo of doctor profession during the Republic of China from 1912 to 1949, the de-professionalization during Maoist era, the restoration and professionalization during Deng era.

### ***2.4.1 The Generation of The Embryo of Doctor Profession***

Although there was no such concepts of profession, professionalization, and professionalism during the Republic of China (Xu, 2001), the embryo of doctor profession had been gradually generating as Western medicine entered China. Doctor during the Republic of China was normally referred to as "freelancer" (or "self-employed"). "Freelancer" was only used to refer to specific industries, including lawyers, doctors, accountants, journalists and professors (Xu Xiaoqun, 2007; Zhu Ying, Wei Wenxiang, 2009; Yin Qian, 2007), because some of these industries Commonality distinguished them from those of other industries: practitioners must be professionally educated; they were self-organized and established professional associations, publish academic journals, develop education and licensing systems; they provided the services that the public needs; they were relatively independent and self-employment was allowed. Furthermore, when the National Government managed occupational groups, it referred doctors, lawyers, accountants, etc. as freelance groups to distinguish them from other occupational groups (Yao Zelin, 2015).

At that time, the doctor's own professional identity gradually strengthened. Zhu Ying and Wei Wenxiang indicated that physician practice was indeed a business, but this business was the application of science for the purpose of preventing or treating diseases which was completely different from other occupations whose purpose was making profits. Doctors realized that doctor had clear boundaries with other industries in terms of occupational importance and qualifications for entry.

While the sense of professional identity had deepened, the role of doctor associations had become increasingly prominent. As doctors' representatives, those

associations often bargained with the government on health care policies in order to protect their rights and interests. For instance, in 1922, the Ministry of Internal Affairs of the Beiyang Government (who had not yet established the Ministry of Health) tried to enact a regulation on the examination and registration of students of Chinese medicine and Western Medicine. The policy was criticized by Western medicine doctors who believed that the government recognized the same professional status as Chinese medicine. This regulation finally announced a miscarriage. Another example was that in 1929, the Shanghai Municipal Health Bureau tried to impose a maximum limit on the fees charged by Western medicine doctors to patients, but it was strongly resisted by Western medicine doctors. They believed that "the physician's fee was a reward for his professional skills, not ordinary commercial transactions and material exchange. Government intervention in physician fees was inappropriate and unnecessary." The Shanghai Medical Association petitioned the Ministry of Health and asked the Ministry of Health to order the Shanghai Health Bureau to revoke the regulations. The Health Bureau finally raised the maximum fee for physicians (Zhu Ying, Wei Wenxiang, editor, 2009; Xu Xiaoqun, 2007).

The above cases showed that during the Republic of China, doctors enjoyed a high degree of professional autonomy: they could start their own businesses and practice medicine on their own. They could negotiate with the government on the price of services and they could hold the threshold. To a certain extent, they represent another force independent of the state (Xu Xiaoqun, 2007). However, although the doctors and the state continued to "friction" during the Republic of China, the doctors and the country depended on each other.

Specifically, the power and autonomy of the profession must be recognized and guaranteed by the state, and the government needed the support and help of doctors to build a modern country. A major theme of the Republic of China was to save the country and protect the country, and Western medicine was a necessary means to achieve this goal, and it was also an indispensable element of modern civilized countries (Yao Zelin, 2015). Yang Nianqun (2006) emphasized that doctors indeed experienced "Nationalization of medicine" during the Republic of China-It was the state that applied modern medicine to achieve monitoring and intervention of grassroots society and individual citizens. Also Du Lihong (2014)'s research on the establishment of public health system showed that the creation of a new national

governance system such as health administration must not lack the support and participation of medical professionals.

To conclude, the formation of professions and the formation of the state were intertwined (Johnson 1972), and there was no exception for China during the Republic of China. Despite the contradictions and frictions between doctors and the state, as an emerging modern country, the government of the Republic of China was more eager to use the doctor profession to serve the goals of national modernization (Henderson, 1993); and the emerging doctor profession also needed to take the advantage of the power of the state to establish its authority and legitimacy in the medical field, thereby ensuring its high professional autonomy.

#### ***2.4.2 The Deprofessionalization of Medical Profession in Mao's Era***

The process of professionalization of doctors was interrupted with the establishment of the People's Republic of China (PRC). The central government led by Mao Zedong overthrew and rebuilt the economic systems and political and of the Republican government, and this caused a dramatic change in the relationship between the doctor profession and the state.

At the economic level, the central government of the PRC eliminated the market and established a centrally planned economy following the Soviet model-the new regime carried out a socialist transformation of the doctor's profession and nationalized hospitals, clinics and doctors. At the political level, some independent doctor professional associations were banned, while others became semi-official organizations attached to the government, thus losing the possibility of negotiating with the government on behalf of doctors during the Republic of China (Davis, 2000). In this case, the doctors became employees of the state and governed by the state, and they were no longer "free." Moreover, "the importance of the state goes far beyond its role as an employer because the state shapes the general working environment of all industries," including political and ideological environments, education, and other professional work provisions (Jones, 1991). Finally, a new nationwide health care system was established and doctors were placed in a practice

environment that was completely different from that of the Republic of China. It could be said that the doctor profession lost its profession autonomy.

To govern doctor profession, the central government led by Mao reconstructed the professional ethics of doctors: medicine must serve the proletarian politics (Yao Zelin 2015). More precisely, the central government believed that the reform of each profession was necessary since the interests of a profession would override the interests of the people if the profession had excessive professional autonomy (Kraus, 2004). As a result, the central government published four major guidelines for health work (Sidel 1973; Yang Nianqun, 2006): health care system served for workers, peasants and soldiers; health care system was prevention-oriented and treatment supplemented; health care system integrated Chinese and Western medicine; Health care must be combined with reform movement of people.

Before the founding of the PRC, 80% of doctors adopted individual practice (Yao Zelin 2015). Specifically, after the founding of the PRC, the central government established “Health Workers Associations” all over the state and absorbed individual practitioners as members. By the end of 1983, the number of individual medical practitioners in urban areas was less than 6000. At the same time, the number of doctors belong to public medical institutions increased rapidly. In 1983, public hospital staff accounted for about 80% of the total number of health technicians in the country.

The central government of the PRC achieved the nationalization of doctors by “absorbing” freelance doctors into public medical institutions. This was a fundamental change in the identity of doctors in China: they became doctors of the socialist countries from the freelance doctors of the Republic of China. This unity organization of the doctor community replaced its original self-organizing model. During the Republic of China, doctors usually belonged to a professional group in which they participated in academic and professional activities, and in this way they were connected to other peers. After 1949, the more important identity of doctors was the members of public medical institutions. Although industry organizations such as the Chinese Medical Association still exist, their functions were changed and presented a trend of depoliticization. In addition to the functions of academic exchanges, the original important duties—such as safeguarding doctors’ legal rights and industry self-discipline—were transferred to the public medical institutions

where doctors worked at and the health administrative departments. As a member of a public medical institution, it was basically impossible for a doctor to withdraw from the institution, their only choice was practicing in the institution and follow the career path prescribed by the state (Davis, 2000).

Davis (2000) indicated that if the resources available from outside and could effectively substitute the resources provided internally, the employee's degree of attachment to the institution he/she worked at was weak. Based on this analytical framework, doctors of the PRC during Mao's era were highly attached to public medical institutions and thus to the state. Not only must they obtain membership in public medical institutions to practice, but also their service fees, income, medical facilities used, and even patients served were all determined by the state. What was more, since all resources at that time were controlled by the state, once doctors left the public medical institution, doctors could not only practise, and even survival could be a problem. Thus, during Mao's era, most doctors in China were highly attached to public medical institutions as well as to the state.

The Mao's government not only transformed the existing medical staff into state employees, but also significantly and rapidly increased the number of clinicians by reconstructing the medical education system. Following the Soviet model, China carried out radical reforms in medical education (Yao Zelin 2015). The first was reducing the length of medical education that the government established a number of five-year and three-year medical colleges. The second was the decentralization of medical education. During the ten years' the "Cultural Revolution", medical education was "decentralized" by the central government that the power of medical education was empowered to various provinces and cities, thus making the gaps of years and quality of medical education between diverse regions bigger and bigger (Sidel 1973). The third was the implementation of the policy of sub-divisional education. Clinical medicine was divided into five categories, including therapeutic medicine for adults, pediatrics, public health, stomatology and pharmacy. These three major revolutionary changes indeed trained a large number of medical personnel in a short period of time that alleviated the shortage of medical personnel in China to some extent. On the other hand, the doctor associations' autonomy in terms of vocational education and profession access was deprived by the government (Sidel 1973).



Yao Zelin (2015) indicated that the loss of autonomy of doctor associations adversely affected the clinical autonomy of doctors in three aspects. First, because health care was usually put at the end of the planned economy system, the health care industry was normally at a disadvantage position when resources were allocated by the central government, which directly led to long-term investment in the medical field in China. For example, medical equipment was old or even lacking, which made doctors greatly limited when conducting medical treatment. Second, doctors must obey the national interests and protect socialist production. Therefore, doctors were required to strictly control the sick rest of workers. Third, the state's intervention in medical education had a direct negative impact on doctors' mastery of professional knowledge. All the three aspects affected the doctor's application of their professional knowledge and reflected the limited clinical autonomy of doctors during Mao's era.

However, the doctor's high attachment status to the state did not mean a complete, loss of professional autonomy. Based on Marx Webber's Bureaucracy Theory, while attached to public medical institutions, the doctors in China as a national employee also acquired a "power of bureaucracy" that western counterparts and predecessors of the Republic of China were unlikely to have. Specifically, the power of Western doctors' profession mainly came from their professional knowledge and the emotional dependence of patients (Starr, 1982), but in socialist countries, including China, the doctor profession acquired an additional power from the profession. The doctor profession gained an extra power that came from the stratification of the profession as they became part of the state machine. Heitlinger's study (1991, 1993, 1995) proved this view. "Socialist medicine relied on the state in terms of financial support, provision of workplaces, medical technology, customers, wages, licenses, and adequate supply of dependent medical personnel. The state determined the organizational structure of health services through financial and legislative or administrative means, and determined who should receive these services, and what order should be followed to obtain services." However, doctors still had certain clinical autonomy in terms of how to treat their patients and how to practice (Heitlinger, 1993). This authority came not only from professional knowledge but also from their organization (Heitlinger, 1995).

In summary, the Chinese doctor profession during Mao's era was placed under the control of the state and governed by the institutions made by the central government ,

thus losing the professional autonomy. This was the process by which the doctor profession was basically tamed (Field, 1988, 1991, 1993). All practitioners become state employees, they were banned from private practice, and the doctor profession relied on the state in all aspects since the state controlled all resources and allocated them through the centrally planned economy. A large amount of doctors were deployed and attached to public medical institutions. Although professional groups such as doctor associations still existed, they became semi-governmental organizations and mainly undertook academic functions. At the same time, however, the doctor profession also obtained certain bureaucratic power (Yao Zelin 2015). With this bureaucratic power and professional authority, the doctor profession became a state machine (Field, 1991). They were the “gatekeepers” of scarce medical resources and the executors of social control. In general, the interests of the state rather than the interests of the patient became the primary concern of the doctor's profession (Yao Zelin 2015). Hence, the doctor profession employed in socialist countries could be regarded as “an extension of state governance” (Johnson, 1995), and Chinese doctors even experienced a deprofessionalized trend at the time (Sidel 1973).

### ***2.4.3 The Reprofessionalization of Medical Profession in Deng's Era***

The deprofessionalized trend of doctor profession in the PRC was contained since Deng Xiaoping consolidated his power in the Third Plenum in 1979. Deng's government redefined the positive role of doctor profession which replaced Mao's deep-seated hostility towards the medical profession (Belinda 2009). There were two main improvements: one was the decentralization of power, and the other was the legalization of individual doctor practice.

Regarding the decentralization of power, it referred to higher government's empowerment to public hospitals. More precisely, public hospitals got the right to determine their expenses, accounting, medical devices purchase, promotion, and rewards and punishments (Xinhua News Agency 1979), and hospital managers also empowered the right to their doctors. As a result, the work autonomy of doctors at public hospitals significantly increased. However, a higher work autonomy was

actually resulted from the policy of marketization of medical industry implemented by Deng's government. Specifically, the state reduced financial input to public medical institutions, making these institutions must be self-financing, and the result was that economic performance became the core assessment of doctors. According to statistics, the state's average budgetary appropriation for the hospital accounted for 23.87% of the total hospital revenue in 1980, but fell to 10.18% in 1987 (Li Ling, 2010). From 1998 to 2011, the government's annual financial subsidies for each health sector general hospital accounted for only 6%-8% of the total hospital revenue, and 90% of the income came from medical services and drug sales. For doctors, such a revenue structure meant that they must balance economic benefits, service efficiency, and patient interests in their practice, and the relationship between the patient and the doctor gradually became a cash relationship which has laid a hidden danger for the doctor's clinical autonomy and the doctor-patient conflict (Yao Zelin 2015).

Moving to the legalization of individual doctor practice, in 1980, not only did the central government legalize the private practice of doctors, but also it introduced policies to encourage social capital to enter the medical field. However, the number of individual practitioners and doctors practicing in private hospitals was still very limited (Zhou Qiren, 2008; Gu Yu et al., 2006; Gu Yu, 2011; Ding Ningning, Ge Yanfeng, ed., 2008). By 2013, although private hospitals accounted for 40.24% of all hospitals, the number of beds they had, the health technicians they hired, and the outpatient and inpatient services they provided only accounted for about 10% of the total amount. From the perspective of all types of medical institutions, the medical staff employed by public institutions accounted for 85.19% of all personnel, and the licensed physicians accounted for 82.80% of all physicians (Ministry of Health, 2012). Such a medical service market pattern had a profound impact on the doctor profession: public medical institutions still dominated the supply of medical services, and most doctors had no other practice options other than public institutions.

Yao Zelin (2015) indicated that not only did private have a small market share, but also they had to face many restrictions on government regulations in terms of taxation, purchase and allocation of medical equipment, identification of governmental medical insurance qualifications, development of medical research, and career development opportunities for doctors. It made it difficult for private

hospitals to compete vigorously with public hospitals, and the private hospitals were also unlikely to attract a large number of high-level doctors (Zhou Qiren, 2008). Finally, all the restrictions face by private hospitals increased the degree of doctors' dependence on public hospitals and other public medical institutions.

In summary, the development of doctor profession in China during Deng's era experienced a period of professionalization to a certain extent, but this professionalization was very different from that in western countries-it was the government, who took advantage of institutions made by itself, guided the direction and process of doctor professionalization rather than the profession itself, and the so-called doctor professionalization actually served for the government but not the doctor profession itself. Fortunately, such state controlled professionalization has been being reformed. since 2013 China has entered the Xi Jinping era, and the doctor profession has been given higher professional autonomy-doctors have been allowed by the government to practice in multiple medical institutions rather than only in one as before, doctor association were given more and higher rights such as being in charge of doctor continuing education exam. Although at a certain degree China is restricted by the political system of centralized power in one-party dictatorship, the doctor professionalization has been improving step by step.

## **2.5 Key Constructs**

### ***2.5.1 Professional Commitment***

Professional commitment is derived from organizational commitment. Meyer and Allen (1991) defined organizational commitment in three dimensions: affective organizational commitment, normative organizational commitment and continuance organizational commitment (Allen and Meyer 1990; Huselid and Day 1991; Meyer, Allen and Smith 1993; Meyer and Allen 1997). Meyer et al. (1993) then proposed a three-component model of professional commitment, which is defined as an individual's commitment to "a particular line of work". The three-components are affective professional commitment, normative professional commitment, and continuance professional commitment. For affective professional commitment (APC) , it refers to commitment that involves identification of an individual with, involvement in, and emotional attachment to his/her profession.

Hence, a doctor with high affective professional commitment continues to be a member of doctor profession because he/she wants to do so. Regarding normative professional commitment (NPC), it is defined as commitment that is based on an individual's sense of obligation to his/her profession. In other words, a doctor with strong normative professional commitment continues to be a member of doctor profession because he/she thinks that he/she ought to do so. In terms of continuance professional commitment (CPC), it means the commitment that is based on an individual's recognition of the costs that are related to leaving his/her profession. As a result, a doctor with strong continuance professional commitment continues to be a member of doctor profession because he/she recognizes that the costs of leaving the profession are too high to do so.

Many studies in the healthcare area suggested that professional commitment played an important role in the development of medical professionals. Based on Lachman and Aranya's (1986) study, nurses with high level professional commitment strongly believed in the goals and values of nursing profession and were willingly spend effort on behalf of the nursing profession, and they strongly wished to pursue a career as a nurse. In contrast, nurses with low professional commitment experienced a weak belief in the value of nursing profession, showed low willingness to make efforts to reach the nursing profession's goals, and had little desire to retain in the nursing profession (Lachman & Aranya, 1986). In addition, the impacts of professional commitment were found to surpass the impacts of job satisfaction and other work-related factors on intentions to leave (Lum, Kervin, Clark, Reid, & Sirola, 1998), suggesting that professional commitment might moderate the impact of job satisfaction on intentions to leave.

Regarding affective professional commitment (APC), scholars came up with a significant association between APC and conflicts. King and Sethi (1997) suggested a negative relationship between APC and role conflict. Kossek and Ozeki (1998) and Netemeyer, Boles and McMurrian (1996) emphasized that a negative relationship existed between APC and work-family conflict, and this relationship indeed existed for medical professional-in a study conducted with nurses. It was seen the work-family role conflict negatively affects APC to the organization (Eringu"ç, 1994). Seeing from culture perspective, some scholars suggested that APC be greater in collectivist cultures because of the importance placed on social ties and in-group goals (e.g., Randall, 1993). For instance, Wasti and Can (2008)

found that there was a positive correlation between APC and vertical collectivism (i.e., subordination of personal interests to the interests of the in-group) for Turkish employees, and Felfe et al. (2008) found that this positive correlation was also valid for employees in Germany, Romania, and China. In contrast, some scholars argued that APC should be greater in individualist countries because of the application of HRM practices designed to meet employee needs and develop positive attitudes (e.g., Fischer & Mansell, 2009; Gelade, Dobson, & Gilbert, 2006). Regarding normative professional commitment (NPC), similar findings were also proved. Clugston et al. (2000)'s study found that NPC was positively correlated with collectivist values for U.S. employees, and Felfe et al. (2008) proved that NPC also positively related to collectivism for employees in Germany, Romania, and China. With regard to continuance professional commitment, there had been similar disagreements about if CPC was stronger in individualist (e.g., Fischer & Mansell, 2009; Randall, 1993) or collectivist (e.g., Felfe et al., 2008; Wasti & Önder, 2009) countries, and in low (e.g., Fischer & Mansell, 2009) or high (e.g., Wasti & Önder, 2009) power distance countries. King and Sethi (1997) found out a positive correlation between CPC and role conflict, but here was no significant correlation between CPC and stress and work–family conflict (Meyer, Stanley, Herscovitch and Topolnysky 2002; Samuel 2007).

Improving commitment of professionals could produce benefits for both the employees and their organization (Cohen, 1998; Cohen, 1999). The relationship between commitment and turnover intention had been extensively studied. The degree of commitment determined the decision to maintain in the organization, that was employees with a high degree of commitment were less likely to leave their jobs (Mowday et al. 1979; Ben-Bakr, Al-Shammari and Jefri 1994; DeConinck and Bachmann 1994; Clugston 2000).

To measure professional commitment, Meyer et al. (1993) developed a scale to measure the three dimensions of individual professional commitment, and I applied the scale with some changes to measure doctors' affective and normative professional commitments. The original scale was designed to measure nursing profession, so I replaced “nursing profession” with “doctor profession”. Additionally, two negatively phrased questions-“I do not identify with the doctor profession” and “There are no pressure to keep me from changing professions”

were deleted. The final commitment scale was shown in Table 47.

### ***2.5.2 Intention to Leave Profession***

Because of the high costs of switching left employees (i.e., time, money, and seeking the right person for the empty position), much effort had been put into studying why employees left their jobs (Sjöberg & Sverke, 2000). ArthurD. (2001) indicated that retention and turnover are the two sides of a coin, and the later one was final decision preceded by the intention to leave profession (Mobley WH et al.). Based on turnover theory, objective job circumstances and interpreted job circumstances had an influence on individual's decision to leave or remain in the profession (Hayes LJ et al 2006) or organization (Steel R. 2002) (Griffeth R, Hom P, Gaertner S 2000). Intention to leave profession did not refer to actually leaving behavior but a plan to leave, and turnover was the ultimate decision preceded by the intention to leave profession (Mobley 1979). The turnover theory showed that an individual's decision to leave or retain was affected by objective job circumstances and interpreted job circumstances (Steel 2002) or the profession (Griffeth et al. 2000; Hayes et al. 2006).

Blau's study (2000) suggested that an individual might experience a longer time to generate a leave intention from a profession than from an organization since it was easier to make a decision to leave an organization than to leave a profession.

In healthcare area, medical professionals' intention to leave profession is a research hotspot. Many studies taking nurses as samples had revealed lots of significant findings. Nurses possessed strong identification with their profession (Adams & Bourgeault 2003) and their intention to leave the profession was a serious decision because this intention suggested leaving behind the long-term training in nursing and a contribution to the profession. Many studies validated the intention to leave the profession as a predictor of the final decision to leave the profession (Hayes et al.2006; Cortese 2012; Van et al. 2013). Understanding the drivers of intention to leave profession was a significant finding for those employing nurses who are often in short supply, coupled with higher than average turnover rates (OECD 2006). Krausz et al. 1995; Morrell (2005) indicated that the intention to leave profession was a chain reaction that nurses first left their unit, then left their hospital, and ultimately left the profession. Nurses' intention to leave the profession was also

significantly associated with many factors, such as burnout syndrome (Goodin 2003; Hayes et al. 2006). In this context, physical burdens (Hasselhorn 2003), long working hours (Hasselhorn 2003), the number of patients per nurse (Chan et al. 2008), and psychosocial strain (Hayes et al. 2006; Hayes et al. 2012). Researchers in nursing profession discovered that dissatisfaction was an crucial predictor of intention to leave the nursing profession (Shields & Ward 2001; Tzeng et al. 2002) with some researchers informing that dissatisfaction could predict as much as 30% of intention to leave both the profession and the organization (Lu et al. 2002). Nurses' intention to leave the profession was also related with psychosocial job strain evaluated on the demand-control-support (DCS) (Araujo & Karasek 2008) and effort-reward imbalance (ERI) (Siegrist 1996) models.

In this study, intention to leave a profession is defined as a doctor's subjective assessment that they will be leaving the doctor profession (Abraham Carmeli David Gefen 2005). Furthermore, the scale measuring the leave intention was based on the scale developed by Mobley et al. (1978). By replacing the word "organization" with "doctor profession" and "hospital" respectively, the new scales (Table 48) were created to measure individual doctor's withdrawal intentions from doctor profession and hospital.

### ***2.5.3 Job Autonomy***

Job autonomy has been well defined in previous studies. It was first defined as "...the extent to which employees have a major say in scheduling their work, selecting the equipment they will use, and deciding on procedures to be followed" (Hackman & Lawler, 1971, p. 265; Hackman & Oldham, 1975). As a prominent and vital job design feature (Fried & Ferris, 1987; Karasek & Theorell, 1990), job autonomy referred to the extent to which an employee can determine the pace, sequence, and methods to accomplish tasks. Some scholars believed that job autonomy differed from freedom that the latter was defined as people's opportunities to make judgements at work and to choose which tasks to accomplish (cf. CohenMeitar, Carmeli, & Waldman, 2009). In contrast, job autonomy was a core aspect of the job design framework (Baillien, De Cuyper, & De Witte, 2011; Karasek & Theorell, 1990), and it was considered a significant job resource



promoting work engagement (Schaufeli and Salanova 2007). Moregeson & Humphrey, (2006) also proposed that job autonomy, as a valuable resource for employees, referred to the degree of freedom that employees own as they perform work in the categories of scheduling and decision-making.

In previous studies, scholars concluded that job autonomy had significant impacts on employees. For instance, job autonomy affected employee burnout (Glass & Mcknight, 1996; Posig & Kickul, 2003) and turnover intention (Kim & Stoner, 2008). Kim, Jeong, and Ko(2013) interviewed Korean music therapists, and also found that the lack of job autonomy contributed to turnover. And in different professional groups a linear relationship was identified between perceived job autonomy and job satisfaction (Busis et al., 2017; Jerkovic-Cosic et al., 2012; Katerndahl et al., 2009; Scheurer et al., 2009). In addition, job autonomy was not only a momentous job characteristic providing an opportunity for employees to seek out various combinations of work methods (Wang & Cheng, 2010), but also an increased job autonomy allowed employees to try a better solution to finish their tasks (Shalley & Gilson, 2004). At organizational level, Hall et al. (1970) stressed that only organizational identification through showing a positive association between job autonomy and organizational identification.

Job autonomy was also well studied in healthcare researches. Taking nursing profession as example, job autonomy was assessed as the most important job component among nurses (Buchan 1999; Finn 2001) and as one of the most important factors contributing to nurses' job satisfaction (Stamps and Piedmonte 1986; Van der Heijden et al. 2010), work engagement (Bargagliotti 2012), and professional development (Hart and Rotem 1995). Nurses highly satisfied with their job generally attributed this satisfaction to the high job autonomy they have (Riisgaard et al.,2016), and working outside a hospital setting might lead to higher job satisfaction, primarily because of higher experienced job autonomy (McCourt et al., 2014a, 2014b; Pron, 2013). De Jonge (1998) suggested that job autonomy is important since it protected healthcare professionals against somatic complaints, psychological distress and burnout; and a higher sense of job autonomy experienced by healthcare professionals was shown to have a positive impact on the professional-patient relationship (Walsh and Devane, 2012). Medical professionals working at diverse types of hospitals experienced different degrees of job

autonomy-self-employed (mostly in peripheral hospitals) obstetricians in the Netherlands appear a higher level of job-autonomy compared to those employed by hospitals (mostly in academic hospitals) (Hugen, 2016).

In this study, job autonomy was measured by a Chinese translation of the Job Content Questionnaire by Karasek et al. (1998), following Castanheira and Chambel (2010). The scale consisted of four items (Table 49) measuring doctors' job autonomy to make job-related decisions. In addition, the reversed item-In my current job, someone else decides both what I do and how I do it-was deleted.

#### ***2.5.4 Job Involvement***

The concept of job involvement was firstly proposed by Lodahl and Kejner (1965) based on two concepts-self-investments (Allport, 1945) and the gravity of life interests (Dubin & Goldman, 1972). Job involvement was defined as the 'degree to which a person is identified psychologically with his work or the importance of work in his total self image' Lodahl and Kejner (1965), and it addressed the belief of the importance of a job to an individual's own life or to the extent of the individual's willingness to devote him/herself to a job (Robbins & Judge, 2011).

Job involvement played a significant role in employees' daily lives (Sonnentag & Krueger, 2006). Some studies suggested that job involvement was closely associated with organizational identification. Hall et al. (1970) proposed that job involvement was one of the internal factors affecting organizational identification. Efraty et al. (1991) considered organizational identification an increasing function of job involvement. And Himmetoglu (1978) indicated that less involved employees experience low organizational identification and apparently perform job alienation. Since job involvement was highly associated with self-esteem (Allport 1947, French & Kahn 1962, Siegel 1969, Chen et al. 2004) and the degree of work participation (March & Simon 1975), it was expected that the higher job involvement of an employee, the higher possibility that the organization would be seen as a part of the staff's identity. In the healthcare area, study validated that nurses with higher job involvement might experience a greater commitment to

engage in patient-oriented activities, including role prescribed patient service and extra-role patient service (Hsu, Chang, Huang, & Chiang, 2011).

As an individual's degree of emotional involvement in work could significantly influence the quality of one's entire life experience, job involvement was a vital element for most of people (Levinson, 1976). Job involvement suggested a positive and relatively complete state of engagement of core categories of the self in the job (Brown 1996), as well as might weaken the impacts of negative work conditions in service jobs while amplifying the effects of positive ones (Dimitriadis, 2007; Frone & Major, 1988). In service firms, the level of job involvement had strong impacts on shaping employees' performance and job satisfaction as employees worked under high pressure and dealt with work stress and burnout (Chiu & Tsai, 2006). Scholars also verified the significant correlation between job involvement and job satisfaction (e.g. Baba & Jamal, 1991; Paterson & O'Driscoll, 1990) and turnover intention (e.g. Baba & Jamal, 1991; Huselid & Day, 1991).

In this study, job involvement was measured by a 6-item scale (Table 50) developed by Kanungo, R. N. (1982). The original scale had ten items, and I selected six of them which were suitable to be interpreted into Chinese.

### ***2.5.5 Patient Safety Priority***

Patient safety priority refers to medical professionals' expectations and daily behaviors regarding the balance maintained among work pace, workload, and pressure for patient safety (Zohar, D. 2000). Their professional professionalization and autonomy, their belief that their profession is regulated by its members, and their belief in the importance of service their profession provides define their safety priorities (Scott & Backman, 1990). Previous research has demonstrated that a positive safety climate consists of both adherence to safety protocols and constructive responses to errors (Hofmann & Mark, 2006). Katz-Navon et al. (2009) further disentangle the safety climate dimensions of priority of safety and psychological safety, as both may have unique and contrasting effects on the number of reported treatment errors. A high safety priority encourages employees

to cope with problems. Little/too much safety information, since the additional coping efforts are rewarded within the unit (Baer & Frese, 2003).

Team priority of safety is significant in developing positive safety outcomes (Hofmann & Mark, 2006). It negatively relates to the number of reported treatment errors since team members who prioritize existing safety protocols are more advertent of safety procedures as execute work (Katz-Navon et al., 2005; Naveh et al., 2005). As team members are willing to report and learn from their mistakes, team priority of safety could reflect a more genuine concern for existing safety protocols (Hoffman & Mark, 2006). In a team, scholars also pay attention to the impact of priority of safety on the relationships between leadership styles and safety performance. Zohar (2003) and Hofmann, Morgeson, and Gerras (2003) found that safety priority moderated this relationship that diverse leadership styles affected safety performance differently, depending on the degree of safety of priority.

In this study, patient safety priority was measured by a 7-item scale (see Table 51) drew on Zohar (2000).

### ***2.5.6 Learning Orientation***

A learning orientation is characterised by a desire to increase one's competence by developing new skills and mastering new situations (Farr & Ringenbach, 1993). Seeing from different perspectives, scholars have diversified views on learning orientation. It could be viewed as an important organizational capability built upon the learning agility of interactions among employees within an organization (Schlosser and McNaughton, 2007), as well as the values of an organization values that affected its tendency toward knowledge creation and implementation (Sinkula et al., 1997). Strategic management scholars suggested that learning orientation be a unique type of managerial philosophy and strategic orientation, and defined it as the process where knowledge and information were communicated and disseminated across the organization, which encouraged employees to enhance their abilities and skills (Duncan and Weiss, 1978). Similarly, Hennig-Thurau and Thurau (2003) viewed learning orientation as an aspiration of the employees to expand their

knowledge, skills and abilities in a steady and continuous way. And Hurley and Hult (1998) suggested that learning orientation be conceived as composed of four factors: commitment to learning, shared vision, open-mindedness, and intraorganizational knowledge sharing.

Many studies validated the importance of staffs' learning orientation. Bunderson and Sutcliffe (2002a), in an in-depth study of four teams, invoked the learning orientation construct to study observed differences in innovative behavior. Learning orientation affected what kind of information was acquired (Dixon 1992) and how it was translated (Argyris and Schon 1978), assessed (Sinkula et al. 1997), and shared (Moorman and Miner 1998). Research also showed that skills which were beneficial in the long term could be developed by service employees with a high learning orientation, and these employees would spend more time with difficult customers, even at the expense of abandoning short-term results (Singh and Koshy, 2012).

Learning orientation in this study was measured by a 5-item scale (see Table 52) adopted in this study of Farr & Ringenbach (1993)

### ***2.5.7 Prosocial Motivation***

Prosocial motivation is the desire to expend effort to benefit other people (Batson 1998). It can refer to, but should not necessarily be equal to, altruism; it involves a concern for other people without expense of self-interest (De Dreu, 2006). Prosocial behavior, transferred from prosocial motivation, did not concern the underlying motive, and it could be resulted from having an altruistic disposition and attaining external rewards such as adherence to norms, guilt avoidance and positive self-rewards (Grant & Berg 2012). Prosocial motivation differed from intrinsic motivation in three categories: self-regulation, goal directedness, and temporal focus (Grant, 2008). A lot of studies have proved that prosocial motivation had significant impact on individuals. Psychological study indicated that high prosocial motivated people were driven to generate ideas useful to future generations (McAdams & de St. Aubin, 1992). As being prosocially motivated, individuals'

desires to benefit others guided them to pay increased attention to others' interests so that they could identify ways to offer help effectively (De Dreu et al., 2000). Furthermore, prosocially motivated people paid close attention to others' goals and preferences (Meglino & Korsgaard, 2004). Prosocial motivation could thus be interpreted as a psychological state in which people focus on the objective of benefiting others (Batson, 1998; De Dreu, 2006; Grant, 2007). As a noble profession, doctors perform prosocial behavior day after day at work. In China, doctors have been facing many difficulties and challenges such as relatively low income, unfair public media coverage, and personal safety threats from patients. It is not hard to imagine when a doctor with a lofty heart helps patients, but in exchange for it is the evil consequences mentioned before, how can the doctor continue his profession? Thus, it is necessary to understand and study the current state of prosocial motivation of Chinese doctors, and how their prosocial motivation is affected. In this study, I adopted Grant's scale (Grant, 2008) to measure prosocial motivation. Five items were included in the scale (Table 53)

### ***2.5.8 Intrinsic Motivation***

Initially, psychologists defined intrinsic motivation, and they provided evidence, in the educational field, for a crowding-out effect of intrinsic motivation by extrinsic motivation (EM) (Deci 1971; Deci et al. 1999). Intrinsic motivation is the desire to make effort based on interest in and enjoyment of the work itself (Amabile, Hill, Hennessey, & Tighe, 1994; Gagne ' & Deci, 2005; Ryan & Deci, 2000), and it is typically compared with extrinsic motivation—the desire to make effort to obtain outcomes external to the work itself (Amabile, 1993; Brief & Aldag, 1977). Subsequent studies revealed a negative correlation between intrinsic motivation and extrinsic motivation that supported the hypothesis of the motivation crowding-out (Gibbons 1998; Frey 1997; Bénabou & Tirole 2003; Harvey & James 2005; Bowles 2008). A lot of studies testified that the motivation-the desire to make an effort-can derive from diverse sources (e.g., Herzberg, 1966; Porter & Lawler, 1968; Staw, 1977). In order to motivate persistence, performance, and productivity, both scholars and probationers at early of the 20<sup>th</sup> century believed that external controls, incentives, punishments, and rewards were indispensable (see Heath, 1999; Steers, Mowday, & Shapiro, 2004). In the recent years, scholars began to propose that work

can be inherently interesting and enjoyable (e.g., Herzberg, 1966; McGregor, 1960) rather than assuming that employees dislike work. This view was developed in and represented by theories of self-determination and intrinsic motivation (e.g., Deci, 1975; Deci & Ryan, 1985).

Studies also suggested that intrinsic motivation correlated with higher degree of creativity (e.g., Amabile, 1985; Amabile, Hill, Hennessey, & Tighe, 1994). Scholars demonstrated that intrinsic motivation strengthened creativity by heightening positive affect, cognitive flexibility, risk taking, and persistence (Shalley, Zhou, & Oldham, 2004). As employees were motivated intrinsically, not only did they show curiosities, generate a desire to learn, and seek their interests (Ryan & Deci, 2000), but also they engaged in exploration (Ryan & Deci, 2000), and become psychologically absorbed in the process of working on their tasks (Amabile et al., 1994; Gagne' & Deci, 2005), and then develop novel ideas (Csikszentmihalyi, 1996). Being affected by intrinsic motivation, employees would be able to determine how to elaborate the novel ideas in beneficial ways. (Boland & Tenkasi, 1995; Dougherty, 1992). From the perspective of self-determination theory, intrinsic motivation stimulated employees to insist on challenging, complex, unfamiliar tasks by fostering confidence and interest (Gagne' & Deci, 2005), as well as to more effectively focus on these tasks (e.g., Amabile, 1996). And from the perspective of emotion theories, intrinsic motivation enhanced employees' psychological engagement and builds energy by fostering positive affect that encourage them to be willing and be able to work on their tasks (e.g., Fredrickson, 1998). Studies in healthcare area also identified the importance of intrinsic motivation, for example, intrinsic motivations had positive impacts on both work engagement and quality of care (Benware & Deci 1984; Janus 2010). Intrinsic motivation in this study was measured by Grant's 4-item scale (Grant, 2008), and the scale is shown in Table 54.

### ***2.5.9 Professional Activities***

During career life, doctors and nurses more or less participate in professional activities, such as continue educational activities, academic conferences, and healthcare reform meetings held by government. These activities provide

opportunities for professionals to learn new knowledge and skills, to present academic and practical achievements, and to speak up for the development of their profession, etc.

Scholars concentrated attention on the impacts of professional activities on the professionals. Take Entrustable professional activities (EPAs) as a typical example, it described the core work constituting a discipline's specific professionalization (Cate, 2013). They were critical, observable, measurable tasks and responsibilities that practicing specialists could be trusted to perform proficiently, consistently, and unsupervised by the end of their training. EPAs provided the framework for faculty to perform meaningful assessment of trainees. Pediatrics, internal medicine, psychiatry, and family medicine were among the medical disciplines that had developed or were developing EPAs (Boyce, 2011; Carraccio 2010; Frank 2010).

Regarding the hosting of professional activities, doctor and nurse Associations play an important role in organizing professional activities for doctors and nurses. Medical professionals were expected to actively participate the activities, but there was a long way to go between the reality and the ideals. Deleskey's study (2003) showed that 73% of 169 nurses in her study were members of at least one professional organizations such as nurse association, but only 31% of them take an active part in the activities of the organizations. Salemi (2010) also indicated that most Iranian nurses have no active communication with nursing associations and their contribution was simply confined (if at all) to their mere membership of the association(s). Similar phenomenon also happens in China. Almost only associate-chief doctors and chief doctors participate in and play an important role in the academic professional activities (especially high-end academic forum), in which the resident doctors and attending doctors, however, are not seen normally. Booth (1999), Torabi et al. (1993), Rapp & Collins (1999) and Lamb-Merchanick & Block (1984) mentioned lack of time, distance from the work environment, lack of support from the hospital's side for members to take active parts in the associations and also family roles of the nurses, as reasons for lack of membership or lack of active participation in nursing professional associations. In this study, I focus on developing a scale to measure the professional academics of doctors. The scale was designed by my supervisor, prof. Carlos Lo, and it has fifteen items (see Table 55)



with three expected dimensions, including academic activity, activities held by doctor association, and expostulation activities. Exploratory Factor Analysis (EFA) were made to examine the scale.

## **2.6 Hypotheses**

### ***2.6.1 Theoretical Frameworks***

The research model development of the quantitative study is based upon the integrative model of career motivation proposed by London (1983). The term career motivation encompasses the terms work motivation and managerial motivation associated with a wide range of career decisions and behaviors. These contain searching for and accepting a job, deciding to stay with an organization, revising one's career plans, seeking training and new job experience, and setting and trying to accomplish career goals. Career motivation is defined as the set of individual characteristics and associated career decisions and behaviors that reflect the person's career identity insight into factors affecting his or her career, and resilience in the face of unfavorable career conditions.

Career motivation is understood as the relationships among individual characteristics, career decisions and behaviors, and situational conditions. A number of scholars have emphasized the needed for theoretical models linking these variables over time (Brousseau, 1983; Dubin, 1976; Raynor, 1978). Career motivation is conceptualized as a three dimensional construct internal to the individual characteristics, the situational variables, and the career decisions and behaviors.

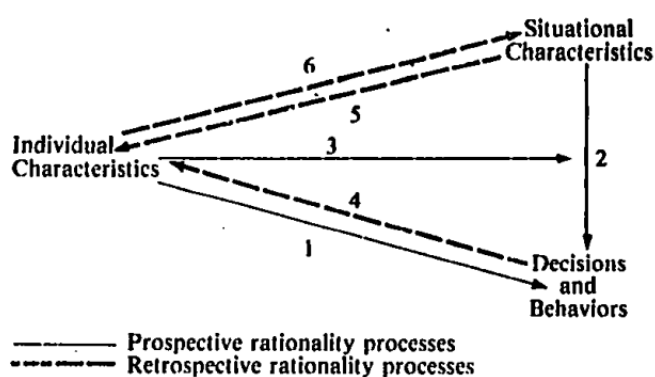
The individual characteristics dimensions are needs, interests, and personality variables potentially relevant to a person's career. (Bray, 1982; Bray, Campbell, & Grant, 1974; Murray, 1983). These dimensions are clustered into three domains: career identity, career insight, and career resilience. Career identity reflects the direction of career motivation; career insight and resilience reflect the arousal strength, and persistence of career motivation. In terms of situational variable, many

elements of a person's work environment are likely to be crucial to career motivation. These include staffing institutions and procedures, leadership style, job design, group cohesiveness, career development programs, and the compensation system. Career decisions and behaviors include generating alternative courses of action, seeking information about them, evaluating the information, setting goals, making decisions to behave in various ways, and career out the decisions.

There are two classical models to view career motivation. One is known as prospective rationality (O' Reilly & Caldwell, 1981), suggesting that career motivation affects what will happen, or what a person hopes will happen in the future, and career decisions and behaviors are guided by the outcomes that are desired and one's expectations for attaining them. The other is recognized as retrospective rationality (Salancik & Pfeffer, 1978) that career decisions, behavior, and situational conditions affect how one interprets the environment and one's psychological state.

According to the above two models, London (1983) proposed an integrative model (Figure 1). The model demonstrates that career motivation is a multidimensional, dynamic process. Six linkages are incorporated into the model. Linkages 1,2, and 3 describe prospective rationality processes. Linkage 1 refers to the direct effects of individual characteristics on decisions and behaviors, as when a person acts in a certain way almost regardless of the situation. Linkage 2 represents the direct impact of the situation on career decisions and behaviors. And linkage 3 represents the interactions that may arise between the individual and the situation as they affect career decisions and behaviors. Linkage 4, 5, and 6 describe retrospective rationality processes. Linkage 4 deals with how past decisions and behaviors affect individual characteristics. Linkage 5 deals with how the current situation affects individual characteristics. And linkage 6 is the process of interpreting the situation.

## An Interactive Model of Career Motivation Components



**Figure 1 Integrative Model**

Moving to this study, the focus is kept on the mechanisms through which professional commitment affects individual's intention to leave a profession. Six key variables are comprised, including prosocial motivation, intrinsic motivation, learning orientation, patient safety priority, professional commitment, intention to leave the profession. Basing on London's model (1983), I firstly categorize the six variables.

As mentioned before, the component of individual characteristics contains three dimensions, including needs, interests, and personality variables related to a person's career. Regarding personality, career identity is one of its fundamental domains, which reflects the direction of career motivation (London 1983). Speaking for doctors in this study, their identity is a professional who are responsible for helping patients by saving their life from diseases, and this identity demonstrates strong prosocial motivated attribute. Doctors thus are usually seen as a kind of people with high prosocial personality. Hence prosocial motivation here is classified into one of doctors' characteristics.

London (1983) suggested that the desire for upward mobility is a subdomain of career identity which is a domain of the personality dimension. This desire includes a key element which is the need for advancement. For doctors, learning orientation is the fundamental precondition to meet doctor's need for promotion since doctors without this orientation are may not learn new knowledge and skills, as a result, they will have no chance for promotion. So here the learning orientation is seen as one of doctors' individual characteristics.

Considering situational characteristics component, it refers to the elements of employee's work environment such as staffing institutions and procedures. For patient safety priority which describes the environment of patient safety climate that doctors are under, it is established by the rules and regulations made by department and hospital. Therefore, patient safety priority is labeled as a situational characteristic. London (1983) also indicated that intrinsic value of a job was a type of situational characteristics. So intrinsic motivation in this study is described as a situational characteristic.

Regarding the component of career decisions and behaviors, London (1983) stated that demonstrating organizational commitment was one aspect of this component. In this study, organizational commitment is replaced by professional commitment. Considering another variable which is intention to leave the profession, it describes a doctor's decision to plan to leave in this study. As a result, both professional commitment and intention to leave the profession are categorized into career decisions and behaviors. The classification of the variables is shown in Table 1.

**Table 1 The Classification Of The Variables**

<b>Variables</b>	<b>Classification</b>
Prosocial Motivation	Individual Characteristics
Learning Orientation	Individual Characteristics
Professional Commitment	Decisions & Behaviors
Intention to Leave Profession	Decisions & Behaviors
Patient Safety Priority	Situational Characteristics
Intrinsic Motivation	Situational Characteristics

### ***2.6.2 Hypothesizes Development***

From the perspective of prospective rationality process, individual characteristics can affect individuals' decisions and behaviors. Here I assume that a doctor's prosocial personality negatively affects his/her decision making to plan to leave the doctor profession. Specifically, providing help for patients is an effective way to

achieve a doctor's desire to benefit patients, which usually is also the original intention for an individual to decide to be a doctor-the Chinese culture says "if I couldn't be a good prime minister (in feudal China), I should become a good doctor". A declining prosocial motivation means a doctor is losing the desire to help patients, and such a doctor, compared with those with high prosocial motivation, may be more possible and easier to make a decision to plan to leave the profession and to take the actual leaving behavior, since the doctor profession no longer meets his/her prosocial desire. Hence, I hypothesize that:

***Hypothesis 1: Prosocial motivation has negative impact on intention to leave profession***

Following hypothesis 1, doctors' prosocial motivation may directly affect their intention to leave the profession, it is also necessary to explore the mechanism through which prosocial motivation affects the leave intention. Professional commitment, as a key predictor of intention, has been widely studied. A number of studies have proved that professional commitment has a negative impact on intention to leave profession (Lu, Lin, Wu, Hsieh, & Chang, 2002; Lu, Lin, Wu, Hsieh, & Chang, 2002; Blau, & Lunz, 1998). These studies, however, merely considered professional commitment the predictor.

In my study, I consider professional commitment a mediator. From the perspective of rationality process in motivation theory (London 1983), professional commitment, as a type of decision and behaviors, is affected by a individual characteristic - prosocial motivation in this study. More precisely, prosocial motivation has existed before an individual becomes a doctor. After being a doctor, the individual will recognize and experience that working as a doctor is an effective and proper way to achieve his/her high prosocial desire, which not only lead him/her more emotionally attached to the profession since he/she want to do so, but also produce a sense of obligation to the proceession in his/her heart that he/she should do so (Meyer et al. 1993). In other words, higher prosocial motivation will lead the doctor to make the decision to more commit the profession in terms of affective commitment and normative commitment. Then such high professional commitments keep the individual stay in the doctor profession rather than generate

a leave intention. As result, the following hypothesizes are proposed:

***Hypothesis2: Affective commitment mediates the negative relationship between prosocial motivation and intention to leave profession***

***Hypothesis3: Normative commitment mediates the negative relationship between prosocial motivation and intention to leave profession***

Thinking further, doctor's prosocial motivation can also affect his/her affective and normative professional commitments through a mediating way in which learning orientation plays a mediator role. First, doctor is a profession that needs to learn new knowledge and new skills throughout the whole career life to counter the growing and changing health and disease issues. In order to solve the issues, doctors with higher prosocial motivation, compared with those with lower prosocial motivation, will be more willing to learn new knowledge and skills, or say show higher learning orientation, because as obtaining more knowledge and skills a doctor could be able to better help patient and meet the prosocial desire. As a result, the doctors would be more emotionally attached to the doctor profession and more believe he/she is obligated to the profession to help patients. Basing on this discussion, I hypothesize that:

***Hypothesis 4: Learning orientation mediates the positive relationship between prosocial motivation and affective professional commitment***

***Hypothesis 5: Learning orientation mediates the positive relationship between prosocial motivation and normative professional commitment***

As discussed before, prosocial motivation is positively associated with affective commitment and normative professional commitment. Basing on London's model(1983), there is an interactive relation between individual characteristics and situational characteristics. Focusing on the possible positive relationship between prosocial motivation (the individual characteristic) and professional commitment (decisions and behaviors characteristic), I assume that patient safety priority (situational characteristic) interacts with prosocial motivation in predicting

professional commitment.

Specifically, the essence of doctor is curing patients' diseases. In practice, doctors often face a conflict between keeping patient safety and reaching the ideal therapeutic effect. A typical example is making a treatment plan for a patient with serious illness in China. A doctor can make conservative treatment plans which can one hundred percent ensure the safety of the patients but may not cure him/her, or the doctor can develop a radical treatment plan by which the patient might be cured but have to take safety risks (e.g. Doing a difficult operation that may result in patient death). It is necessary to note that the current doctor-patient relationship is at a relatively tense level in China - once patient safety problems occur, doctors may face threats of personal safety from patients and their family members. Under such a situation, hospitals in China have made either formal or informal rules or regulations which form a working environment leading doctors to keep patient safety as the first objective rather than to cure the patient with serious diseases by taking risks. Under such a working environment, doctors could not further emotionally commit the doctor profession and could not further feel obligation to the profession since they cannot truly help the patients-curing patients. In contrast, doctors, who work in an environment allowing them to take risks to focus on the objective of curing patients, could be able to meet their prosocial desires and then will be more emotionally commit to and arise higher obligation to the doctor profession. To sum up, I hypothesize that patient safety priority as a situational characteristic interacts with prosocial motivation in predicting professional commitment:

***Hypothesis 6: Patient safety priority moderates the positive relationship between prosocial motivation and affective professional commitment, such that the positive relationship is weaker when the patient safety priority is stronger***

***Hypothesis 7: Patient safety priority moderates the positive relationship between prosocial motivation and normative professional commitment, such that the positive relationship is weaker when the patient safety priority is stronger***

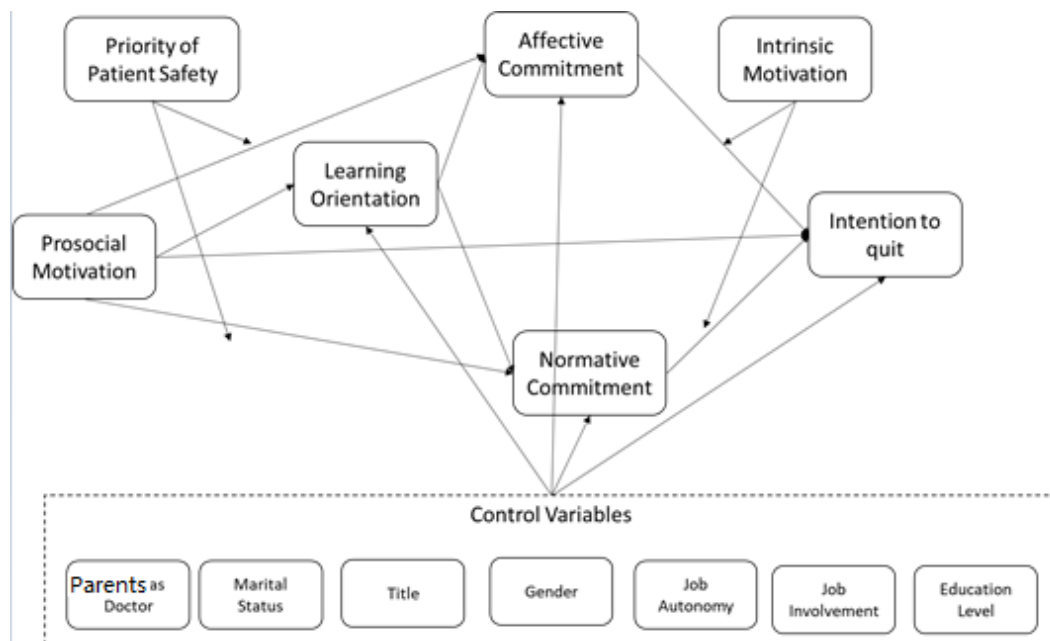
Intrinsic motivation refers to the desire to make an effort based on interest in and

enjoyment of the work itself (Amabile, Hill, Hennessey, & Tighe, 1994; Gagne ' & Deci, 2005; Ryan & Deci, 2000). Following hypothesizes 3 and 4 that doctors' affective and normative professional commitments may have negative impact on their intention to leave the profession, the degree of such negative relationship may depend on the degrees of doctors' intrinsic motivation for their work. Specifically, as individual doctors have a high degree of desire to make an effort based on their interest in and enjoyment of their work, it is conceivable that they are more likely to continue staying in doctor profession to pursue professional advancement. By contrast, doctors are more likely to leave the doctor profession as they have low interests in their work. In this regard, I expect intrinsic motivation will enhance the negative impact of doctors' affective and normative commitments on their intention to leave the profession. Thus, I have the following hypothesizes:

***Hypothesis 8: Intrinsic motivation moderates the relationship between affective commitment and intention to leave, such that the negative relationship is stronger when the intrinsic motivation is stronger***

***Hypothesis 9: Intrinsic motivation moderates the relationship between normative commitment and intention to leave profession, such that the negative relationship is stronger when the intrinsic motivation is stronger***

The whole research model is shown in Figure 2.



**Figure 2 Research Model**



## **CHAPTER 3 - METHODOLOGY**

### **3.3 Research Methodology**

#### ***3.3.1 Quantitative Research Methodology-Quantitative Study***

The exploration of the mechanism through which doctors' intention to leave the profession is affected is one of the objectives of this research. Employing a quantitative research methodology and adopting a quantitative method is appropriate to achieve this objective. The quantitative approach gets two meaningful advantages. Firstly, it can be carried out and assessed quickly. The samples of this research comprised more than two thousand medical doctors, a survey method, obviously, is the most efficient way to collect data from them, and the data can be quickly analyzed by statistical softwares.

For this research, it is also expected to explore the difference between doctors in Beijing and outside Beijing, and between doctors in infectious hospitals and general hospitals. Then the second advantage of the quantitative method is apparent that the comparisons are facilitated by numeric data that are acquired by this method between groups or organizations, as well as allowing determination of the degree of disagreement or agreement between interviewees (Yauch and Steudel, 2003). It is also notable that legitimate quantitative data's advantage, that is data gathered strictly, applying the suitable methods and analyzed critically, is in its reliability (ACAPS, 2012).

#### ***3.3.2 Qualitative Research Methodology-Qualitative Study***

Patton (2002) emphasized that the choice of methodology required the researcher and then adopted the method which was the most appropriate to acquire the needed information. In a qualitative study, the role of the researcher was as part of data collection tool and that necessitates the identification of personal values, assumptions and biases. This was different from a quantitative research process in

which the values of researchers were omitted from the study and which depended on the reporting of ‘facts’ from the evidence gathered in the study (Creswell, 1994). I adopted a qualitative methodology in this study since it allowed me to study doctor professionalization in China in rich detail and great depth (Hitchcock & Hughes, 1989; Patton, 2002). Most important of all, inductive logic would prevail in this study in which ‘categories would derive from the informants-doctors, rather than are identified a priori by the researcher’ (Creswell, 1994, p. 48). As a result, data collection was not restricted to the pre-determined categories of analysis, guaranteeing that the emerging themes were representative of respondents’ experiences and interpretations (Coll & Chapman 2000). In this study, the context-bound information, gathered from the respondents, assisted me to develop patterns or theories to understand and explain the phenomenon of doctor professionalization in China. By contrast, the process might not be readily realized by quantitative perspective.

Regarding data collection, predetermined open ended questions were presented to the interviewees through semi structured interviews, including focus group interviews and focus group interviews. This data collection method fitted with the adoption of a qualitative methodology. Wolcott (1998) indicated the significance of subjective experience was characterized by great depth. Because quantitative data collection methods demanded the researcher to use a standardized approach by which the experiences of interviewees were constrained to certain pre-determined response constructs or categories, it was considered less useful than a qualitative methodology, for the main purpose of this research-comprehensively and deeply deep understanding the progress of doctor professionalization in China. Although semi-structured interview method consisted of series of questions, it allowed variation and free expression by interviewees and minimized predetermined responses. In this study, the information presented in the collected data were descriptive, spontaneous and personal text information based on the experiences of interviewees themselves. Consequently, if responses presented by interviewees were not directly related to the asked questions but provided some context and insight into the doctor professionalization in China, I would include these responses.

## **3.4 Data Collection Methods**

### ***3.4.1 Data Collection Method of Quantitative Research***

#### ***3.4.1.1 Construct Operationalization***

I adopted the survey method to test the research model. A survey instrument was designed by identifying appropriate measures from a thorough literature review. Some modifications were made to the existing scales to make them more suitable in the context of hospital retention. Since the target organizations are hospitals in China, the questionnaire was translated into Chinese and a panel of experts in the Chinese hospital examined the face validity of the items. All of the constructs in the model are operationalized as reflective constructs. The measurement scales in this study are based on prior studies and are included in appendix 3. The research model has one dependent variable—i.e., intention to leave profession, one independent variable—i.e., prosocial motivation, and three mediators—i.e., learning orientation, affective commitment and normative commitment, as well as two moderators—i.e., patient safety priority and intrinsic motivation. The definitions of measurements of the variables are shown as follows.

#### **Affective commitment**

This construct was defined as the perceived extent to which doctors were identified with, involved in and emotional attached to the profession. It was measured with a five-item reflective scale, which was derived from the six-item scale used by Bagraim (2003). We used five of the items that were relevant to the hospital context.

#### **Normative commitment**

This was adapted from Bagraim (2003) as a six-item reflective scale. It refers to a doctor's commitment based on a sense of obligation to the profession.

#### **Intention to leave profession**

This refers to a doctor's subjective assessment that they will be leaving their current profession in the near future. A three-item reflective scale was derived from the scale used by Carmeli & Gefen (2005).

**Prosocial motivation**

This was adapted from Grant (2008) as a four-item reflective scale. It refers to a doctor's desire to expend effort to benefit other people, originally defined by Batson (1998).

**Intrinsic motivation**

It refers to a doctor's desire to expend effort based on interest in and enjoyment of the work itself Amabile (1993). A four-item reflective scale was used, which was adapted from Adam (2008).

**Learning orientation**

Following Bunderson & Sutcliffe (2003), this construct was measured in terms of the perceived extent to which a doctor desires for learning knowledge and skills, using a five-item reflective scale. And it was defined in Farr et al. (1993) as a desire to increase one's competence by developing new skills and mastering new situations.

**Patient safety priority**

This construct refers to doctor's expectations and daily behaviors regarding the balance maintained among workplace, workload, and pressures for patient safety. It was measured with a five-item reflective scale, which was derived from the six-item scale used by Zohar (2000). We used five of the items that were relevant to the hospital context.

**Job Autonomy**

It was defined as "the extent to which employees have a major say in scheduling their work, selecting the equipment they will use, and deciding on procedures to be followed" by Hackman & Lawler (1971). It was measured with a three-item reflective scale, which was derived from the four-item scale used by Hackman & Lawler (1971).

**Job Involvement**

It refers to the degree to which one is cognitively preoccupied with, engaged in, and concerned with one's present job. A six-item reflective scale was used, which was

adapted from Kanungo (1982).

### **Control Variables**

The following seven variables are the control variables in the quantitative research,

#### **(1) Parents as Doctor**

It refers to whether a doctor's father or mother is a doctor, two options are provided, including YES and NO.

#### **(2) Marital Status**

Just like the literal meaning, this variable measures a doctor's marital status, and three options are provided, including married or living as married, single, and others(separated/divorced/widowed).

#### **(3) Title**

Title refers to a doctor's professional title. In China, a doctor's profession title is divided into four levels (from high to low), including chief physician, associate chief physician, attending physician, and resident.

#### **(4) Gender**

A doctor's gender is measured, and two options are provided, including male and female.

#### **(5) Job Autonomy**

It was defined as "the extent to which employees have a major say in scheduling their work, selecting the equipment they will use, and deciding on procedures to be followed" (Hackman & Lawler 1971). It was measured with a four-item reflective scale, which was derived from the four-item scale used by Hackman & Lawler (1971).

#### **(6) Job Involvement**

It was defined as "The degree to which one is cognitively preoccupied with,

engaged in, and concerned with one's present job" (Kanungo, R. N. (1982). It was measured with a six-item reflective scale, which was derived from the four-item scale used by Kanungo, R. N. (1982).

#### **(7) Education Level**

A doctor's education level is measured by five options, including postsecondary, bachelor, master, doctorate, post-doctorate, others.

#### ***3.4.1.2 Sampling Method***

This survey adopts random sampling method to collect data. Under the support of Chinese Hospital Association, 24 public general hospitals all over China were randomly selected from 200 member units of the association, and around 80 doctors at four different professional ranks in each hospital were randomly selected to fill the questionnaire.

The selection of interviewees were based on the career path of a doctor in China which is divided into four stages from the perspective of professional rank, including resident doctor, attending doctor, associate chief doctor, and chief doctor. The professional status and experience that a doctor perceives at different stages has significant impact on their perceptions of the profession. Selecting doctor from all the four ranks guarantees that we can understand their whole career life and their perceptions of the profession at different stages. In a word, collecting data from doctors at all four professional ranks are necessary.

#### ***3.4.1.3 Data Collection Steps***

The data collection followed the following eight steps:

Step 1: between May and June of 2015, with the help of YOUAN Union, I firstly communicated with the hospital presidents of the 24 hospitals to introduce the project to them and get their permissions to implement the survey.

Step 2: After getting permissions from all hospital presidents, I delivered 100 hardcopies of doctor questionnaire to every of the 24 hospitals. and each hospital had a person in charge of distributing and collecting the questionnaires. By the end of June 30<sup>th</sup> 2015, all hospitals had received the questionnaires.

Step 3: At each hospital, the person in charge randomly selected 80 doctors from all four professional ranks. This work was done by the end of 6<sup>th</sup> July 2015.

Step 4: The data collection (filling the questionnaire) formally started at the beginning of the 7<sup>th</sup> July 2015, and each hospital had 14 days to finish. The person in charge distributed a questionnaire hardcopy with an opaque envelope to each selected doctor. The doctors filled the questionnaire on the same day when they received it.

Step 5: Each doctor spent about 15 minutes to finish the questionnaire anonymously. After filling the questionnaire, they put the finished questionnaire into the given envelop and personally sent it to the person in charge.

Step 6: By the end of 21<sup>th</sup> July 2015, all persons in charge of the 24 hospitals finished the data collection work, and more than 2300 doctor questionnaires were collected. Then the hardcopies of the questionnaires were delivered to Beijing YOUAN hospital by SF express.

Step 7. Three postgraduate students of the president of Beijing YOUAN hospital together with me started inputting the data into SPSS document, and each of us was in charge of around 550 doctor questionnaires. All missing and unclear values were left as blank cells. This work began on 30<sup>th</sup> July 2015 and ended on 15<sup>th</sup> Aug 2015.

Step 8. After inputting the data, each of the students and I spent about one week to reciprocally conducted a selective examination to ensure the data quality. After that, I combined all data into one SPSS document. Till 31<sup>st</sup> Aug 2015, the data collection and data input work were finished.

### ***3.4.2 Data Collection Method of Qualitative Research***

#### ***3.4.2.1 In-depth Interview approach***

Marshall and Rossman (2006) and Merriam (1998) indicated that data collection and data analysis should be a simultaneous process for a qualitative research. Rather than a mechanical or technical process, it is a process of inductive reasoning, thinking and theorizing (Taylor & Bogdan, 1998). Basing on analysis, a researcher gains a deeper understanding of what is being studied and undertakes to continually refine their interpretations. For this study, data collection was undertaken through semi-structured interviews with pre-determined questions for all interviewees (Patton, 2002). The objective of the interview questions was to explore respondents' views on and experiences of the medical profession in China

The in-depth interview is based on Grounded Theory (GT) to investigate the professionalization of Chinese doctors. Grounded Theory is a systematic methodology in the social sciences involving the discovery of theory through the analysis of collected data. The qualitative research methods employed in this study included semi-structured interview, and documentary analysis.

To a certain degree, doctor professionalization is a very practical problem that needs multi-facet sources to study. Based on multi-facet sources from a context, a proper understanding of the social development could be obtained (Bazeley, 2002). Multi-facet sources are embedded in experiential knowledge-qualitative data from interviews in this study. Not as judging the correctness of scientific knowledge, it is not easy to judge that of experiential knowledge, it, however, could provide insights for the development of theory. Bourdieu (1990) indicated that individuals construct their own social perceptions highly based on their daily life experience, depending on which, doctors and stakeholders develop their perceptions and norms for doctor profession. Through exploring the meaning behind the interviewees' perceptions based on their experience, we can more comprehensively understand the current situation of doctor professionalization in China. To get real and accurate experiential knowledge from respondents, in-depth interview is considered the most appropriate tool (Liamputtong & Ezzy, 1999).



### ***3.4.2.2 Sampling Method***

For a proper study of the doctor profession in China within the context of marketizing socialist economy, this study selects Beijing as the empirical basis for the research. Beijing was selected because doctors in the public general hospitals of this city are almost the most advanced in China, as well as their professional development. Among all first-tier Chinese cities, Beijing has been a forerunner in health care system reform, and it has a number of prestigious medical Colleges in China, for example, Peking Union Medical College with six affiliated teaching hospitals.

Different from quantitative research which often adopts random sampling to guarantee the data's reliability, this study takes purposive sampling, based on which this study would be able to achieve ecological validity-the situation in which an implemented investigation may not be generalizable to other situations (Polgar & Thomas, 2008, 39). Depending on doctors in third grade -class A hospitals and related stakeholders of hospitals and medical colleges, I can get relatively more comprehensive understanding of the current status of doctor professionalization in China. Doctor professionalization concentrate attention on doctors' professional development within the medical profession and how the profession has been developing to achieve professionalism (Freidson, 1988, 2001).

The qualitative study includes three rounds' interviews in Beijing conducted in 2015. The round one interview was conducted in five "third grade-class A" public general hospitals covered with 112 doctors in four different professional ranks groups. The second round interview was held in the same five hospitals in round one that took their stakeholders-presidents and vice presidents-as interviewees. The third round interviews were implemented in two medical colleges targeted at five college stakeholders.

Regarding doctor selection, the career path of a doctor in China is divided into four stages from the perspective of professional rank, including resident doctor,

attending doctor, associate chief doctor, and chief doctor. The professional status and experience that a doctor perceives at different stages has significant impact on their perceptions of the profession. Selecting doctor from all the four ranks guarantees that we can understand their whole career life and their perceptions of the profession at different stages. As a result, this purposive sampling of doctors in this study could be defined as theory-based that finally benefits our theory development (Polgar & Thomas, 2008, p. 38).

Stakeholders of hospitals and medical colleges are also selected as the samples in this study. In China, third-grade class-A public hospitals are seen as the most authoritative hospitals, and their presidents, from the perspective of hospital operation and management, are considered as the ones who most understand doctor profession and its development. Viewed from the point of education view, medical colleges have strong impact on shaping the development of doctor profession, including education before career life and continuing education. As a result, consulting the stakeholders of hospitals and medical colleges can help us more clearly understand the doctors, including the doctor profession's role, its current development, the existing issues that doctor profession faces, and the expectation of doctor profession.

### ***3.4.2.3 Data Collection Steps***

A total of 112 doctors in four professional ranks from five third grade public general hospitals in Beijing were chosen to be the first round samples in a series of individual interviews. Although thirty samples are enough for interviews since such a number of qualitative interview is optimal for theoretical saturation (Poglar & Thomas, 2008), I took 112 doctors as samples to ensure and improve the data reliability and validity. For stakeholder samples, five hospital presidents and five hospital vice presidents from the same five hospitals were selected as hospital stakeholders; two medical college presidents and three education directors from two medical colleges organized the medical college stakeholder samples.

Regarding the questionnaire of the interviews (see Appendix 1-Interview Agenda), it was designed based on the interview questionnaire developed by Lo and Snape (2005) in their survey of professionalization of lawyers in China. Semi-structured interview is defined as the interview adopting a certain number of open-ended questions which are designed to explore individual opinions on the constructs included in a study (Davies, et. al., 2003)

During the first round of data collection in late 2014, I did semi-structured individual and focus group in-depth interviews targeted at doctors of four professional rank groups, namely, resident doctor, attending doctor, associate chief doctor, and chief doctor, and each group contains at least 30 doctors. The 112 doctors were from five different hospitals: Beijing Youan Hospital, Beijing Chaoyang Hospital, Beijing Tiantan Hospital, Beijing Ditan Hospital, and Beijing Friendship Hospital. Each professional rank group contains twenty participants. Selecting doctors from all the four groups allowed us to capture the doctors' opinions of professionalization during different stage

of career life.

The second round and third round of in-depth interviews targeted at 10 hospital and 5 medical college stakeholders were conducted in Beijing in Jan, 2015. Different from doctor individuals, these individual stakeholders, from management and education perspectives, allow us to have a more comprehensive assessment of the Chinese doctor profession. The following paragraphs outline the design and implementation of the interviews.

In the preparation stage, the interview questionnaires for doctors and stakeholders were formulated with questions categorized into three categories and five categories, respectively, and each category contained several questions (appendix 1). In the implementation stage, a five doctors pre-test interview and one stakeholder pre-test interview were conducted firstly to access the design of the questionnaire (e.g., if interviewees could clearly understand the questions). Then, I carried out the formal interviews.

All the formal interviews were conducted in Chinese (Mandarin) and in offices provided by the hospitals, and each participant was paid with 100 to 200 Yuan based on their professional ranks. For all participants, male and female doctors accounted for 72 and 40, respectively, so it is not necessary to worry about the analysis bias resulted from gender ratio. Moving to the participants' specialties, there were 50 from internal medicine and 62 from surgery.

The implement of interview and data organization were divided into three steps. At step one, I adopted the method of sound recording to record all data since the interviews involved a large quantity of text contents. At step two, professional stenographers were recruited to transfer all the sound records into written language in the form of Word

document, and each document represented one participant and contained every word that the participant said. At the last step, I reorganized the all Word documents and eliminated the unnecessary mood words.

#### ***3.4.2.4 Coding of Qualitative Data***

After data organization, I began to construct an analysis framework following five steps. Firstly, I read each document for the first time to gain general understanding and recall the content mentioned in every document. Second, I read each document again and concluded the salient points of each document by induction method. Third, I read each document for the third time to supplemented and fulfilled the salient points concluded in step two to ensure the comprehensiveness and accuracy of the salient points. Fourth, basing on all concluded salient points, I made classification according to the themes, category and subcategory to construct the original analysis framework. Last, I repeated step three and step four to supplement and fulfill the framework that ensure the comprehensive and accuracy of the analysis framework.

All the data in Word documents were exported to QSR NVivo 10. NVivo is software supporting qualitative and mixed methods research. It is designed to help researchers organize, analyze and find insights in unstructured, or qualitative data such as interviews, open-ended survey responses, articles, social media and web content. The objective of the analysis of the interview data was to extract information and categorize the information into different themes, categories, and sub-categories, and then conduct further theoretical analysis. Each theme described a macro concept on an area derived from the data and was formed by several categories, and the sub-categories provided details on the matched categories.

For data coding, this study followed the suggestions of Bazeley and Richards (2002). The coding progress of doctor data were as the same as that of stakeholder data. Firstly, salient points inducted from interviewees' responses were organized into different subcategories based on the contents of the responses and the questions which the responses matched. Secondly, the subcategories were grouped into categories. Lastly, the categories were organized into four broad themes: Career Selection, Career Work, Profession Status, and Development of Doctor profession.

After the identification of categories, detailed analysis was conducted to identify institutional constraints, doctors and stakeholders' perceptions towards doctors' profession and professionalization in diverse facets. The salient points reflecting the same subcategories were grouped together to form data matrix. For Instance, when analyzing the difficulties and challenges faced by doctors, doctors' comments were organized based on different title groups, including resident doctor, attending doctor, associate chief doctor and chief doctor. Also the number of agreement on each comment was calculated. The coding of the analysis framework is shown in appendix 1.

# CHAPTER 4 – ANALYSIS AND FINDING OF QUANTITATIVE STUDY

## 4.1 Introduction

This chapter details the results and findings of quantitative study. Firstly, the descriptive analysis results were presented, and SPSS 22 was applied to analyze data. Secondly, the result of hypotheses test was presented, and SMART PLS 3 was adopted to analyzed data.

*Note: since the construct professional activity is newly created and not included in the quantitative research model, it was analyzed independently.*

## 4.2 Descriptive Analysis of Quantitative Data

### 4.2.1 Quantitative Data Summary

As shown in Table 2, the participating hospitals were located in China's 10 large cities, 7 autonomous regions, and 18 provinces, representing a wide range of geographical and cultural diversity. Besides, there were 579 general hospital doctors and 1374 special hospital doctors, suggesting a comprehensive coverage of hospital types.

Table 3 presents the demographics of the respondents. Of the 1953 respondents, 70.4% (n=1374) were female, 29.6% (829) were male. Regarding respondents' parents background, 18.5% of respondents' parent(s) is(are) doctors (n=362). In terms of education background, 3.4% identified as postsecondary (n=66), 38.2% identified as bachelor (n=747), 42.7% identified as master (n=833), and 15.7% identified as doctorate. Regarding marital status, 83% of interviewees were married (n=1621), 17% were not (n=332). Moving to respondents' professional title, both chief physician and

associate chief physician accounts for 20.1%, respectively (n=393 each), attending doctor takes up 33% (n=644), and the percentage of resident doctor is 23.7 (n=462); the rest 3.1% of interviewees have other titles (n=61).

**Table 2 The Locations Of The Respondents**

Type of hospitals	Frequency	Percent
General hospitals	579	29.6%
Infectious hospitals	1374	70.4%
Location of hospitals	Frequency	Percent
Beijing City	736	37.7%
Qingdao City	82	4.2%
Tianjin City	110	5.6%
Shenzhen City	80	4.1%
Nanning City	76	3.9%
Chongqing City	74	3.8%
Chengdu City	72	3.7%
Guiyang City	51	2.6%
Shenyang City	49	2.5%
Hulunbeier City	72	3.7%
Others	551	28.2%

**Table 3 The Demographics Of The Respondents**

Gender of interviewees	Frequency	Percent
Female	1124	57.6%
Male	829	42.4%
Parents are doctors	Frequency	Percent
Yes	362	18.5%
No	1591	81.5%
Marital Status	Frequency	Percent
Married	1621	83%
Not married	332	17%
Education	Frequency	Percent
Postsecondary	66	3.4%
Bachelor	747	38.2%
Master	833	42.7%
Doctorate	307	15.7%
Title	Frequency	Percent
Chief physician	393	20.1%



Associate chief physician	393	20.1%
Attending doctor	644	33%
Resident	462	23.7%
Others	61	3.1%

### ***4.2.2 Construct Reliability and Validity***

Table 4 and Table 5 presented the measurement model results, including descriptive statistics, reliability, validity, correlation, and factor loadings.

As shown in Table 4, internal construct reliability was examined via Cronbach's alpha and composite reliability. The reliability values of the constructs were all greater than the threshold of 0.7.

Convergent validity was assessed by measuring AVE (Fornell et al. 1981), whose value should be higher than 0.5. Seeing from Table 4, all the constructs had a good convergent validity. In terms of discriminant validity, I adopted two approaches to assess. First, I analyzed the indicators' cross loadings, which revealed that no indicator load was higher on the opposing endogenous constructs (Hair et al. 2012). The loadings and cross loadings were demonstrated in Table 5. Second, I used the Fornell and Larker (1981) criterion by comparing the square root of the construct's AVE with construct correlations. Viewing from Table 6, the square root of each construct's AVE was higher than the construct's correlations with other constructs, suggesting a good discriminant validity.

**Table 4 The Measurement Model Results**

Variables	Mean	S.D	Cronbach's alpha	Composite Reliability	AVE
Affective commitment	4.83	1.21	0.81	0.87	0.57
Intrinsic motivation	4.88	1.42	0.93	0.95	0.84
Intention to Leave Profession	3.12	1.38	0.80	0.88	0.70
Learning orientation	5.55	1.11	0.84	0.89	0.61
Normative commitment	4.55	1.18	0.82	0.87	0.53
Prosocial motivation	5.45	1.21	0.95	0.96	0.86
Patient safety priority	4.19	1.77	0.89	0.91	0.64
Job involvement	4.77	1.20	0.78	0.87	0.69
Job autonomy	5.63	1.36	0.87	0.90	0.61

**Table 5 The Loadings And Cross Loadings**

Construct	Items	APC	EL	Gender	ILP	IM	JA	JI	LO	NC	PSP	PM	Title	HT
APC					-								-	-
	APC1	<b>0.785</b>	0.037	0.036	0.417	0.506	0.221	0.379	0.341	0.542	0.091	0.434	0.044	0.097
	APC2	<b>0.791</b>	0.035	0	0.418	0.568	0.251	0.509	0.393	0.625	0.094	0.461	0.128	-0.05
	APC3	<b>0.744</b>	0.037	-0.031	0.524	0.488	0.198	0.345	0.229	0.457	0.162	0.328	0.055	0.067
	APC4	<b>0.629</b>	0.007	-0.069	0.329	0.433	0.246	0.396	0.224	0.569	0.085	0.358	0.096	0.007
	APC5	<b>0.801</b>	0.034	0.011	0.498	0.53	0.183	0.399	0.299	0.491	0.093	0.415	0.058	0.109
EL	EL	0.041	<b>1</b>	-0.073	0.005	0.034	0.021	-0.02	0.04	0.028	0.032	0.014	0.082	0.046
Gender	Gender	0.011	0.073	<b>1</b>	0.024	0.004	0.031	0.006	0.031	0.018	0.034	0.021	0.087	0.037
ILP	ILP 1	0.375	0.012	0.012	<b>0.839</b>	0.263	0.126	0.257	0.134	0.326	0.023	0.175	0.14	0.088
	ILP2	0.367	0.01	0.019	<b>0.835</b>	0.254	-0.11	0.248	0.152	0.307	0.026	0.196	0.142	0.095
	ILP3	-0.63	0.022	0.027	<b>0.837</b>	-0.54	0.273	0.355	0.211	0.502	0.057	0.327	0.061	0.042
IM	IM1	0.654	0.02	0.013	0.436	<b>0.911</b>	0.272	0.488	0.422	0.546	0.111	0.665	0.089	0.041

	IM2	0.57	0.046	-0.029	0.394	<b>0.912</b>	0.284	0.416	0.358	0.506	0.09	0.534	0.075	-0.02
	IM3	0.621	0.047	-0.002	0.412	<b>0.917</b>	0.291	0.507	0.442	0.555	0.108	0.66	0.086	0.037
	IM4	0.613	0.015	0.001	0.444	<b>0.915</b>	0.342	0.441	0.35	0.556	0.116	0.523	0.061	0.009
	IM4	0.613	0.015	0.001	0.444	<b>0.915</b>	0.342	0.441	0.35	0.556	0.116	0.523	0.061	0.009
JA	JA1	0.222	0.054	0.049	0.184	0.258	<b>0.799</b>	0.224	0.14	0.242	0.001	0.175	0.061	0.025
	JA2	0.254	0.006	0.038	0.199	0.276	<b>0.877</b>	0.27	0.149	0.25	0.007	0.186	0.087	0.027
	JA3	0.248	0.005	-0.007	0.181	0.28	<b>0.822</b>	0.25	0.153	0.258	0.023	0.19	0.092	0.039
	JA3	0.248	0.005	-0.007	0.181	0.28	<b>0.822</b>	0.25	0.153	0.258	0.023	0.19	0.092	0.039
JI	JI1	0.295	0.009	0.016	0.176	0.232	0.154	<b>0.704</b>	0.297	0.348	0.006	0.28	0.112	0.057
	JI2	0.385	0.035	0.011	0.229	0.363	0.219	<b>0.798</b>	0.303	0.461	0.053	0.357	0.161	0.022
	JI3	0.354	0.022	0.046	-0.2	0.387	0.255	<b>0.748</b>	0.224	0.417	0.006	0.311	0.139	0.025
	JI4	0.574	0	-0.008	0.426	0.528	0.258	<b>0.826</b>	0.392	0.562	0.073	0.437	0.176	0.088
	JI5	0.435	0.001	-0.021	0.301	0.401	0.253	<b>0.837</b>	0.289	0.46	0.002	0.357	0.134	0.082
	JI6	0.409	0.033	-0.055	0.267	0.395	0.243	<b>0.767</b>	0.294	0.481	0.002	0.361	0.143	0.052
	JI6	0.409	0.033	-0.055	0.267	0.395	0.243	<b>0.767</b>	0.294	0.481	0.002	0.361	0.143	0.052
LO	LO1	0.35	0.026	-0.007	0.236	0.361	0.142	0.311	<b>0.83</b>	0.27	0.002	0.411	0.052	0.075
	LO2	0.296	0.012	-0.011	0.161	0.306	0.11	0.308	<b>0.773</b>	0.254	0.029	0.42	0.103	0.074
	LO3	0.352	0.043	-0.041	0.155	0.392	0.163	0.369	<b>0.858</b>	0.333	0.055	0.388	0.052	0.047
	LO4	0.275	0.021	0.03	0.172	0.287	0.123	0.241	<b>0.718</b>	0.205	0.013	0.369	0.058	0.068
	LO5	0.281	0.078	-0.089	0.087	0.33	0.154	0.289	<b>0.73</b>	0.269	0.093	0.333	0.081	-0.04
	LO5	0.281	0.078	-0.089	0.087	0.33	0.154	0.289	<b>0.73</b>	0.269	0.093	0.333	0.081	-0.04
NPC	NPC1	0.598	0.005	-0.003	-0.37	0.457	0.261	0.464	0.319	<b>0.715</b>	0.023	0.442	-0.13	0.035
	NPC2	0.485	-0.02	-0.017	0.265	0.407	0.191	0.405	0.296	<b>0.699</b>	0.105	0.382	0.114	0.045
	NPC3	0.577	0.007	-0.019	0.402	0.417	0.181	0.465	0.328	<b>0.772</b>	0.045	0.38	0.137	0.052
	NPC4	0.477	-	-0.035	-	0.442	0.224	0.441	0.207	<b>0.776</b>	0.06	0.396	-	0.022
	NPC4	0.477	-	-0.035	-	0.442	0.224	0.441	0.207	<b>0.776</b>	0.06	0.396	-	0.022

			0.025		0.303								0.111	
			-		-								-	-
	NPC5	0.454	0.056	0.02	0.356	0.393	0.188	0.343	0.142	<b>0.633</b>	0.082	0.267	0.101	0.017
			-		-								-	
	NPC6	0.492	0.027	-0.02	0.384	0.463	0.257	0.451	0.185	<b>0.758</b>	0.063	0.35	0.147	0.006
PSP					-									
	PSP1	0.128	0.035	-0.051	0.041	0.103	0.016	0.028	0.01	0.093	<b>0.895</b>	0.037	0.058	0.082
					-		-							
	PSP2	0.121	0.031	-0.013	0.039	0.091	0.019	0.016	0.022	0.072	<b>0.837</b>	0.053	0.057	0.063
					-		-	-						
	PSP3	0.076	0.029	-0.021	0.015	0.088	0.023	0.017	0.037	0.02	<b>0.671</b>	0.049	0.025	0.055
			-		-									
PM	PSP4	0.13	0.001	-0.014	0.063	0.094	0.036	0.003	0.045	0.067	<b>0.756</b>	0.05	0.071	0.022
					-		-							
	PSP5	0.119	0.042	-0.023	-0.05	0.111	0.034	0.01	0.039	0.083	<b>0.898</b>	0.029	0.051	0.085
					-	-						-		
	PSP6	0.066	0.021	-0.05	0.017	0.066	0.014	0.009	0.001	0.031	<b>0.705</b>	0.019	0.054	0.069
					-								-	-
	PM1	0.483	0.004	0.017	0.271	0.576	0.184	0.394	0.447	0.457	0.027	<b>0.92</b>	0.132	0.082
PM			-		-								-	-
	PM2	0.492	0.014	0.017	-0.27	0.583	0.186	0.407	0.481	0.461	0.048	<b>0.941</b>	0.114	0.093
			-		-								-	-
	PM3	0.498	0.018	0.021	0.294	0.62	0.231	0.428	0.45	0.477	0.048	<b>0.929</b>	0.101	0.048
Title			-		-								-	-
	PM4	0.496	0.017	0.023	0.273	0.634	0.216	0.462	0.439	0.5	0.043	<b>0.913</b>	0.114	0.041
		-	-		-	-	-	-	-	-	-	-	-	-
	Title	0.101	0.082	0.087	0.125	0.085	0.096	0.187	0.087	0.171	0.068	0.124	<b>1</b>	0.019
HT			-		-	-	-	-	-	-	-	-	-	
	HT	-0.09	0.046	0.037	0.082	0.024	0.037	0.064	0.077	0.028	0.077	0.071	0.019	<b>1</b>

**Note:** APC=Affective Professional Commitment; ILP=Intention to Leave Profession; IM=Intrinsic Motivation; LO=Learning Orientation; NC=Normative Professional Commitment; PM=Prosocial motivation; PSP=Patient Safety Priority; JI=Job Involvement ; JA=Job autonomy; EL=Education Level; HT=Hospital Type . \*p<0.05, \*\*p<0.01, \*\*\*p<0.001; the bold diagonal values are the root of AVE for each construct.

**Table 6 Discriminant Validity Analysis**

	1	2	3	4	5	6	7	8	9	10	11	12	13
1. APC	<b>0.753</b>												
2. EL	0.041	<b>1</b>											
3. Gender	-0.011	-0.073**	<b>1</b>										
4. IM	0.673**	0.034	-0.004	<b>0.914</b>									
5. ILP	-0.585**	-0.005	0.024	-0.464**	<b>0.837</b>								
6. JA	0.29**	-0.021	0.031	0.326**	-0.226**	<b>0.833</b>							
7. JI	0.54**	-0.02	-0.006	0.507**	-0.358**	0.298**	<b>0.781</b>						
8. LO	0.399**	0.039	-0.029	0.429**	-0.21**	0.177**	0.39**	<b>0.784</b>					
9. NC	0.712**	-0.027	-0.018	0.592**	-0.48**	0.3**	0.593**	0.345**	<b>0.727</b>				
10. PM	0.532**	-0.014	0.021	0.652**	-0.299**	0.221**	0.457**	0.491**	0.513**	<b>0.926</b>			
11. PSP	0.14**	0.032**	-0.034	0.117**	-0.047	0.012	0.011	0.031	0.084**	0.045	<b>0.799</b>		
12. Title	-0.101**	-0.082**	0.087**	-0.085**	0.124**	-0.096**	-0.187**	-0.087**	-0.171**	-0.124**	0.068**	<b>1</b>	
13. HT	-0.09	-0.046**	0.037	-0.024	0.082**	0.037	-0.064**	-0.077**	-0.028	-0.071**	0.077**	-0.019	<b>1</b>

**Note:** APC=Affective Professional Commitment; ILP=Intention to Leave Profession; IM=Intrinsic Motivation; LO=Learning Orientation; NC=Normative Professional Commitment; PM=Prosocial motivation; PSP=Patient Safety Priority; JI=Job Involvement; JA=Job autonomy; EL=Education Level; HT=Hospital Type. \*p<0.05, \*\*p<0.01, \*\*\*p<0.001;

the bold diagonal values are the root of AVE for each construct.

## 4.2.3 Professional Activities

### 4.2.3.1 Exploratory Factor Analysis

Based on Table 7, the value of KMO measure of sampling adequacy is 0.902, above the threshold 0.7. The Bartlett's Test of Sphericity result is significant ( $0.000 < 0.05$ ).

**Table 7 KMO And Bartlett's Test**

KMO and Bartlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.902
Bartlett's Test of Sphericity	Approx. Chi-Square	20164.821
	df	105
	Sig.	.000

Factor analysis of the 15 items relating to professional activity yielded a three dimensions solution after varimax normalized rotation and are shown in Table 8. The adoption of Varimax rotation (orthogonal rotation) to dimensionalize the items is controversial since it assumes that the factors are relatively independent of one another.

The three professional activity dimensions accounted for 69.744% of the total variance. This means that professional activity is a multidimensional construct with dimension 1 reflecting academic activity, dimension 2 reflecting doctor association activity, and dimension 3 reflecting expostulation activity. The factor loadings ranged from 0.666 to 0.900. The reliability values of the constructs were all greater than the threshold of 0.7. In terms of convergent validity, Table 6 showed that all the constructs' AVE were above the threshold of 0.5, meaning good convergent validity. Table 9 revealed that the square root of each construct's AVE was higher than the construct's with other constructs, suggesting a good discriminant validity.

**Table 8 Dimensions Solution After Varimax Normalized Rotation**

Rotated Component Matrix <sup>a</sup>	Component		
	1	2	3
15.Present a paper in an international conference on doctor	.85		
14.Attend an international conference on doctor	.83		
11.Host or receive professional doctor delegations from other countries	.82		
10.Write a book on doctor for publication	.78		
13.Present a paper at a local, provincial or national conference on doctor	.73		
12.Attend a local, provincial or national conference on doctor	.72		
7.Conduct a guest lecture for a government department, agency or university	.69		
8.Take up part-time teaching in a local tertiary institution	.67		
9.Write an article for a professional doctor journal or periodical	.67		
4.Attend professional meetings organized by the national, or local Doctors' Association		.87	
5.Participate in social activities organized by the national, or local Doctors' Association		.78	
1.Attend a voluntary training session organized by doctor association		.72	
6.Present a paper at a conference or meeting organized by the national or local Doctors' Association		.69	
2.Input my views on the Doctors' system to the Local Health Bureau			.90
3.Input my views on the Doctors' system to the national, or local Doctors' Association			.89
<b>Summary Statistics</b>			
Eigenvalue	7.27	1.81	1.38
% of Variance	36.40	19.62	13.72
Cumulative % of Variance	36.40	56.02	69.74
Cronbach's Alpha	0.93	0.83	0.94
Composite Reliability	0.94	0.88	0.97
AVE	0.63	0.66	0.94

**Table 9 The Square Root Of Each Construct'S AVE**

Components of Professional Activities	Academic Activities	Doctor Association Activities	Expostulation Activities
Academic Activities	<b>0.80</b>		
Doctor Association Activities	0.53	<b>0.81</b>	
Expostulation Activities	0.48	0.39	<b>0.97</b>

#### 4.2.4 Comparison of doctors at general hospitals (GH) and infectious hospitals (IH)

One-way ANOVA method is adopted to compare doctors at general hospital and infectious hospital. The result of test of homogeneity of variances (Table 10) shows that one-way ANOVA is not valid for four the variables ( $p < 0.05$ ), including normative professional commitment, job autonomy, Learning orientation, and doctor association activity. Mean comparison is valid for the rest 8 variables.

**Table 10 Test Of Homogeneity Of Variances**

<b>Test of Homogeneity of Variances</b>				
	Levene Statistic	df1	df2	Sig.
Affective Professional Commitment	.033	1	1951	.855
<b>Normative Professional Commitment</b>	<b>12.989</b>	<b>1</b>	<b>1951</b>	<b>.000</b>
Intention to Leave Profession	.238	1	1951	.626
<b>Job Autonomy</b>	<b>10.031</b>	<b>1</b>	<b>1951</b>	<b>.002</b>
Job Involvement	.032	1	1951	.857
Patient Safety Priority	1.634	1	1951	.201
<b>Learning Orientation</b>	<b>12.697</b>	<b>1</b>	<b>1951</b>	<b>.000</b>
Prosocial Motivation	1.230	1	1951	.268
Intrinsic Motivation	.351	1	1951	.554
AcademicActivities	.054	1	1951	.816
<b>DoctorAssociationActivities</b>	<b>6.138</b>	<b>1</b>	<b>1951</b>	<b>.013</b>
ExpostulationActivities	.790	1	1951	.374

Table 11 shows the result of one-way ANOVA. Compared with doctors at infectious hospital, doctors at general hospital show higher degrees of agreement in affective professional commitment (4.99 vs 4.76,  $p < 0.05$ ), job involvement (4.87 vs 4.72,  $p < 0.05$ ), prosocial motivation ( 5.55 vs 5.36,  $p < 0.05$ ), and academic activity (4.48 vs 4.30,  $p < 0.05$ ). In contrast, doctors at infectious hospital present higher intention to leave profession (3.2 vs 2.94,  $p < 0.05$ ) and patient safety priority (4.22 vs 3.95,  $p < 0.05$ ). In terms of intrinsic motivation and expostulation activity, doctors at general hospital and infectious have no difference( $p > 0.05$ )



**Table 11 Comparision Between General Hospital And Infectious Hospital**

<b>Descriptives</b>					
		Mean	Std. Deviation	F	Sig.
Affective Professional Commitment	General Hospital	4.99	1.19	15.51	0.00
	Infectious Hospital	4.76	1.21		
Intention to Leave Profession	General Hospital	2.94	1.35	14.92	0.00
	Infectious Hospital	3.20	1.39		
Job Involvement	General Hospital	4.87	1.21	6.45	0.01
	Infectious Hospital	4.72	1.19		
Patient Safety Priority	General Hospital	3.95	1.29	16.82	0.00
	Infectious Hospital	4.22	1.34		
Prosocial Motivation	General Hospital	5.55	1.18	9.80	0.00
	Infectious Hospital	5.36	1.21		
Intrinsic Motivation	General Hospital	4.93	1.39	1.05	0.31
	Infectious Hospital	4.86	1.42		
Academic Activity	General Hospital	4.48	1.43	7.06	0.01
	Infectious Hospital	4.30	1.42		
Expostulation Activity	General Hospital	4.17	1.66	1.15	0.29
	Infectious Hospital	4.08	1.66		

**N of GH=579, N of IH=1374, Total=1953**

### 4.2.5 Comparison of doctors in Beijing and outside Beijing

One-way ANOVA method is adopted to compare doctors in Beijing and outside Beijing. The result of test of homogeneity of variances (Table 12) shows that one-way ANOVA is not valid for four the variables ( $p < 0.05$ ), including normative professional commitment, job autonomy, Learning orientation, and doctor association activity. Mean comparison is valid for the rest 8 variables.

**Table 12 Test Of Homogeneity Of Variances**

Test of Homogeneity of Variances				
	Levene Statistic	df1	df2	Sig.
Affective Professional Commitment	1.172	1	1951	.279
<b>Normative Professional Commitment</b>	<b>10.806</b>	<b>1</b>	<b>1951</b>	<b>.001</b>
Intention to Leave Profession	.016	1	1951	.898
<b>Job Autonomy</b>	<b>23.087</b>	<b>1</b>	<b>1951</b>	<b>.000</b>
Job Involvement	.266	1	1951	.606
Patient Safety Priority	2.018	1	1951	.156
<b>Learning Orientation</b>	<b>12.773</b>	<b>1</b>	<b>1951</b>	<b>.000</b>
Prosocial Motivation	3.331	1	1951	.068
Intrinsic Motivation	.061	1	1951	.805
AcademicActivities	1.441	1	1951	.230
<b>DoctorAssociationActivities</b>	<b>13.444</b>	<b>1</b>	<b>1951</b>	<b>.000</b>
ExpostulationActivities	2.684	1	1951	.102

Table 13 shows the result of one-way ANOVA. Compared with doctors outside Beijing, doctors in Beijing show higher degrees of agreement in affective professional commitment (4.91 vs 4.78,  $p < 0.05$ ) and prosocial motivation (5.50 vs 5.37,  $p < 0.05$ ). In contrast, doctors outside Beijing present higher intention to leave profession (3.17 vs 3.03,  $p < 0.05$ ) and patient safety priority (4.21 vs 4.03,  $p < 0.05$ ). There is no difference between doctors in Beijing and outside Beijing in terms of job involvement, intrinsic motivation, academic activity, and expostulation activity ( $p > 0.05$ ).

**Table 13 Comparision Of Doctors Between Hospitals In Beijing And Hospitals Outside Beijing**

Descriptives					
		Mean	Std. Deviation	F	ANOVA Sig.
Affective Professional Commitment	Beijing	4.91	1.19	5.64	0.02
	Outside	4.78	1.22		
Intention to Leave Profession	Beijing	3.03	1.38	4.63	0.03
	Outside	3.17	1.38		
Job Involvement	Beijing	4.76	1.21	0.05	0.83
	Outside	4.77	1.19		
Patient Safety Priority	Beijing	4.03	1.29	7.69	0.01
	Outside	4.21	1.35		
Prosocial Motivation	Beijing	5.50	1.17	4.84	0.03
	Outside	5.37	1.22		
Intrinsic Motivation	Beijing	4.81	1.39	2.80	0.09
	Outside	4.93	1.43		
Academic Activity	Beijing	4.40	1.45	1.18	0.28
	Outside	4.32	1.41		
Expostulation Activity	Beijing	4.04	1.69	2.13	0.15
	Outside	4.15	1.64		

**N of Beijing=736, N of Outside Beijing=1217, Total=1953**

### 4.2.6 Comparison of doctors by gender

One-way ANOVA method is adopted to compare doctors between male and female. The result of test of homogeneity of variances (Table 14) shows that one-way ANOVA is not valid for four the variables ( $p < 0.05$ ), including affective professional commitment, job autonomy, doctor association activity, and expostulation activities. Mean comparison is valid for the rest 8 variables.

**Table 14 Test Of Homogeneity Of Variances**

<b>Test of Homogeneity of Variances</b>				
	Levene Statistic	df1	df2	Sig.
<b>Affective Professional Commitment</b>	<b>4.067</b>	<b>1</b>	<b>1951</b>	<b>.044</b>
Normative Professional Commitment	2.327	1	1951	.127
Intention to Leave Profession	1.273	1	1951	.259
<b>Job Autonomy</b>	<b>14.929</b>	<b>1</b>	<b>1951</b>	<b>.000</b>
Job Involvement	.026	1	1951	.873
Patient Safety Priority	.013	1	1951	.908
Learning Orientation	3.316	1	1951	.069
Prosocial Motivation	3.667	1	1951	.056
Intrinsic Motivation	3.110	1	1951	.078
AcademicActivities	.007	1	1951	.935
<b>DoctorAssociationActivities</b>	<b>6.549</b>	<b>1</b>	<b>1951</b>	<b>.011</b>
<b>ExpostulationActivities</b>	<b>6.572</b>	<b>1</b>	<b>1951</b>	<b>.010</b>

Table 15 shows the result of one-way ANOVA. Compared with doctors a, male doctors show higher degrees of agreement in academic activities (4.43 vs 4.29,  $p < 0.05$ ). In other words, male doctors are more willing to participate in academic activities. There is no difference between male doctors and female doctors for the other 7 variables(  $p > 0.05$ ).

**Table 15 Comparison Of Doctors Between Male and Female**

<b>Descriptives</b>					
		Mean	Std. Deviation	F	ANOVA Sig.
Normative Professional Commitment	Male	4.5786	1.21329	.598	.440
	Female	4.5370	1.14674		
Intention to Leave Profession	Male	3.0834	1.40403	1.046	.307
	Female	3.1480	1.36438		
Job Involvement	Male	4.7682	1.21379	.009	.923
	Female	4.7629	1.18862		
Patient Safety Priority	Male	4.2014	1.32444	3.030	.082
	Female	4.0954	1.33425		
Learning Orientation	Male	5.5944	1.14586	2.128	.145
	Female	5.5205	1.07506		
Prosocial Motivation	Male	5.3899	1.25126	.861	.354
	Female	5.4410	1.16742		
Intrinsic Motivation	Male	4.8920	1.45482	.048	.826
	Female	4.8777	1.38648		
<b>AcademicActivities</b>	<b>Male</b>	<b>4.4308</b>	<b>1.42567</b>	<b>4.558</b>	<b>.033</b>
	<b>Female</b>	<b>4.2915</b>	<b>1.42509</b>		

**N of male=829, N of female=1124, Total=1953**

#### ***4.2.7 Comparison of doctors by marital status***

One-way ANOVA method is adopted to compare doctors between male and female. The result of test of homogeneity of variances (Table 14) shows that one-way ANOVA is not valid for job involvement ( $p < 0.05$ ), but valid for the rest 11 variables.

**Table 16 Test Of Homogeneity Of Variances**

<b>Test of Homogeneity of Variances</b>				
	Levene Statistic	df1	df2	Sig.
Affective Professional Commitment	.313	1	1951	.576
Normative Professional Commitment	1.268	1	1951	.260
Intention to Leave Profession	.801	1	1951	.371
Job Autonomy	.000	1	1951	.996
<b>Job Involvement</b>	<b>5.603</b>	<b>1</b>	<b>1951</b>	<b>.018</b>
Patient Safety Priority	.882	1	1951	.348
Learning Orientation	1.751	1	1951	.186
Prosocial Motivation	.507	1	1951	.477
Intrinsic Motivation	1.781	1	1951	.182
AcademicActivities	.284	1	1951	.594
DoctorAssociationActivities	.338	1	1951	.561
ExpostulationActivities	2.126	1	1951	.145

Table 17 shows the result of one-way ANOVA. Compared with doctors not married, doctors married or living as married show higher degrees of agreement in normative professional commitment (4.59 vs 4.38,  $p < 0.05$ ). It means doctors married or living as married feel more obligation to doctor profession than doctors not married.

**Table 17 Comparison Of Doctors By Marital Status**

Descriptives						
		N	Mean	Std. Deviation	F	ANOVA Sig.
Affective Professional Commitment	Married or Living as Married	1621	4.8349	1.20815	.370	.543
	Not Married	332	4.7905	1.23390		
<b>Normative Professional Commitment</b>	<b>Married or Living as Married</b>	<b>1621</b>	<b>4.5910</b>	<b>1.18080</b>	<b>9.162</b>	<b>.003</b>
	<b>Not Married</b>	<b>332</b>	<b>4.3771</b>	<b>1.13327</b>		
Intention to Leave Profession	Married or Living as Married	1621	3.1127	1.38866	.311	.577
	Not Married	332	3.1591	1.34655		
Job Autonomy	Married or Living as Married	1621	5.6388	1.35936	.305	.581
	Not Married	332	5.5936	1.35254		
Patient Safety Priority	Married or Living as Married	1621	4.1362	1.32150	.094	.759
	Not Married	332	4.1608	1.37707		
Learning Orientation	Married or Living as Married	1621	5.5434	1.11939	.564	.453
	Not Married	332	5.5934	1.03863		
Prosocial Motivation	Married or Living as Married	1621	5.4403	1.19541	2.892	.089
	Not Married	332	5.3170	1.24000		
Intrinsic Motivation	Married or Living as Married	1621	4.8625	1.42812	2.159	.142
	Not Married	332	4.9877	1.34970		
AcademicActivities	Married or Living as Married	1621	4.3630	1.42934	.710	.400
	Not Married	332	4.2905	1.41394		
DoctorAssociationActivities	Married or Living as Married	1621	5.3750	1.08078	2.176	.140
	Not Married	332	5.2783	1.12604		
ExpostulationActivities	Married or Living as Married	1621	4.1114	1.66916	.038	.845
	Not Married	332	4.0918	1.62902		

**N of married or Living as Married=1621, N of Not Married=332, Total=1953**

#### 4.2.7 Comparison of doctors by educational level

One-way ANOVA method is adopted to compare doctors by educational level. The result of test of homogeneity of variances (Table 14) shows that one-way ANOVA is not valid for 6 variables, including affective professional commitment, normative commitment, intention to leave profession, job involvement, intrinsic motivation, academic activities ( $p < 0.05$ ).

**Table 18 Test Of Homogeneity Of Variances**

Test of Homogeneity of Variances				
	Levene Statistic	df1	df2	Sig.
<b>Affective Professional Commitment</b>	<b>7.704</b>	<b>3</b>	<b>1949</b>	<b>.000</b>
<b>Normative Professional Commitment</b>	<b>2.941</b>	<b>3</b>	<b>1949</b>	<b>.032</b>
<b>Intention to Leave Profession</b>	<b>3.462</b>	<b>3</b>	<b>1949</b>	<b>.016</b>
Job Autonomy	1.006	3	1949	.389
<b>Job Involvement</b>	<b>3.536</b>	<b>3</b>	<b>1949</b>	<b>.014</b>
Patient Safety Priority	.857	3	1949	.463
Learning Orientation	1.744	3	1949	.156
Prosocial Motivation	1.529	3	1949	.205
<b>Intrinsic Motivation</b>	<b>4.343</b>	<b>3</b>	<b>1949</b>	<b>.005</b>
<b>AcademicActivities</b>	<b>4.781</b>	<b>3</b>	<b>1949</b>	<b>.003</b>
DoctorAssociationActivities	1.982	3	1949	.115
ExpostulationActivities	.323	3	1949	.808

Table 19 shows the result of one-way ANOVA. The results show that doctors with doctorate degree present the highest learning orientation (5.78) and intention to participate in doctor association activities (5.56), doctors with postsecondary degree show the highest prosocial motivation (5.78).



**Table 19 Comparision Of Doctors By Educational Level**

Descriptives						
		N	Mean	Std. Deviation	F	Sig.
Job Autonomy	Postsecondary	66	5.7323	1.22819	.467	.705
	Bachelor	747	5.6646	1.37904		
	Master	833	5.5955	1.34257		
	Doctorate	307	5.6248	1.37745		
Patient Safety Priority	Postsecondary	66	4.1289	1.40659	1.648	.176
	Bachelor	747	4.0587	1.30244		
	Master	833	4.1832	1.35926		
	Doctorate	307	4.2254	1.29977		
Learning Orientation	Postsecondary	66	5.6696	.92998	3.414	.017
	Bachelor	747	5.5084	1.14881		
	Master	833	5.5178	1.08170		
	Doctorate	307	5.7249	1.08605		
Prosocial Motivation	Postsecondary	66	5.7765	1.04709	3.787	.010
	Bachelor	747	5.4317	1.24853		
	Master	833	5.3433	1.15809		
	Doctorate	307	5.5187	1.22835		
DoctorAssociationActivities	Postsecondary	66	5.2052	1.08693	4.684	.003
	Bachelor	747	5.3104	1.13745		
	Master	833	5.3382	1.08102		
	Doctorate	307	5.5639	.96304		
ExpostulationActivities	Postsecondary	66	4.2576	1.53232	.870	.456
	Bachelor	747	4.0365	1.69958		
	Master	833	4.1552	1.64980		
	Doctorate	307	4.1221	1.62966		

**N of Postsecondary=66, N of Bachelor=747, N of Master=833, N of Doctorate=307,**

**Total=1953**

## **4.3 Hypothesizes Test**

### ***4.3.1 Analytical Approach***

To empirically test the research model, I applied a structural equation modeling (SEM) approach. The theoretical constructs in the structural model represent latent variables. Each latent variable requires a set of empirically observed indicators for its reliable and valid measurement. On these grounds, I could empirically test the causal relationships of the causal constructs in the structural model. It was composed of both a measurement model and a path model. Measurement model operationalization required the explicit consideration of the epistemic nature of the relationship between constructs and indicators, that is, reflective and formative measurement model setups (Diamantopoulos et al. 2001). To estimate the research model depicted in Figure 1, I used the partial least squares (PLS) method. Unlike a covariance-based structural equation modeling method (e.g., LISREL, AMOS), PLS employed a component-based approach for estimation purposes. Given the research model which included two moderated mediations and one mediated moderation, I used PLS to explain such complicated relationships as it avoided two serious problems: inadmissible solutions and factor indeterminacy (Fornell & Bookstein 1982). By applying SmartPLS 3.0 software, I first examined the measurement model to evaluate the reliability and validity of constructs, and then test the path model to assess the relationships between constructs.

### ***4.2.2.2 Measurement Model***

As investigating the quality of the structural model, the target constructs' percentage of variance explained ( $R^2$ ) was a key criterion. Using the PLS algorithm function in SmartPLS 3.0, I computed the  $R^2$  statistics of the intention to leave profession as 0.377,

which suggested that the model explained a substantial amount of the variance in the overall doctors' intention to leave profession. The results provided significant evidence for the hypothesized moderating roles of patient safety priority and intrinsic motivation, and mediating roles of learning orientation, affective commitment and normative commitment between prosocial motivation and intention to leave profession.

I tested the hypothesized relationships by a bootstrapping re-sampling procedure which estimates standard errors for testing the statistical significance of path coefficients using t-tests (Chin, 1998). As demonstrated in the structural model results in Table 14, H1,H2,H3,H4,H8,and H9 were supported, H5, H6, and H7 were not supported. Detailed analysis was shown as follows.

**Table 20 The Structural Model Results**

	Standardized Coefficients	T Statistics	P Values	Hypothesis
PM -> LO	0.389	14.04	0	H4 Supported
LO -> APC	0.091	3.744	0	
LO -> NC	0.018	0.761	0.447	H5 Not Supported
PM -> APC	0.301	12.338	0	H2 Supported
APC -> ILP	-0.453	13.842	0	
PM -> ILP	0.119	4.366	0	H1 Supported
IM*APC -> ILP	-0.043	1.55	0.122	H8 Not Supported
PM*PSP -> APC	-0.046	2.365	0.018	H6Supported
PM -> NPC	0.278	10.495	0	H3 Supported
NPC -> ILP	-0.098	3.239	0.001	
IM*NPC -> ILP	-0.043	1.448	0.148	H9Not Supported
PM*PSP -> NPC	-0.045	2.401	0.017	H7 Supported
EL -> APC	0.044	2.377	0.018	Null Hypothesis
EL -> ILP	0.02	1.067	0.286	Null Hypothesis
EL -> LO	0.046	2.392	0.017	Null Hypothesis
EL -> NPC	-0.023	1.291	0.197	Null Hypothesis
Gender -> APC	-0.011	0.553	0.581	Null Hypothesis
Gender -> ILP	0.01	0.532	0.595	Null Hypothesis

Gender -> LO	-0.036	1.816	0.07	Null Hypothesis
Gender -> NPC	-0.02	1.21	0.227	Null Hypothesis
HT -> APC	-0.051	2.889	0.004	Null Hypothesis
HT -> ILP	0.045	2.759	0.006	Null Hypothesis
HT -> LO	-0.034	1.692	0.091	Null Hypothesis
HT -> NPC	0.009	0.497	0.62	Null Hypothesis
IM -> ILP	-0.185	5.867	0	Null Hypothesis
JA -> APC	0.111	5.642	0	Null Hypothesis
JA -> ILP	-0.046	2.303	0.022	Null Hypothesis
JA -> LO	0.035	1.432	0.153	Null Hypothesis
JA -> NPC	0.105	4.936	0	Null Hypothesis
JI -> APC	0.33	14.679	0	Null Hypothesis
JI -> ILP	0	0.044	0.965	Null Hypothesis
JI -> LO	0.205	7.819	0	Null Hypothesis
JI -> NPC	0.414	18.539	0	Null Hypothesis
PSP -> APC	0.131	7.443	0	Null Hypothesis
PSP -> NPC	0.08	4.31	0	Null Hypothesis
Title -> APC	0.012	0.626	0.532	Null Hypothesis
Title -> ILP	0.054	2.827	0.005	Null Hypothesis
Title -> LO	0.009	0.436	0.663	Null Hypothesis
Title -> NPC	-0.053	3.172	0.002	Null Hypothesis

**Note:** APC=Affective Professional Commitment; ILP=Intention to Leave Profession; IM=Intrinsic Motivation; LO=Learning Orientation; NC=Normative Professional Commitment; PM=Prosocial motivation; PSP=Patient Safety Priority; JI=Job Involvement; JA=Job autonomy; EL=Education Level; HT=Hospital Type . \* $p<0.05$ , \*\* $p<0.01$ , \*\*\* $p<0.001$ ; the bold diagonal values are the root of AVE for each construct.

H1 predicts a negative relationship between prosocial motivation (PM) and intention to leave profession (ILP). According to Table 14, the result shows that the main effect is significant (coefficient=0.119,  $p=0.000$ ), and thus H1 is supported.

H2 hypothesizes that affective professional commitment (APC) mediates the negative relationship between prosocial motivation (PM) and intention to leave profession (ILP). Based on Table 14, both main effects of PM on APC (coefficient=0.301,  $p=0.000$ ) and APC on ILP (coefficient=-0.453,  $p=0.000$ ) are significant. Together with the supported

H1, H2 is supported.

H3 supposes that normative professional commitment (NPC) mediates the negative relationship between prosocial motivation (PM) and intention to leave profession (ILP). Based on Table 14, both main effects of PM on NPC (coefficient=0.278,  $p=0.000$ ) and NPC on ILP (coefficient=-0.098,  $p=0.001$ ) are significant. Together with the supported H1, H3 is supported.

H4 suggests that learning orientation (LO) mediates the positive relationship between prosocial motivation (PM) and affective professional commitment (APC). As shown in Table 14, three main effects are all significant (PM->LO, coefficient=0.389,  $p=0.000$ ; LO->APC, coefficient=0.091,  $p=0.000$ ; PM->APC, coefficient=0.301,  $p=0.000$ ). Thus, H4 is supported.

H5 assumes that learning orientation (LO) mediates the positive relationship between prosocial motivation (PM) and normative professional commitment (NPC). Seeing from Table 14, the main effect of LO on NPC is not significant (coefficient=0.018,  $p=0.447$ ). Hence, H5 is rejected.

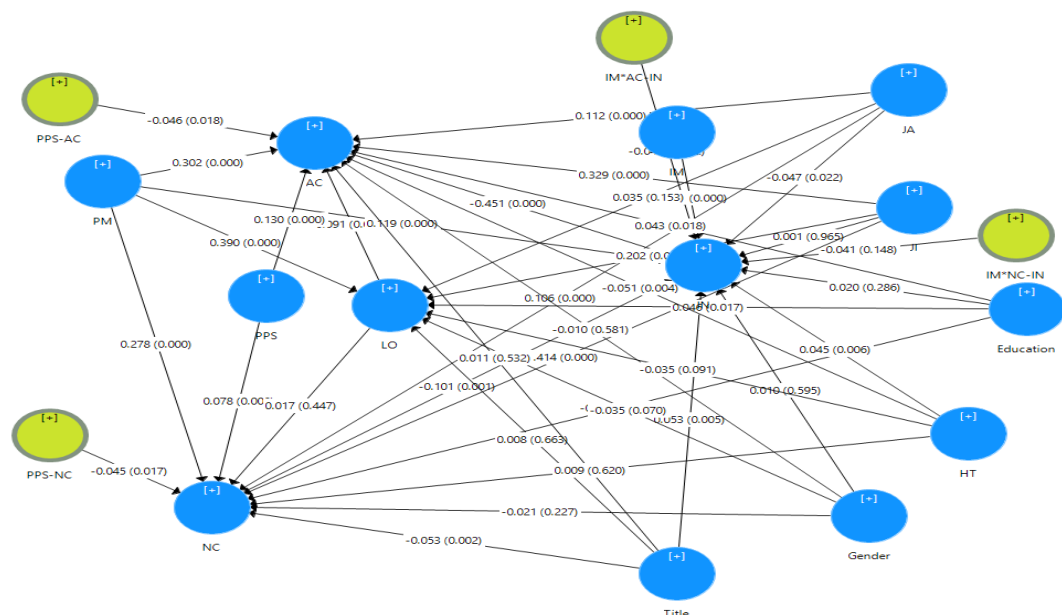
H6 proposes that patient safety priority (PSP) moderates the positive relationship between prosocial motivation (PM) and affective professional commitment (APC), such that the positive relationship is weaker when the PSP is stronger. As shown in Table 14, the main effect of PM on APC is significant (coefficient=0.301,  $p=0.000$ ), and the interaction effect (PM\*PSP->APC) is significant (coefficient=-0.046,  $p=0.018$ ). As a result, H6 is supported.

H6 presents that the positive relationship between prosocial motivation (PM) and normative professional commitment (NPC) is moderated by patient safety priority (PSP), such that the positive relationship is weaker when the PSP is stronger. In Table

14, the main effect of PM on NPC is significant (coefficient=0.278,  $p=0.000$ ), and the interaction effect (PM\*PSP->NPC) is significant (coefficient=-0.045,  $p=0.017$ ). To conclude, H6 is supported.

H8 and H9 deduce that intrinsic motivation (IM) moderates the negative relationship between affective professional commitment (APC) and intention to leave profession (ILP), and between normative professional commitment (NPC) and ILP such that the negative relationship is stronger when the IM is stronger. Based on Table 14, the both interaction effects are not significant (APC\*IM->ILP, coefficient=-0.043,  $p=0.122$ ; NPC\*IM->ILP, coefficient=-0.043,  $p=0.148$ ). Hence both H8 and H9 are not supported.

The standardized SEM coefficients are shown in figure 3



Note: \* $p<0.05$ , \*\* $p<0.01$ , \*\*\* $p<0.001$ ;

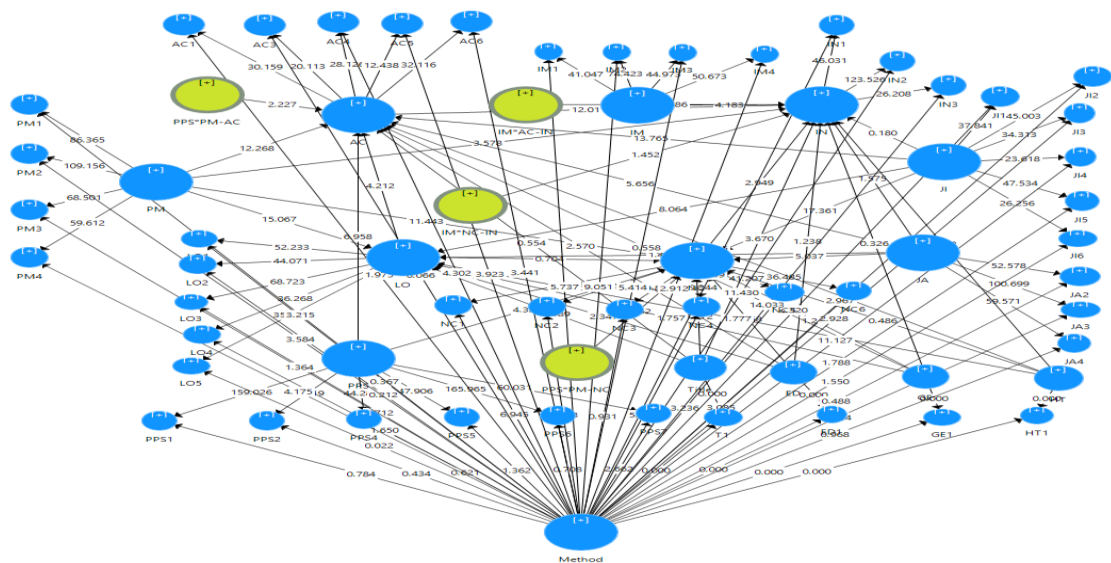
**Figure 3 Overview Of SEM Coefficients (Standardized)**

#### 4.2.2.3 Common Method Bias

Given the self-reported survey data, there existed a potential problem for common

method variance because of multiple sources such as consistency motif and social desirability (Podsakoff 2003; Podsakoff & Organ 1986). Following prior studies, I performed statistical analyses to assess whether common method bias is of serious concern in our study.

Following Podsakoff (2003), I included in the PLS model a common method factor whose indicators were the indicators of all the constructs in our research model, linking to all of the single-indicator constructs that were converted from observed indicators, as shown in Figure 4. Then I calculated each indicator's variances substantively explained by the principal construct and by the method factor. Table 15 presented the results of assessing the common method bias. The results demonstrated that the average substantively explained variance of the indicators is about 0.7, while the average method-based variance was about 0.011. The ratio of substantive variance to method variance is about 63.6:1. In addition, most method factor loadings were not significant. Given the small magnitude and insignificance of method variance, I contended that common method bias was unlikely to be a serious concern. Thus, the potential problems associated with common method bias were of slight concern (Podsakoff & Organ 1986).



**Figure 4 The PLS Model For Assessing Common Method Bias**

**Table 21 Results Of Assessing The Common Method Bias**

Construct	Indicator	Substantive Factor Loading (R1)	R1 <sup>2</sup>	Method Factor Loading (R2)	R2 <sup>2</sup>
Affective Commitment	APC1	0.846***	0.715716	-0.065*	0.004225
	APC3	0.622***	0.386884	0.2***	0.04
	APC4	0.869***	0.755161	-0.153***	0.023409
	APC5	0.503***	0.253009	0.15**	0.0225
	APC6	0.894***	0.799236	-0.112**	0.012544
Intention to leave	IN1	0.914***	0.835396	0.02	0.0004
	IN2	0.979***	0.958441	0.136***	0.018496
	IN3	0.56***	0.3136	-0.306***	0.093636
Intrinsic Motivation	IM1	0.809***	0.654481	0.12***	0.0144
	IM2	1.053***	1.108809	-0.163***	0.026569
	IM3	0.833***	0.693889	0.103***	0.010609
	IM4	0.962***	0.925444	-0.059**	0.003481
Learning Orientation	LO1	0.825***	0.680625	0.006	0.000036
	LO2	0.774***	0.599076	-0.004	0.000016
	LO3	0.84***	0.7056	0.026	0.000676
	LO4	0.745***	0.555025	-0.034	0.001156
	LO5	0.73***	0.5329	0.001	0.000001
Normative Commitment	NPC1	0.5***	0.25	0.241***	0.058081
	NPC2	0.694***	0.481636	0.009	0.000081
	NPC3	0.743***	0.552049	0.029	0.000841
	NPC4	0.895***	0.801025	-0.132***	0.017424
	NPC5	0.9***	0.81	-0.078**	0.006084
	NPC6	0.833***	0.693889	-0.079**	0.006241
Patient safety priority	PSP1	0.885***	0.783225	0.01	0.0001
	PSP 2	0.834***	0.695556	0.006	0.000036
	PSP 3	0.709***	0.502681	-0.012	0.000144
	PSP 5	0.712***	0.506944	0.025	0.000625
	PSP 6	0.893***	0.797449	0.008	0.000064
	PSP 7	0.751***	0.564001	-0.041**	0.001681
Prosocial Motivation	PM1	0.955***	0.912025	-0.044**	0.001936
	PM2	0.969***	0.938961	-0.042***	0.001764
	PM3	0.915***	0.837225	0.02	0.0004
	PM4	0.87***	0.7569	0.068***	0.004624
Job Involvement	JI1	0.853***	0.727609	-0.177***	0.031329
	JI2	0.863***	0.744769	-0.071**	0.005041
	JI3	0.821***	0.674041	-0.079**	0.006241
	JI4	0.587***	0.344569	0.284***	0.080656
	JI5	0.866***	0.749956	-0.041	0.001681
	JI6	0.724***	0.524176	0.045	0.002025
Job Autonomy	JA2	0.804***	0.646416	-0.007	0.000049
	JA3	0.884***	0.781456	-0.008	0.000064
	JA4	0.809***	0.654481	0.016	0.000256
Gender	Gender	1	1	0	0
Education level	Education level	1	1	0	0
Title	Title	1	1	0	0
Hospital Type	Hospital Type	1	1	0	0
Average		0.826674	0.700094	-0.004	0.010861



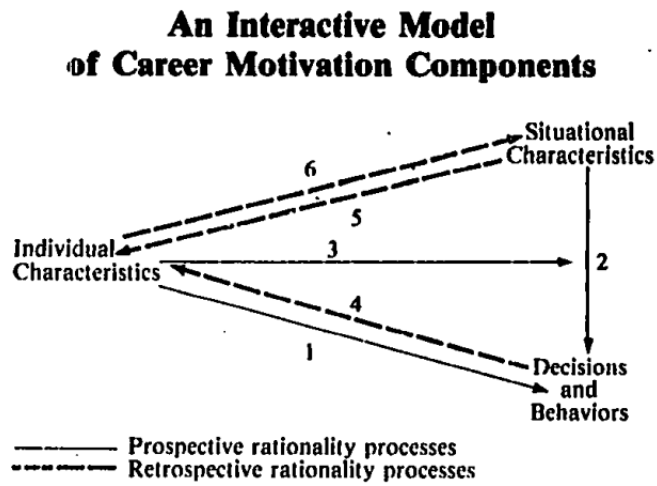
\* $p < 0.05$ ; \*\* $p < 0.01$ ; \*\*\* $p < 0.001$

## **4.4 Findings and Discussions of the Quantitative Model**

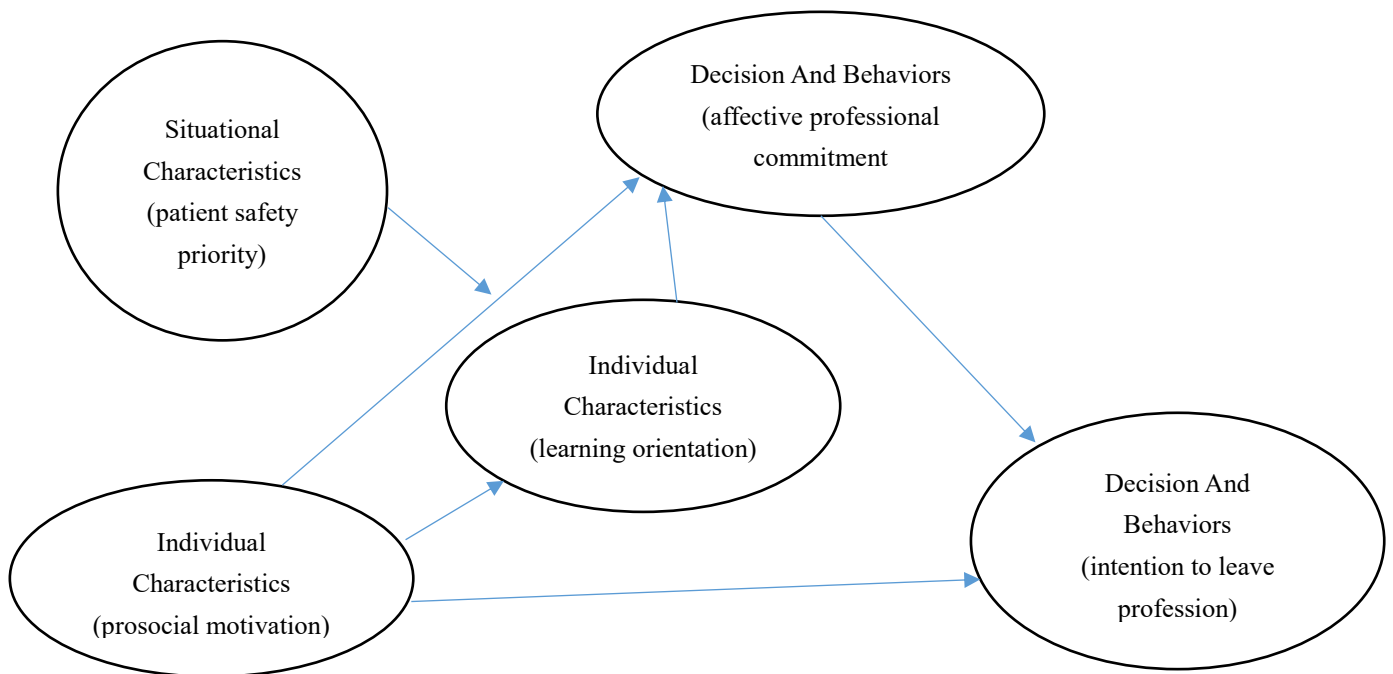
### ***4.4.1 Extension of Career Motivation Theory***

The quantitative study reveals the mechanisms through which doctors' intention to leave profession are affected. Specifically, professional commitment, as a mediator, mediates the negative relationship between prosocial motivation and intention to leave profession. Compared with previous studies which merely proved the negative impacts of prosocial motivation and professional commitment on intention to leave profession, this study further clears the positive causal relationship between prosocial motivation and professional commitment. Based on this relationship, this study also demonstrates the mediating role of learning orientation between prosocial motivation and professional commitment.

Regarding theory extension, the quantitative study extends the original theoretical model of career motivation theory (Figure 5). From retrospectively rationality processes (Figure 6), individual characteristics (learning orientation) can mediate the casual relationship between individual characteristics (prosocial motivation) and decisions & behaviors (professional commitment). In addition, decisions & behaviors (professional commitment) can also mediate the casual relationship between individual characteristics (prosocial motivation) and decisions & behaviors (intention to leave profession). Moving to the interaction effect between priority of patient safety and prosocial motivation on professional commitment, it also extends the model in a way that situational characteristics, from retrospective rationality processes, can moderate the casual relationship between individual characteristics and decisions & behaviors (Figure 6).



**Figure 5 The Original Theoretical Model Of Career Motivation Theory**



**Figure 6 The Supported Model Of The Quantitative Study**

#### ***4.4.2 The interaction effect of prosocial motivation and patient safety priority on professional affective and normative commitments-from an institutional perspective***

The quantitative study has proved that there is a significant interaction effect between prosocial motivation and patient safety priority on affective and normative professional commitments. The patient safety priority, as a situational characteristic, is actually formed from institutions which are mainly made by hospitals, governments, and third parties, and the institutions are normally divided into two types, including formal type and informal type.

Regarding formal institutions, the hospitals make rules and regulations, and the government legislate to regulate the behaviors of doctors, as a result, the medical quality and patient safety are ensured. For third parties, The Joint Commission on Accreditation of Healthcare Organizations (JCAHO), as a typical example, is well known all over the world for its hospital evaluation system-Joint Commission International (JCI). The JCI emphasizes hospital institution construction\medical process\continuous improvement of medical quality and safety. By the end of 2017, more than 80 hospitals in China had passed JCI. In China, it is widely believed that the standards of JCI is higher than that of institutions legislated by hospital and government, and the JCI could help hospitals improve medical quality and safety.

Moving to informal institution, there is a very common phenomenon in current Chinese society especially in those organizations governed by governments including hospitals that people follow a cultural principle- “do not seek merit, but seek nothing”. It means that it is not worthwhile to take risks leading to mistakes in exchange for great work performance. In the context of hospital in China, it is understood as a safe medical

principle. More precisely, doctors prefer to select a safe treatment plan to ensure the patient safety during the period of time that the doctor is in charge of the patient, but the doctor is not willing to select a risky plan which may have better treatment effect but with higher medical risk (e.g. death) for the patient. This is because once the medical risk becomes a reality, the doctor will continue affording political risk and personal safety risk. For instance, if a doctor in China did a high medical risk surgery for a patient and the patient unfortunately died, the doctor has to suffer a political risk of being removed from office and a personal safety risk of being violently hurt by patient family members even though the death of the patient is not caused by the doctor but the patient's own physical issues. When such an incident of patient death happens, it is quite common in China that most of times the doctor, the hospital and the government will choose to compensate the patient family members rather than choose to file lawsuits with the patient family members to fight for doctors' rights, because they clearly know that lawsuits for them mean high political risk-being dismissed. Normally such a political risk is closely related with attack political opponent and public opinion and media reports. In order to avoid political risk, a consensus forms among doctors, hospitals, and governments- "patient safety is the first priority, medical quality/performance is the second", and this consensus eventually transforms into an informal institution- "do not seek merit, but seek nothing".

Doctors, hospitals, and governments are interest community. In Chinese society, it is almost unacceptable for them take any political risk, as a result, doctors in China become a victim-they are always vulnerable groups in the face of patients. To protect themselves, doctors in China have to firstly consider of lowering the potential medical, political, and personal safety risks they face by providing safe treatment plan for patients, and the medical quality is forced to be considered secondly. In my opinion, this is a distorted value. Most of Chinese doctors, from my perspective, are people who are highly prosocial motivated, and they will do their best to try to save the life of a

patient even with a 1% chance. The reality, however, is that the 1% chance for doctors means unaffordable medical, political, and personal safety risks since fundamentally China has few practical institutions which can really help doctors afford the risks. As the prosocial motivation from the heart and the distorted patient safety priority interact with each other, the interaction effect definitely has a negative impact on doctors' commitment on their profession-“A doctor is emotionally motivated to and obligated to provide a treatment plan which can really help the patient, but he/she cannot do so since he/she has to protect himself/herself firstly, and the way of self-protection is providing a so-called safe treatment plan.” Apparently, it is indispensable for the Chinese central and local governments to establish practical institutions to protect doctors- “you cannot expect a doctor to try his/her best to help patient as the doctor is not protected!”

## **CHAPTER 5 – ANALYSIS AND FINDING OF QUALITATIVE STUDY**

The analysis qualitative data adopted the inductive research method of content analysis. As described by Patton (2002), data analysis is a creative process and, as such, extends beyond the process of identifying, coding and categorizing the primary features of the data. 'Inductive analysis means that the patterns, themes, and categories of analysis come from the data; they emerge out of the data, rather than being imposed on them prior to data collection and analysis' (Patton, 2002, p. 390). A creative process inherent in the inductive research method means that there is no clear division between the data collection phase and the data analysis. Additionally, data collection and analysis is the process by which researchers attempt to gain greater insight and understanding of what they have studied. 'Throughout participative observation, in-depth interviewing, and other qualitative research, researchers are constantly theorizing and trying to make sense of their data' (Taylor & Bogdan, 1998, p. 141). This view of data analysis as an ongoing and dynamic process which occurs prior to and throughout the data collection phase is shared by Kval (1996, p. 176), who asserts that if a researcher is posing the question 'how shall I find a method to analyze the 1000 pages of interview transcripts I have collected?' then the question has been posed too late. Therefore, data analysis is integral to the whole research experience and as such requires careful consideration before and throughout the research process. Following this guidance, I analyzed the data collected from individual doctors, hospital presidents, and medical university presidents.

## **Analysis and Findings of Data from Individual Doctors**

The qualitative study results described the current development progress of doctor profession in China from three perspectives, including individual doctors, hospital stakeholders, and medical university stakeholders. Seeing from individual doctors' perspective, it reveals doctors' development in China from four categories, including doctors' profession selection and leave, doctors' daily work, doctors' status, and doctor profession development. Viewing from the two stakeholders' perspective, three categories refer to doctors' development in China are demonstrated which are the role of doctor, the ethics of doctor, and the professional positioning of doctor. The qualitative study reveals the current professionalization progress of doctor profession in China.

### ***5.1 Theme One: Profession Selection***

Profession selection includes two categories which are “choice of profession” and “leave of profession”, revealing the start and the end of the career life of a doctor in China.

#### ***5.1.1 Choice of Profession***

Choice of profession contains three subcategories-the time nodes that an individual decides to be a doctor, the motivations that an individual decides to be a doctor, and the motivation that a doctor insists on being a doctor.

##### ***5.1.1.1 The Time Nodes That An Individual Decides To Be A Doctor***

Totally, the 112 interviewees provided six-time nodes that they decided to be a doctor. Based on Table 16, except the node “During the Great Culture Revolution”, the rest

five followed a study time line of an individual-from kindergarten (7.1%) to primary school (3.6%), to junior school (14.3%) , and to high school graduation (71.4%). China Great Culture Revolution (CGCR) is a special time node that 4 doctors at an advanced age of the 112 interviewees(3.6%) decided to be a doctor during that period of time. It is not surprised that more than 70% of doctors decide to be a doctor as they graduate from high school since the Chinese medical education directly starts from undergraduate. Based on Chinese education institution, a high school graduate can directly apply a university's medical major after the national college entrance examination. And after 5 to 8 years study, the student gets a doctor professional qualification certificate and then start his career life at hospital.

The China's medical college application institution, however, has a significant drawback that the applicant can be admitted as long as his/her high school grade or the grade of the national college entrance examination is high enough, while the quality for non-test scores are not considered as admission criteria. In contrast, many medical colleges in developed countries such as the United States and Canada pay great attention to the comprehensive quality of applicant. From their perspective, the applicant should to be smart, mature, socially responsible, compassionate, and highly prosocial motivated, but these individual characteristics are totally ignored by Chinese medical college. In other words, it is unknown in China that what kind of people apply to medical college, and we only know that their examination scores are very high.

Doctor is a profession requiring strong comprehensive quality. Firstly, high intelligence quotient (IQ) which a doctor should have so that he/she could be able to effectively and efficiently learn and master new and sophisticated medical knowledge and skills, as well as to do medical research. There is a general perception that high IQ does not equal to high examination scores. For instance, the scores of Chinese national college entrance examination of two students are the same which is 700 out of 750, their IQ



may significant different-one's IQ is 120, the other's is 90. One of the causes resulting in the same score may be because the later spend 5 times learning time. In other words, the effectiveness and efficiency of learning are strongly affected by IQ. For doctors in China, especially for those working at third class grade A hospitals (highest level hospital in China), their workload is extremely high-a volume of 50 patients for a half-day outpatient are very common for an outpatient doctor. In the case of such a high workload, the length of learning time for a doctor is very limited, as a result, high learning effectiveness and efficiency are necessary, in another words, high IQ is needed. Currently, the IQ of an application of medical college cannot be recognized in China since it is not application criteria.

Emotion quotient (EQ) is also of great importance to a doctor. Based on the mixed EQ model developed by Daniel Goleman (1998), three of the five main EQ constructs including partially explain the EQ importance to a doctor. The first construct is motivation, which refers to the drivers of a doctor, such as the motivations driving an individual to be a doctor. A person who chooses to be a doctor may be because of endogenous motivation such as personal prosocial motivation or because of exogenous motivation such as the high-income attribute of doctor profession. The fundamental difference between the two probably is the doctor's objective of providing medical service for patients. The former wants to help the patient from the bottom of his/her heart, while the later helps the patient for getting more income. Apparently, excessive medical treatment and doctor-patient contradiction are more likely to occur in the later. The second construct is empathy referring to consideration of other patients' feelings especially when making decisions. Patient is a special group who suffers from physical and psychological pain resulted from diseases, and they can only seek for help from doctor and need to be understood. Under this situation, high empathy is indispensable for a doctor that he/she should be able to well understand or feel what the patient is experiencing from the disease(s) so that the doctor can make treatment plan. The third

construct is social skill. For doctors, social skill is mainly reflected by communication skill with patients. In China, the lack of adequate communication between doctor and patient is seen as one of the key issues resulting in doctor-patient contradiction. Besides doctors' high workload resulting in the lack of communication time, the lack of communication skill training makes most of Chinese doctor do not know how to correctly and effectively communicate with patients. Meanwhile, there is no corresponding institution in Chinese medical colleges to screen applicants who are naturally incapable of social skills.

From institutional perspective, it is necessary for Chinese government to establish a new medical college application and assessment institutions to screen and enroll appropriate applicants, and the assessments of both IQ and EQ should be considered. The integration of national college entrance examination and third-party IQ tests might be a solution for IQ assessment, and the integration of third-party EQ tests and long-term self-report and peer evaluation of personality evaluation during high school period could be the solution of EQ assessment.

**Table 22 The Time Nodes That An Individual Decides To Be A Doctor**

Time Nodes	percentage
High school graduation	71.4%
During junior school	14.3%
During kindergarten	7.1%
During primary school	3.6%
During the China Great Culture Revolution	3.6%

#### ***5.1.1.2 The Motivations That An Individual Decides To Be A Doctor***

As mentioned in 16, motivation played an important role in EQ, my interview investigated Chinese doctors' motivation of deciding to be a doctor. The results showed that their decision making of being a doctor was driven by four types of motivations (table 17), including profession orientation, family influence, lack of doctor, and

cultural influence.

**Table 23 The Motivations That An Individual Decides To Be A Doctor**

Categories	Sub-categories	Motivations	Percentage
1. Profession Orientation	1. Professional Sanctity/Nobleness	1. “the reason why I chose to be a doctor was because I considered doctor profession a sacred profession and esteemed by the society, it has an unique attribute of helping people by saving life, and I enjoy the feeling of saving life.”	32.1%
	2. Stability of Profession	1. Doctor is a steady profession	7.1%
	3. Suitability of Profession	1. Thinking doctor is suitable for them	3.6%
	4. Income of Profession	1. Considering doctors income high	7.1%
	5. Easiness of Getting a Job	1. Doctor is easy to get a job	3.6%
	6. Career Development	1. Good development prospect of doctor	3.6%
2. Family Influence	1. Family Influence	1. Parents’ decision	21.4%
3. Lack of Doctor	1. Lack of Doctor	1. Seeing a doctor is difficult in the rural areas	10.7%
4. Cultural Influence	1. Cultural Influence	1. Influencing by the Chinese traditional education- if you cannot be the prime minister, be a doctor “不为良相，则为良医”	3.6%

The profession orientation category comprised six sub-categories-sanctity/nobleness of profession, stability of profession, suitability of profession, income of profession, easiness of getting a job of profession, and career development. Based on the percentage of each subcategories mentioned by the respondents, the professional sanctity/nobleness was one of the key motivations, and “helping people by saving life” was the feature referring the sanctity/nobleness. Helping people had strong prosocial attribute, in another words, those 32.1% interviewees were prosocial motivated to decide to be a doctor. The 32.1%, however, reflected that the majority of doctors in China (67.9%) were not prosocial motivated to choose to be doctor. Regarding the other five sub-categories of profession orientation, they did not present prosocial attribute.

Regarding family influence, 21.4% of interviewees indicated that the decision of

choosing to be a doctor was decided by their parents rather than themselves. From the perspective of Chinese family culture, Chinese parents, basing on their own experiences, expectations, and judgements, preferred to make the decision of profession selection instead of their children, and few of Chinese parents considered the decision from the point of view of Children's IQ and EQ which were important to a doctor. The examination score was the key factor that Chinese parents considered, but it did not reflect IQ and EQ.

The lack of doctor reflected an external social environment that an individual was under. 10.7% of our interviewees proposed that they chose to be a doctor since there was a lack of doctor in rural areas (their hometowns), meaning the social environment-lack of doctor-was the driver of profession choice for doctors. However, it was unknown that whether the lack of doctor meant a prosocial purpose that they wanted to help people living in rural areas or meant a pure social need. In other words, the interviewees decided to a doctor because they wanted to help people in the rural areas or just because the rural areas needed doctors.

Moving to the last category-cultural influence, although only 3.6% of interviewees were influenced by the traditional Chinese culture to decide to be a doctor, it is a unique motivation. For Chinese culture, historically people believed that there was no better man than the prime minister who can benefit the people of the nation, and if you cannot be the prime minister, be a doctor. The value from Chinese traditional culture showed a high sense of identity for doctor profession, but this value was not inherited by modern Chinese people, and the number 3.6% was the direct evidence.

Viewed from table 17, profession orientation was one of the key factor making an individual choose doctor profession, and over 50% of the 112 doctors indicated that the sanctity/nobleness of the profession was critical. This kind of sanctity/nobleness was

reflected by saving patient life, which meant a characteristic of high prosociality. Prosociality was one of the fundamental characteristic of doctor profession, as well as an quality that a doctor should possess. High prosociality was indispensable for individual doctors and the development of the profession, and theoretically government, medical school, and hospital should establish a periodic assessment institution to evaluate the personality especially the prosociality of medical school applicants and doctors, as a result, the whole society could understand what kind of people that our doctors are. After that, government, medical school, hospital and other organizations such as doctor association could establish appropriate institutions to improve the prosociality of doctors and development the doctor profession. However, China currently does not have such an assessment institution-the college entrance examination result is the unique admission criteria of medical schools, and there is no any personality evaluation for doctors at hospitals.

To accurately understand the degree of prosociality of Chinese doctors, the quantitative study of this research measured the construct by prosocial motivation scale. The valid 1953 doctors, on average, showed a positive but weak (mean=5.45, 7-point scale) prosociality. Then one question was proposed: why the doctors' prosociality on average is not high? Based on the career motivation theory applied in this research, the prosociality, as a personal characteristic, could be affected by situational characteristics. And in the qualitative study of this research, the doctor interviewees mainly mentioned two types of situational characteristics, including social situation and work situation, both of which had impacts on the doctors' prosociality.

#### ***5.1.1.3 The Motivations That A Doctor Insists On Being A Doctor***

Motivated by some incentives, the interviewees have been insisting on working as a doctor for years, and the incentives mentioned by the interviewees were integrated into four categories-difficulties in changing profession, actualization of personal value,

personal preference, and profession stability (see Table 18)

**Table 24 The Motivations That A Doctor Insists On Being A Doctor**

Categories	Items	Percentage
1. Difficulties in Changing Profession	1.It is difficult to change career since I have no other skills	14.30%
	1.It is difficult to change career since I have been in the doctor profession for a long time	10.60%
2.Self Actualization	1.I think being a doctor gives me a sense of accomplishment. (saving life)	14.30%
	2.I think being a doctor can realize my value-saving life	14.30%
	3.Being a doctor can realize my dream of helping others.	10.70%
3.Personal Preference	1.I am interested in working as a doctor since there are many things I like at work	35.70%
	2.I think being a doctor makes me happy.	3.60%
	3.I think it is worth sticking to the doctor profession.	3.60%
	4.I like working with others who have similar experience	7.10%
4.Profession Stability	1.Doctor is a stable profession.	7.10%

In terms of difficulties of changing profession, skills and time were the key factors. The former referred to the skills owned by doctors. The interviewees indicated that skills in medicine were the only skills they had mastered and the lack of other skills resulted in the difficulty in changing profession. The later referred to the length of time that the interviewees had been doctor. From the perspective of time cost, a long-time career life as a doctor made doctors feel difficult to change profession.

Moving to self-actualization of personal value, interviewees proposed that their personal value was helping people by saving life, and the doctor is the profession actualizing the value, as a result, they insisted on being a doctor. Based on Maslow' Hierarchy of Needs theory, self-actualization was the highest need, and the realization of this need depended upon the realization of physiological needs, safety needs, love and belonging, and esteem. It was notable that no more than 15% of interviewees believed doctor profession could achieve self-actualization. This implied that the being a doctor for the majority of doctors in China was either not the way to achieve self-

actualization or did not fully guaranteed the needs of physiology, safety, love and belonging, and esteem so that self-actualization could not be realized. In the next part 5.1.2-Leave of Profession, relevant analysis was shown in detail. Regarding personal preference, 35.70% of interviewees stated that they were interested in working as a doctor and there were lots of things they liked at work. The relevant contexts were detailed in the part 5.2.1-doctors' favorite categories at works. The last motivation-profession stability-was a profession-oriented motivation, and just 7.1% of interviewees mentioned this motivation.

### ***5.1.2 Leave of Profession***

Leave of profession was organized by four categories which were ever/never considering leaving doctor profession, motivations of leaving doctor profession, motivations of not leaving doctor profession, and conditions of leaving doctor profession.

#### ***5.1.2.1 Ever/Never Considering Leaving Doctor Profession***

Among the 112 interviewees, 72 of them (64.3%) ever considered leaving doctor profession, and the other 50 (35.7%) never considered leaving doctor profession (see Table 19).

**Table 25 Ever/Never Considering Leaving Doctor Profession**

Yes/No	Percentage
Yes	64.3%
No	35.7%

### ***5.1.2.2 Motivations Of Ever Considering Leaving Doctor Profession***

Regarding the interviewees ever considering leaving doctor profession, they conceived of leaving intention because of four types of motivations -pressures, deterioration of practice environment, inconsistency between income and profession value, and inconsistency between social status and profession value (see Table 20). These motivations, in my opinion, were the barriers preventing doctors from realizing self-actualization based on Maslow's Hierarchy of Needs Theory. The detailed analysis was shown as follows.

**Table 26 Motivations Of Ever Considering Leaving Doctor Profession**

Categories	Motivations	Percentage
1.Pressures	1.A doctor's workload is very heavy and stressful, and this has negative impacts on doctor's physical and psychological health	50%
	2.Feeing severe psychological pressure since doctors are not understood by patients	22.2%
2.Deterioration of Practice Environment	1. Deterioration of doctor-patient relationship and lack of legal protection to doctor profession result in personal safety risk for doctors	17.1%
3.Inconsistency between Economic Status and Profession Value	3.Doctor's low income cannot reflect a doctor's value, and I feel that I am not esteemed by the society	16.7%
4.Inconsistency between Social Status and Profession Value	1.Low social status cannot reflect a doctor's value-cannot get enough esteem from the society	15.6%

From the perspective of physiological needs, adequate economic income was the fundamental guarantee. In most of countries of the world, doctor profession was regarded as a high class in the whole society and deserved high economic income. High economic income equaled to high physical quality of life. The reality in China, however, was that the income of doctor profession was not high. Based on the 2018 Chinese physician practice status white paper published by China's doctor association, the



average annual income of doctors in China was \$ 115,111 for male doctor and \$10,722 for female, respectively. And the annual income of doctor working at third grade hospitals (the same level of interviewees in this study) was \$12,534. This meant that doctors in China, on the whole, were not able to get a high physical quality of life. In other words, the needs of psychology, which is the lowest level of need in Maslow's model, was not fully satisfied for doctors in China.

Viewed from the needs of safety, personal safety and health safety are crucial for doctor profession. Our interviewees indicated their intention to leave doctor profession were motivated by pressures and deterioration of profession environment, and they were closely related with the personal safety and health safety. For health safety, it was affected by the pressures that doctors faced. Specially, 50% of interviewees indicated that both of their physical health and psychological health were negatively affected by the heavy and stressful workload, and the psychological health were also negatively affected since they thought they were not understood by patients. For personal safety, the interviewees said that the deterioration of doctor-patient relationship and the lack of legal protection to doctor profession result in personal safety risk for doctors resulted in personal safety risk for doctors. Based on the investigation report on anti-doctor violent injuries in hospitals published in 2014 by China hospital association, there was 63.7% of investigated hospital (316 in total) experiencing anti-doctor violent injuries in 2012, and medical staff including doctors were either injured or killed.

Moving to the needs of esteem, my results showed that 16.7% of the doctors felt that they did not get enough esteem from the society since their economic income is not consistent with their profession value, and 15.6% of the doctors said the inconsistency between social status and profession value made them feel that they did not get enough esteem from the society. As a result, such inconsistencies drove doctors to plan to leave doctor profession. Further analysis of economic income of doctors in China was done

in the later parts 5.3.1 and 5.3.2.

### ***5.1.2.2 Motivations Of Never Considering Leaving Doctor Profession***

For the interviewees who never considered leaving doctor profession, three categories including passion for profession, difficulties in changing profession, and successful profession development (Table 21) made up the motivations. More precisely, among the 35.7% of interviewees (40 out of 112) who said they never considered leaving doctor profession, 60% of them (24 out of 40) said the passion for doctor was the key motivation, and it reflected that those doctors had high affective commitment on doctor profession. Regarding the difficulties in changing profession, the interviewees indicated that they had spent a lot of effort and time on their career life as a doctor, it was difficult for them to change profession, this implied that the continuance professional commitment was a concern for the doctors, in other words, the costs of leaving doctor profession was a key driver making those doctors never think of leaving. Last but not least, 4 doctors (10% of 40) said they had a successful profession development so that they did not consider of leaving.

**Table 27 Motivations Of Never Considering Leaving Doctor Profession**

Categories	Reasons	Percentage
1. Passion for Doctor Profession	1.I am fond of being a doctor and will not change career no matter what difficulty I will meet.	60%
	2.I become more and fonder of this profession after I become a doctor.	10%
2.Difficulties in Changing Profession	1.Being a doctor for many years, I cannot do other things.	20%
	2.As I have studied for such a long time, I do not want to give up	10%
3.Successful Profession Development	1.I do well without difficulty.	10%

### 5.1.2.3 Conditions Of Leaving Doctor Profession

Regardless of ever/ never considering leaving doctor profession, 72 of the 112 (64.3%) interviewees proposed the conditions which might drive them to plan to leave doctor profession (Table 22). The conditions were induced into three categories-personal issues, new job opportunity, and deterioration of profession environment. In contrast, the rest 40 interviewees (35.7%) indicated that there was no any condition which could motivate them to leave doctor profession.

**Table 28 Conditions Of Leaving Doctor Profession**

Categories	Conditions	Percentage	Possibility	Percentage
No Condition	1. There is no any condition separating myself from doctor profession	35.7%	None	80%
			LOW	20%
1. Personal Issues	1. Personal health does not allow me to continue	14.3%	LOW	25%
			Not Sure	25%
			None	50%
	2. A doctor medical license may be revoked when I makes a mistake.	14.3%	LOW	100%
	3. I am not able to going on being a doctor as my ability is not adequate.	3.6%	LOW	100%
	4. Not in a good mood	3.6%	LOW	100%
	5. Severe medical accident happens	3.6%	LOW	100%
2. New Job Opportunity	1. When there are other choices better than being a doctor	14.3%	Not Sure	100%
			Very High	50%
			LOW	50%
3. Deterioration of Profession Environment	1. When medical environment continues deteriorating.	10.7%	Very High	33.3%
			High	33.3%
			LOW	33.3%
	2. Disputes between doctors and patients are too intense.	3.6%	High	100%

## ***5.2 Theme Two: Profession's Daily Work***

Theme two explores the daily work of doctor profession. This theme contains three categories-“favorite and Abhorrent categories at work”, “difficulties at work”, and “needed skills, ability, and knowledge at work”

### ***5.2.1 Doctors' Favorite categories at work***

#### ***5.2.1.1 Doctors' Favorite Categories At Work***

Interviewees proposed six categories that they liked at work and the reasons why they liked (see Table 23). All of the categories were closely related with patients. Generally, those categories could be summarized as the process that a doctor treated a patient who needed operation: a doctor firstly diagnosed the patient and made the therapeutic regime (7.1%), then did a surgery for the patient (10.7%), and finally cured the patient (82.1%). And during this process, doctors were also in favor of communicating with patients (10.7%) and studying complicated cases (7.1%), and they liked to be recognized by patients (7.1%).

Apparently, 100% of the doctors' favorite things were all patient-oriented. It was worth noting that the senses of achievement and joy were the common reasons explaining why the doctors liked those things, and the two senses had strong prosocial attribute since each of the favorite categories was related with benefiting others-patients in this study. Helping patients means saving life which was a noble mission, and it was reasonable to deduct that doctors in China were a group of high-minded people from the perspective of prosociality. From institutional perspective, relevant organizations including hospitals, governments and associations had the responsibility of establishing

institutions to support those high-minded doctors to improve their work and to protect their interests and rights.

**Table 29 Doctors' Favorite Categories At Work**

Categories	Percentage	Reasons	Percentage
Cure of patients	82.1%	1.Having the sense of achievement	60.9%
		2.Having the sense of joy	21.7%
		3.Having the sense of gratification	8.7%
		4.Having the sense of relief	8.7%
		5.Feeling excited	4.3%
		6.Feeling happy because of helping other	4.3%
		7.This is the original intention to be a doctor	4.3%
		8.Having the sense of being identified	4.3%
		9.Confirming the knowledge and the professional skills they have learned	4.3%
		10.Having the sense of sacredness	4.3%
		11.It is challenging	4.3%
Doing Surgery	10.7%	1. Operation-Reflecting the value of their own	50%
		2. Operation-Having the sense of joy	50%
		3. Operation-Having the sense of relief	50%
		4. Operation-Having the sense of achievement	50%
		5. Operation-It is challenging	50%
Recognition of Personal Work by patients	7.1%	1.Having the sense of gratification	50%
		2.Having the sense of joy	50%
		3.Reflecting the value of their own	50%
		4.Having the sense of achievement	100%
Communication with Patients	10.7%	1.Having the sense of joy because of helping patients	50%
		2.Having the sense of being identified	50%
		3.Having the sense of gratification	50%
		4.Having the sense of achievement	50%
Studying Complicated Cases	7.1%	1.Having the sense of achievement	100%
Diagnosing Patients and Making Therapeutic Regime	7.1%	1.Having the sense of joy	50%
		2.Having the sense of gratification	50%
		3.Having the sense of achievement	50%

### ***5.2.1.2 Changes Of The Favorite Categories In The Last Three Years***

Although the interviewees indicated that there were many abhorrent things at work (discussion in part 5.2.2) difficulties, doctor profession in China did not get the economic status and social status (discussed in part 5.3), and the doctor profession had been facing lots of challenges in profession development (discussed in part 5.4.1), Our study showed that Chinese doctors are always patient-oriented and this orientation never changed. Specifically, seeing from the following Table 24, not only did 100% of the interviewees indicated that the favorite categories did not change at all, but also the favorite degree of three categories-cure of patients, communication with patients, and diagnosing patients and making therapeutic regime-presented growing tendency.

**Table 30 Changes Of The Favorite Categories In The Last Three Years**

Categories	Whether changed	Percentage
Cure of patients More and more love	More and more love	4.3%
	No	95.7%
Passion for Doing Surgery	No	100%
Recognition of Personal Work	No	100%
Communication with Patients	More and more love	50%
	No	50%
Studying Complicated Cases	No	100%
Diagnosing Patients and Making Therapeutic Regime	More and more love	50%
	No	50%

## ***5.2.2 Doctors' Abhorrent categories at work***

### ***5.2.2.1 Doctors' Abhorrent Categories At Work***

Compared with those favorite categories, interviewees identified totally 17 Abhorrent things at work which were grouped into six categories (Table 25), including (1) the deterioration of doctor-patient relationship, (2) too many non-medical affairs, (3) low work autonomy, (4) high workload, (5) unreasonable income, and (6) negative direction of public opinion made by media. As discussed in 5.2.1, relevant institutions should be established to support doctors to improve their work and to protect their interests and rights. The abhorrent things, however, reflected that China did not have sound institutions.

Firstly, it was an abnormal phenomenon that the interviewees believed that that the doctor-patient relationship was deteriorated since all the favorite things of the 112 interviewees at work are helping patients. Based on the exact abhorrent things in table 25, the deterioration of the relationship was reflected by the misunderstanding and not understanding by patients and patients' family members which resulted in huge pressure on doctors, and by the difficulties in communicating with patients because doctors did not receive adequate communication trainings. The lack of training was a typical institutional issue that although most of medical colleges in China had opened a course for doctor-patient communication, this course is an elective course but not a compulsory course. As a result, only those medical students who were interested in doctor-patient communication received relevant trainings. Furthermore, even though doctor-patient communication was recognized as an important issue by public hospitals in China, there was few of them opened relevant continuing education course for doctors. As a result, the lack of adequate communication between doctors and patients occurred, and this at a certain degree caused patients misunderstanding and not understanding. Depending

on the interviewees' answer, it was found that the deterioration of doctor-patient relationship was directly related with another two things that doctors felt abhorrent-low work autonomy and negative direction of public opinion made by media.

From institutional perspective, the low work autonomy was reflected by unreasonable institutions which made doctors cannot satisfied patients' needs based on the principle of patient-orientation. A typical example was the institution of average days of hospitalization, which is a vital evaluation index of hospital performance in China, and normally the fewer the days, the better the hospital performance from governmental perspective. While from doctors' and patient's perspective, a patient could not be hospitalized with reasonable days according to the needs of his or her condition, and the doctor, in order to finish that task of average day of hospitalization, had to ask the patient to go through the discharge procedure to leave hospital for a couple of days and then go through the hospitalization procedure again. As a result, a doctor-patient contradiction may happen-the patient wanted to and should hospitalize a longer time without leaving hospital for days, but the doctor could not do so because of the institution of average days of hospitalization. This example showed that an institution not patient-oriented was one of the causes of deterioration of doctor-patient relationship. Regarding the negative direction of public opinion made by media, it referred to media's unfair reports to doctors. Specifically, some media in China distorted the facts and portrayed the doctor as someone who were driven by monetary benefit. One typical example was the "80 cents incident" In September 2011, a baby born 6 days was unable to defecate normally. A doctor of the Shenzhen Children's Hospital recommended an operation for ostomy, which cost about ¥100,000 dollars. The father of the baby refused surgery and went to another hospital at which a doctor prescribed a drug of 80 cents which relieved the child's symptoms. At that time, many media only took the father of the baby as the source of information, rendering a huge contrast between 100,000 yuan and 8 cents, and causing public opinion to blame the doctor of Shenzhen Children's Hospital for excessive medical treatment. The fact, however, was that the child was



finally diagnosed with congenital megacolon and the operation was necessary. This example reflected that information distortion problem existed in media' report of doctors in China. Another case was the positioning of media from Chinese doctors' perspective discovered by this study. More precisely, among the 35.7% of the interviewees who mentioned the negative direction of public opinion made by media, 80% of them believed that media treated doctors as a tool to transfer social conflicts from institutional perspective. The occurrence of "80 cents incident" was actually because of the lack of doctor-patient dispute handling institution-It was not until June 2018 that the Chinese central government formulated and passed the Medical Disputes Prevention and Treatment Institution, which would be officially implemented in October 2018. The interviewees in this study said media clearly knew that patients had to choose to seek help from media because of the lack of relevant institutions which was the responsibility of government, but media chose to "help"patients by distorting the facts. As a result, doctors became the victims of the lack of institution, and the doctor-patient relationship deteriorated as well.

**Table 31 Doctors' Abhorrent Categories At Work**

Categories	The Abhorrent categories	Percentage	Reasons
1. Deterioration of doctor-patient relationship	1.Not be understood by patients and their families	35.7%	feel huge pressure
	2.The doctor-patient relationship is strained	7.1%	Doctors cannot focus on their medical work
	3.In the dispute between doctor and patient	7.1%	Doctors feel very exhausted
	4.Difficult to communicate with patients.	3.6%	No reason
	6.Difficult to tackle the doctor-patient relationship	3.6%	No reason
2. Excessive Non-medical Affairs	1.Too many administrative affairs	28.6%	Reduce work efficiency and work quality
	2.Teaching and research distracts a doctor's attention.		Feel huge pressure
			Disturb normal rest
3. Low Work Autonomy	1. Work autonomy is low	7.1%	Result in tensions between doctors and patients
4. High Work Pressure	1. Work pressure is too high	3.6%	Make doctors exhausted
	2.Work overtime too often	3.6%	feel guilty to family members
5. Unreasonable Income	1. Income is inconsistent with profession value	45%	No reason
6. Negative Direction of Public Opinion made by Media	1.Media gives a distorted report of medical disputes	3.6%	Influence the patients' value judgment to doctors
	2.Media's unfair evaluation of doctors	3.6%	No reason
No Abhorrent Categories	No Abhorrent Categories	3.6%	No reason

### 5.2.2.2 Changes Of Abhorrent Categories In Last Three Years

Based on the experiences of last three years, the Abhorrent categories at work of the interviews shows a deteriorating trend as a whole. Viewing from Table 26, a trend of improvement presents only in two abhorrent things which was the strained doctor-patient relationship and the distraction of doctor's energy by teaching and research, and the unfair media's report to doctors did not change at all, and all the other abhorrent things showed a trend of deterioration. The overall deterioration trend reflected Chinese central government and local governments did not adopted adequate effective institutional reforms to improve doctors' working environment.

**Table 32 Changes Of Abhorrent Categories In Last Three Years**

Categories	The Abhorrent things	Whether changed	Percentage
1. Deterioration of Profession Environment	1.Misunderstanding and not understanding by patients and their family members	worse	20%
	2.The current doctor-patient relationship is strained	better	20%
	3.Difficult to communicate with some patients.	worse	100%
2. Non-medical Affairs	1.Too many administrative affairs	worse	87.5%
	2.Teaching and research distracts a doctor's energy.	better	100%
3.Low Work Autonomy	1. Work autonomy is low	worse	50%
4. High Work Pressure	1. Work pressure is too high	worse	100%
	2.Work overtime too often	worse	100%
7.Unreasonable Income	1.Income is inconsistent with profession value	worse	100%
8. Negative Direction of Public Opinion made by Media	1. Media's report to doctors are unfair	unchanged	100%

### ***5.2.3 Difficulties at work***

In daily work, doctors faced diverse difficulties which were induced into eight categories, including (1) lack of time; (2) psychology pressures; (3) deterioration of doctor-patient relationship; (4) interest balance; (5) medical technology; (6) institutions; and (7) vision of future development. Specific difficulties of each category were stated in Table 27.

It was notable that difficulties in terms of institutions was emphasized by the interviewees. Although the number of interviewees mentioning that category was merely 7.2%, it was one of the key causes resulting in other four types of difficulties. Regarding the lack of time to do research, teaching, and learn new medical skills, doctors obeying the current institution had to spend most of time on outpatient and ward inspection and administrative affairs, for instance, it was normal that a doctor treated more than 40 patients for a half-day outpatient, as a result, the doctor did not have enough time to do other things. In terms of psychology pressures, the interviewees said the deteriorating medical security environment was directly resulted from the imperfection of medical institutions that rights and interests of doctors in China could not be fairly protected. Moving to the deterioration of doctor-patient relationship, it had been discussed in 5.2.2.1 that it was resulted from the unreasonable institutions which were not patient-oriented. About interest balance, the payment institution of Chinese governmental public health insurance made doctors cannot provide some necessary drugs, operation, and other medical services for patients who were not able to afford the prices, in other words, patients could not get equal medical services based on their income and the type of medical insurance.

It is a question worth pondering that why only very a few of interviewees (7.2%) mentioned the institutions in the difficulties at their work. This question might be explained by the Chinese democratic institution. Specifically, China is a socialist democratic institution country which is different from those capitalist democratic institution countries such the United States. In China, the government institution is a sensitive topic that public officials are reluctant to talk about this topic in public especially when interviewee and interviewer are unfamiliar and have no mutual trust. A direct evidence is the relationship between the 7.2% of interviewees and me-we have known each other for more than ten years and have a basis for mutual trust. As a result, they would like to talk about institutional issues with me privately. Such kind of talk, however, is almost impossible to appear in public for communist party members since the release of the revised Regulation on Disciplinary Action of the Communist Party of China. The new regulation will include "consideration of the central government's policy, destroying the party's centralization and reunification" into a "negative list" that violates political discipline. This regulation, in my personal opinion, is an institutional barrier hindering the improvement of institutions since people dare not discuss institutional issues.

**Table 33 Difficulties At Work**

Categories	Difficulties	Percentage
Lack of Time	Do not have enough time to do scientific research and teaching	7.10%
	Do not have enough time to learn new medical skills	3.60%
Psychology Pressures	The deteriorating medical security environment puts greater psychological pressure on doctors	7.10%
	Patients' high expectation put great psychological pressure on doctors	3.60%
	the professional risk, the application of new technology, administrative affairs, medical disputes, trade off between patients' treatment and protection of themselves put great psychological pressure on doctors	3.60%
The Deterioration of doctor-patient relationship	Patients' imperfect understanding of doctors makes it difficult to communicate with them.	7.10%
	The doctor-patient relationship is very strained	3.60%
	Difference in doctor and patient's understanding of the medical scheme	3.60%
	Doctors cannot be understood by society.	3.60%
Interest Balance	Make a trade-off between patient's payment capacity and medical quality	3.60%
	Difficult to balance the interests of patients and the hospital	3.60%
Medical technology	Some diseases remain incurable by current medical technology	3.60%
	It is difficult to combine basic research and clinical trial	3.60%
	As they get older, they study and use new technology in a relatively slower speed compared to young doctors	3.60%
	Difficult to obtain in time information on international first-class scientific research and medical technology	3.60%
	Differences of patients challenge surgery.	3.60%
Institutions	Relevant medical institution is not reasonable	7.20%
	Medical insurance institution is inconsistent with the actual medical condition	7.20%
	Existing teaching system in course setting is not suitable for current working environment	7.20%
Vision of Future Development	The biggest challenge is to surpass themselves	7.10%
	Incapable of achieving promotion, doing scientific research and clinical work	3.60%
	Cannot see good prospect for personal development and the opportunity	3.60%

#### ***5.2.4 Needed skills, ability, and knowledge at work***

Interviewees indicated that there were different skills, abilities, and knowledge that they needed to master for their job demand (Table 28). Regarding the skills, communication skill with patients and specialized skill were proposed, and all the interviewees who mentioned the two skills did ever accept relevant trainings. Moving to abilities, five

necessary abilities were mentioned in total, which are 1) the ability of updating professional knowledge, 2) the ability of doing scientific research, 3) the ability of working as general practitioner, 4) the ability of synthetical analysis, and 5) the ability of logical thinking which was the only ability that interviewees said they never got relevant trainings. For knowledge, psychological knowledge, jurisprudence knowledge, and economic knowledge were proposed, and the interviewees indicated that they did ever accept relevant education but not enough.

**Table 34 Needed Skills, Ability, And Knowledge At Work**

<b>Skills</b>	Percentage	Ever accepting relevant education	Percentage
Communication skill with patients	64.3%	Yes but lack	100%
Specialized skill	100%	Yes	100%
<b>Abilities</b>	Percentage	Ever accepting relevant education	Percentage
The ability of updating professional knowledge	3.6%	Yes	100%
The ability of doing scientific research	7.1%	Yes	100%
The ability of working as general practitioner	3.6%	Yes	100%
The ability of synthetical analysis	3.6%	Yes	100%
The ability of logical thinking	3.6%	No	100%
<b>Knowledge</b>	Percentage	Ever accepting relevant education	Percentage
Psychological knowledge	10.7%	Yes but lack	100%
Jurisprudence knowledge	3.6%	Yes but lack	100%
Economic knowledge	3.6%	Yes but lack	100%

It was notable that almost 65% of interviewees indicated that communication skill with patients was a necessary skill they needed to learn and master, and the fundamental reason was that doctors believed the lack of effective communication was one of key causes resulted in the deterioration of doctor-patient relationship. There were 20 out of 112 interviewees proposed that the governments and medical colleges should reform the current university medical education institution and the after work continuing education institution by opening a compulsory doctor-patient communication course.

### ***5.3 Theme Three: Professional Status***

#### ***5.3.1 The level of current economic status of doctor profession***

Among the 112 interviewees, 5 (4.46%) and 13 (11.60%) thought that their current level of economic status was very low and low, respectively; 44 (39.29%) viewed the level as normal; and the other 35 (31.25%) and 15 (13.39%) believed that the level was high and very high, respectively (Table 29).

**Table 35 The Level Of Current Economic Status Of Doctor Profession**

Level of Current Economic Status	Number of Doctors	Percentage
Very Low	5	4.46%
Low	13	11.60%
Normal	44	39.29%
High	35	31.25%
Very High	15	13.39%

#### ***5.3.2 The level of current social status of doctor profession***

Among the 112 interviewees, 3 (2.68%) and 10 (11.20%) thought that the level of their current social status was very low and low, respectively; 40 (35.71%) viewed the level as normal; and the other 41 (36.61%) and 18 (16.07%) believed that the level was high and very high, respectively (Table30)



**Table 36 The Level Of Current Social Status Of Doctor Profession**

Level of Current Social Status	Number of doctors	Percentage
Very Low	3	2.68%
Low	10	11.20%
Normal	40	35.71%
High	41	36.61%
Very High	18	16.07%

### ***5.3.3 The reasons why doctor profession deserves high economic and social status***

Viewed from Table 31, the reasons that doctor profession deserves high economic and social status were grouped into six categories, including (1) profession nobleness, (2) training cost, (3) improvement of doctor-patient relationship, (4) profession ethics, (5) profession dignity, (6) profession influences on society and nation.

**Table 37 The Reasons Why Doctor Profession Deserves High Economic And Social Status**

Categories	Items	Percentage
Profession Sanctity/Nobleness	1. Being a doctor can cure the diseases to save patients that is a noble profession and deserves high income	10.70%
	2. Human life and health are priceless. Since doctors are noble that they save people's life, they should have the high economic status.	7.10%
	3. Human beings are very concerned about their lives and health. As doctors are noble in terms of protecting people's lives and health, they should have high economic status.	3.60%
	4. Doctor is a noble profession that has significant influence not only on patients and their families but also on society.	3.60%
High Training Cost	1. The time cost of training a doctor is much higher than that of most of other professions	26.80%
	2. The economic cost of training a doctor is much higher than that of most of other professions	26.80%
Improvement of doctor-patient relationship	1. Only with high economic and social status can doctors commit themselves to better serving patients.	7.10%
	2. Only with high economic and social status can doctors be respected and understood by patients.	3.60%

Profession Ethics	1.Only with high economic and social status can doctors not contradict their moral principle for the interests of their own.	3.60%
Profession Dignity	1.Any profession has its own dignity that is embodied by economic and social status. Doctors who save patients' lives, in particular, should have a relatively high economic and social status.	16.1%
Profession Influences on Society and Nation	1.The success and failure of doctors' work can have an influence on health of the overall population and social stability.	10.0%
	2.Doctors ensure patients' lives, which to some extent, ensures health of the whole nation.	13.3%

### ***5.3.4 Discussion: The Status and Prosociality***

Regarding the status of doctors in China, it referred to the economic status and social status of the doctor profession, and both of them were highly related with governmental institutions.

In terms of doctor's economic status, it was determined by the wage institution, which was made by Chinese government. The wage institution divided doctor's wage into two parts, including basic salary and performance bonus. Since the founding of the People's Republic of China, the doctor's basic salary had been defined at a relatively low level, and the doctor's performance bonus was mainly determined by the number of and the price of the drugs and medical consumables, and medical tests such as MRI and CT. As a result, in order to obtain more performance bonuses, doctors in China formed a tradition that prescribing more expensive drugs for patients and ask them to do more medical tests. Despite this, Chinese doctors' wage from government and hospital was still at a relatively low level. Although the Chinese government made new institutions such as cancelling the hospital's 15% markup for drugs and increased medical service fee such as registration fee, doctors income from government and hospital did not increased as doctors expected. Then the vast majority of doctors in China produced an opinion that their economic status from the wage institution did not match the value of the doctor profession, so they adopted illegal and unethical ways to get more economic

income they thought they deserve, and one typical way was receiving kickback from the agents of medicine and consumables. As a result, doctors would pursue more economic benefits for themselves at the expense of the patient's economic interests, and finally not only did the whole Chinese society blame that doctors lost their professional ethics, but also doctors condemned themselves. Apparently, the China 'current doctor's wage institution system in the aspect of chasing economic interests undermined the sanctity of doctor profession, in other words, weakened the prosociality of doctors.

From the perspective of the professional social status, doctors with high prosocial characteristics should enjoy top social status in the entire social class. Specifically, doctors, as a pure provider of medical services, had dedicated their entire career life to the lifesaving of patients. In other words, doctor had helped others throughout their lives, and this reflected a high prosociality of doctor profession and the doctors themselves. Theoretically, doctors should be respected by the whole society and enjoy a high social status. However, the social status of doctor profession in China had never been high since ancient times. From the perspective of profession positioning, there was an old saying in China that "medicine and witchcraft are homologous". In the eyes of the ancient ruling class in China, doctors and wizards were not much different, and both of them were as the underlying occupation. Regarding the title of profession, doctors had been called Jianghu Langzhong in China since ancient times, and such a title is contemptuous. Doctors had been in such an environment in the history of feudal society in China for more than 2,500 years,. It could be seen that the low social status of doctor profession is a historic issue in China.

In today's China, although the contemptuous title for doctor profession had disappeared, doctors still did not receive adequate respect that they deserved. This could be reflected in the perspective of media public opinion and legal protection.

From the perspective of media public opinion, although fundamentally it was the institution system formulated by the government led to various medical the social problems and contradictions, doctors had been used as carriers to transfer the problems and contradictions. For example, the media slammed doctors that they were money driven-prescribing high-priced drugs, using high-priced consumables, but the media avoided a significant problem - in fact, the government's institution system was the root of the problems. From a legal point of view, Chinese doctors believed that they lacked legal protection, which was reflected in the frequent incidents of anti-doctor violence in China in recent years. In some incidents, doctor lost the dignity of the profession and even life. For example, on March 13, 2016, a 10-month-old baby was sent to Pinghu People's Hospital in Longgang District for treatment of lung infection, but unfortunately died. The baby's family, without any communication with the hospital, forced the pediatrician of the hospital to the outpatient hall on March 14, beat the doctor and forced the doctor to kneel. In this incident, the doctor had no dignity. Another more horrible incident happed in 2016. On May 5, 2016, Chen Zhongwei, a dentist of the Guangdong Provincial People's Hospital, was chopped by a patient for more than 30 time . His face, knee joint, and the heel were all chopped off. After 43 hours of the incident, the doctor unfortunately died. Furthermore, in the qualitative study of this research, 61 out of 70 (part 5.3.4) said that they ever experienced disputes in which they felt that they did not get adequate law protection. They also said that they might not pay 100% enthusiasm to help patients after the disputes, because their enthusiasm was exchanged for unfair treatment at the legal system level. These showed that the lack of legal institutional protection severed negative impact on the prosociality of doctors.

### ***5.3.5 Law Protection***

Among the 112 doctor interviewees, 70 of them mentioned that they ever experienced medical tangles, the rest 42 did not (table 32). For those who ever experienced medical

tangle, 61 out of 70 believed that they did not get adequate law protection. As mentioned in part 5.2.2.1, it was not until June 2018 that the Chinese central government formulated and passed the Medical Disputes Prevention and Treatment Institution, which would be officially implemented in October 2018. The legislation reflected an improvement in terms of doctors' social status.

**Table 38 Experience Of Medical Tangle**

Experience of Medical tangle		Getting Adequate Law Protection		Description
YES	70	YES	9	1.I got adequate law support that protected my interest
		NO	61	1.Law protect patient morn than doctor, and not willing to pay 100% passion to help patient
				2.Doctor is the weak side in law. I help patient not do not get reasonable treatment
NO	42			

## ***5.4 Theme Four-Development of Doctor Profession***

### ***5.4.1 Development Difficulties Faced By Doctor Profession***

For the development of doctor profession, interviewees raised 23 development difficulties which were induced into three categories: (1) institution, (2) doctor-patient relationship, and (3) work pressure (Table 33). The later two categories were also the difficulties at work faced by doctors. The first category-institution were mentioned by 100% of respondents with different proportions, and the unreasonable doctors' revenue institution accounted for the highest proportion reaching to 69.6%. Based on this number, we can see that the reform of doctor revenue institution in China is a question worthy of further discussion.

**Table 39 Development Difficulties Faced By Doctor Profession**

Categories	Difficulties	Percentage
Institution	1.Unreasonable doctors ' revenue institution-Doctors contribution is not proportional to their reward	69.60%
	2.Governmental medical insurance institution awaits to be reformed	40.20%
	3.Unreasonable medical service and drug-pricing institution	36.60%
	4.Absence of diagnosis specification guide for doctors at work	36.60%
	5.Taking patient interests as priority such as patient safety priority and decreasing patient's expenses are excessively demanded-not patient oriented	35.70%
	6.It is difficult for doctors to keep orientation of medical system reform institution	6.25%
	7.Lack of institution support to nurture the young doctors	24.20%
	8.Inadequate government investment in the whole medical industry	6.25%
	9.Centralized high-quality medical resources	6.25%
Doctor-Patient Relationship	1.Doctor-patient relationship constantly deteriorates	62.50%
	2.Doctor's practicing environment constantly deteriorates	62.50%
	3.Social conflicts, such as high medical fee problem is passed on to doctors by patients	40.20%
	4.Doctor is not understood by patients, they think doctors' ethic (e.g. receiving hong bao from patients) is not as high as they expect	40.20%
	5.Doctor does not receive enough respect of patients.	26.8%%
	6.Doctors are lack of communication skills	22%
	7.Patients' expectation on doctor is too high	22%
Work Pressure	1.Doctor's workload is too high	50%
	2.Besides medical work, doctors also need to undertake teaching and scientific research work, which puts much pressure on them	13.40%

The economic revenue represented the economic status which had been discussed in previous parts. Since 2017, the structure of doctors' revenue at public hospitals had been improved by Chinese central government and local governments. The the improvement was mainly reflected by the increase in the prices of medical services, such as registration fees, surgery fees, inspection fees, etc. to reflect the technical and professional values of doctors. The total revenue, however, did showed an increase trend because the income from prescribing was eliminated. In another words, doctors' pharmaceutical income and technical revenue are equivalent translation. The change of revenue structure reflected the government's respect for the professional and technical

value of doctors that directly improved doctors' social status- Doctors were defined as high-tech talents. Regarding the total revenue, it was difficult for the Chinese government to increase doctors' income because of the limitation of the government distributable income in medical field (around 6.5% of GDP), hence it was indispensable for the Chinese government design and carry out institutional reforms. In my opinion, the reforms contained two types, one is the reform of the institution of the dominating positioning of public hospital, the other was the reform of the institution of the dominating positioning of public medical insurance. Both of the current two institutions had been resulting in huge economic pressure on the Chinese central government and local governments. Developing private hospital and economic medical insurance was an effective way to relieve and improve the government's economic pressure in the medical field. Relying on private hospital and economic medical insurance, the medical issues of social middle class and wealthy class could be effectively solved, as well as doctors' income could be improved-the increase of doctors' income should be from middle class and wealthy class rather than low-income class. The medical protection of the low-income class was the responsibility of the government, and the source of economic input could be partially from the tax revenue from private profitable hospitals and economic medical insurance. To summary, institutional reforms in the structure of hospital types and medical insurance are necessary for China to improve doctors' income and protect medical interests of all classes of society.

#### ***5.4.2 Career Goals For The Next Five To Ten Years***

Based on Table 34, 6.25% of interviewees did not have clear career goals for their next five to ten years career life, and the rest 93.75% did have clear goals grouped into three categories-skill&ability&knowledge goals, research goals, and promotion goals. The goals of improving professional skills, ability and knowledge accounted for the highest

proportion reaching to 53.6%, followed by the success in medical research (39.10%) and promotion to a higher profession title (33.9%), respectively. All the rest exact goals had the same proportion-6.25%.

**Table 40 Career Goals For The Next Five To Ten Years**

Categories	Goals	Percentage
Skill, ability, and knowledge Goals	1.to improve my professional skills, ability and knowledge	53.60%
Research Goals	1.to be successful in medical research	39.10%
	2.to have a research platform of my own	6.25%
	3.to publish SCI article	6.25%
	4.to be influential in my field	6.25%
Promotion Goals	1.to promote to a higher professional title	33.9%
	2.to obtain qualification of being a tutor of a Ph.D. student	6.25%
	3.to nurture more students	6.25%
	4.get doctorate	6.25%
None	1.No goals	6.25%

### ***5.4.3 Responsibilities Of Doctor Association***

The 112 interviewees proposed 20 detailed receptibilities should be taken by doctor association, and they were induced into four categories, including preservation of doctor's right and interest, doctor training, management of doctor profession, and publicity and communication (Table 35). It was notable that 21.4% of the 112 interviewees who are resident doctor and attending doctor (junior doctor) did not have any idea about what responsibilities that doctor association should take, this phenomenon was actually caused by service institution of doctor associations in China. More precisely, no matter the largest doctor association-Chinese Medical Doctor Association (CMDA) and local doctor associations, the main body of their actual clients are those high-level doctor-the chief and associate doctor (senior doctor) and especially



the department directors at hospitals. The doctor association established specialist committee as an academic and research platform for those senior doctors, those junior doctors, however, had no strong link with the doctor associations. As a result, junior doctor felt the meaning of doctor association to them.

**Table 41 Responsibilities Of Doctor Association**

Categories	Responsibilities	Percentage
Preservation of doctors 'rights and interests	1.To protect doctors rights and interests	35.70%
	2.To ease the doctor-patient conflict	10.70%
	3.To have more responsibility for primary level doctors to safeguard their rights and interests instead of reporting to the superior department	3.60%
	4.To be the spokesman for doctors	3.60%
	5.To help to improve doctor's social status	3.60%
The doctor Training and examination	1.To provide continuing train program for doctors	25%
	2.To provide more training opportunities for young doctor	3.60%
	3.To formulate plan for training doctors	3.60%
	4.To organize doctors to learn new technology	3.60%
	5.To train doctors in law and communication etc.	3.60%
	6.To hold doctor continuing qualifying exam	3.60%
Management of doctor profession	1.To guide doctors to be qualified with industry norm and management system	10.70%
	2.To manage doctors' admission qualification	7.10%
	3.To formulate diagnosis and treatment standard guideline of various medical majors	3.60%
	4.To coordinate with Ministry of Health and Department of Health and other administrative departments to participate in the medical reform	3.60%
	5.To propose feasible ideas to government for medical industry	3.60%
Publicity and communication	1.To publicize doctors positively	3.60%
	2.To enable doctors to know resources of Doctors Association by expanding publicity	3.60%
	3.To be responsible for communication between government departments, medical training institutions, medical universities and colleges and the media	10.70%
No idea	1.Have no idea of doctor association and cannot feel the meaning of their existence	21.4%

## **Analysis and Findings of Data from Hospital Presidents and University Presidents**

The result of qualitative data from stakeholders including hospital (vice) president and medical university presidents was divided into three themes-the roles of doctor in China, the ethics of doctor in China, and the positioning of doctor in China.

### ***5.5 Theme One: The Role of Doctor Profession in Chinese Society***

Theme one refers to the role of doctor profession in Chinese society, and it contains nine categories, including 1) the identification of the role played by doctor 5infectiveness of role play of doctor profession, 4) the responsible objects of doctor, 5) the expected relationship between doctor profession and patient, 6) the expected relationship between doctor profession and hospital, and 7) the expected relationship between doctor and state.

#### ***5.5.1 The Identification Of The Role Played By Doctor Profession***

Seen from stake holders' perspective, doctor profession played four key roles (Table 36). First, doctor profession was professional medical service provider that offering disease prevention, diagnosis, treatment, rehabilitation services for patients. Second, doctor was professional researcher who has responsibility and obligation to do scientific medical researches. Third, doctor profession was an educator of public health who educate people to promote their health. Last, doctor profession was an executor of government health institutions.

**Table 42 The Identification Of The Role Played By Doctor Profession**

Categories	Role Descriptions
Professional medical service Provider	1.Doctors provide professional medical services in health systems established by the State, and high degree of humanistic quality is indispensable.
Professional Researcher	1.Doctor profession has the responsibility and obligation for scientific medical research
Educator of Public Health	1.Doctors have the responsibility and obligation to educate people to promote their health
Executor of Government Health Institutions	1.Doctors implement health institutions enacted by the government

From the perspective of technological development, the role of doctors will subversively change with the continuous development and application of artificial intelligence based on big data.

First, since 2017, medical diagnostic artificial intelligence (AI) technology had made significant breakthroughs, such as tumor imaging. A typical example is the match of speed and accuracy of rectal cancer recognition in an MRI image between a medical AI imaging diagnostic system " Doctor Alpha " developed by Shanghai Jiaotong University&a joint research team at Zhejiang University and a imaging surgeon at a third grade class hospital. In the match " Doctor Alpha " took only 23 seconds to complete the rectal cancer diagnosis of 300 MRI images and the accuracy reached to 95.22%. Compared with “Doctor Alpha”, the three-imaging specialist completed 149 image maps by 5 minutes with an accuracy rate of 93%, which was 2.22% lower than that of “Doctor Alpha”. In addition, " Doctor Alpha " was able to identified six kinds of skin diseases such as hemangioma based on digital images, and the accuracy rate was as high as 99% or more. Such development of AI diagnostic technology presents a trend that except those top-level experts who played a significant role in term of improving the AI system, the low and middle level ones would be gradually replaced by AI technology, and the patients’ and governmental expense on imaging diagnosis would significantly decrease under the condition that imaging diagnostic technology was

applied on a large scale. Based on my personal prediction, that replacement would happen within the next ten to twenty years, and would firstly happen at public and private hospitals in capitalist developed countries rather than those in China unless Chinese the central government did through reform of medical institutional system.

In the decision-making of treatment plan, low and middle level specialists would also be gradually replaced by AI decision-making system such as the IBM Watson robot which could read 3469 medical monographs, 248,000 papers, 69 treatment plans, 61540 experimental data, 106,000 clinical reports in 17 seconds, and finally propose an individualized treatment plan based on the patient disease index information input by doctors. Top level clinical experts would remain and took the responsibility of making treatment plan for the difficult and complicated cases. The replacement cycle of low and middle level specialists, in my opinion, would happen 50 years later from now on. With the application of AI decision-making system on a large scale, the patients' and governmental expense would also significantly decrease. Furthermore, the doctors' role play of professional researcher, educator of public health, and executor of government institutions would be put forward higher requirements by governments and patients since they have to compete with evolving artificial intelligence technology.

To conclude, subversive change would happen in the development of doctor profession and professionalization. The doctor profession in the future would evolve into a pure elite profession that top level professionals would will continue existing and evolving, while the low and middle level doctors would be gradually eliminated. The patients' and governments' costs on medical diagnosis and decision making of treatment might decrease, but the cost of top medical experts who had become medical elite would likely be higher since their value had leveled up from professional to elite. The development of doctor profession would also show an elitism trend mainly reflected by higher requirement for the skills, abilities and knowledge that doctors mastered. More

importantly, the government and patients would put higher and higher requirements for doctors' humanities since AI was without feelings and could not provide human care for patients.

### ***5.5.2 The Effectiveness Of Role Play Of Doctor Profession***

Stake holders were asked to evaluate the effectiveness of role play of doctor profession in China. All of the stakeholders contented that the four roles played by doctor profession in China were generally not effective (Table 37). Regarding the role of professional medical service provider, it was very common that there was a lack of adequate communication between doctor and patient. Specialized services (disease diagnosis and treatment) were overemphasized, and humanistic are is deficient under current healthcare system (institution). In terms of professional researcher, the doctors' abilities of scientific research, in general, was not as high as expected, especially the ability to transform scientific research results is generally weak. Speaking for educator of public health, doctors generally took public health education as a task from government rather than their responsibility and obligation. Moving to executor of government health institution, since sometimes significant conflicts occurred between the institutions and doctors, the institutions, as a result, cannot be implemented successfully.

**Table 43 The Effectiveness Of Role Play Of Doctor Profession**

Categories	Effectiveness	Description
Professional Medical Service Provider	Ineffective	it was very common that there was a lack of adequate communication between doctor and patient. Specialized services (disease diagnosis and treatment) were overemphasized, and humanistic care is deficient under current healthcare system (institution).
Professional Researcher	Ineffective	1. In general, doctors' research professionalization of doctors are not as high as expected 2. In general, transformation of scientific achievements is low
Educator of Public Health	Ineffective	Doctors generally took public health education as a task from government rather than their responsibility and obligations fail to effectively play their role in health management (such as health guidance and chronic disease management).
Executor of Government Health Institutions	Ineffective	Sometimes, significant conflicts exist between the institutions and doctors, and the institutions, as a result, cannot be implemented successfully.

### ***5.5.3 The Causes Of The Ineffectiveness Of The Role Play Of Doctor Profession In China***

The stakeholders emphasized that the ineffectiveness of the role play of doctor profession in China was resulted from multiple causes which could be induced into six aspects (Table 38), including 1) excessive expectation on doctor, 2) misunderstanding of doctor, 3) injustice of doctor remuneration, 4) backward healthcare system, 5) backward medical education system, and 6) unbalance between demand and supply.

**Table 44 The Causes Of The Ineffectiveness Of The Role Play Of Doctor Profession  
In China**

Categories	Descriptions
Excessive Expectation on Doctor	The government and patients ask and expect too much on the services provided by doctors
Misunderstanding of Doctor	Public opinions of doctors have some limitations as they don't have an objective knowledge and recognition of doctors.
	Public opinions of doctors are not objective, comprehensive and correct, which may mislead the public cognition of doctors
Injustice of Doctor Remuneration	Chinese doctors work very hard but they don't have high income. The disparity of income between Chinese doctors and foreign doctors is very significant.
Backward Health Care System	The current health care system is out dated
Backward Medical Education System	The current medical education system is backward
Unbalance between Demand and Supply	Mainland of China is now in the transition period for social development, therefore there is significant unbalance between the supply and demand for medical service.

#### ***5.5.4 The Responsible Objects Of Doctor Profession***

From the stakeholders' perspective, doctor profession had the obligation to be responsible for four objects (Table 39). The first responsible object was patient since the fundamental responsibility of doctor is to provide medical service for patients. The second responsible object was hospital-as the employer, hospital provided work and research platform for doctor, and it projects doctor's safety and interest. The third responsible referred to the state since not only did government offered job opportunity, medical resource, and funds for doctor, but also government and doctor share a common goal-improving the health of the whole society and protector has a membership of doctor association, doctor should be responsible for it since doctor association, as the industry organization of doctors, served doctor in the field of academy and protection of rights and interest.

**Table 45 The Responsible Objects Of Doctor Profession**

Categories	Reasons
Patients	1.The fundamental responsibility of doctors is to provide medical service for patients.
Hospital	1.Hospitals provide a work and research platforms for doctors.
	2.Hospitals are the employer and protector of doctors
Government	1.The government provides job opportunity, medical resources and funds for doctor, and it protects doctor.
	2. The government and doctor share the same goal that is to improve the health conditions of the society and prolong people's life.
Doctor Association	doctor association, as the industry organization of doctors, served doctor in the field of academy and protection of rights and interest.

### ***5.5.6 The Expected Relationships Between Doctor Profession And Patient***

Two types of expected relationships between doctor profession and patient were identified (Table 40). One is service provider and service object. Specifically, doctor, as the service provider, offered reasonable medical service for patient, and patient, as the service object, together with doctor give full confidence, support and understanding to each other. The other is collaborative relationship. More precisely, doctor and patient patiently listened to and fully understand each other's thought, the former do their best to provide humanistic medical services that comply with ethics, laws and regulations to cure patients' diseases, the later should respect doctors and provide cooperation.

**Table 46 The Expected Relationships Between Doctor Profession And Patient**

Categories	Descriptions
Service Provider and Service Object	Patients are the service object of doctors while doctors are the provider of medical services.
	Doctors provide reasonable medical services for patients while patients and doctors give full confidence, support and understanding to each other.
Collaborative Relationship	They cooperate with each other to fight off diseases. Doctor and patient patiently listen to and fully understand each other's thought, the former do their best to provide humanistic medical services that comply with ethics,



	laws and regulations to cure patients' diseases, the later should respect doctors and provide cooperation.
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### ***5.5.7 The Expected Relationship Between Doctor Profession And Hospital***

Stakeholders proposed that there were four types of relationship between doctor profession and hospital (Table 41). The basic relationship was employment that hospital was the employer and doctor was the employee. In detail, Hospital provided work platform for doctors and conduct effective management of doctor employee, and doctor performed duties on the hospital platform to provide standardized services for patients. Then, a relationship of interdependence also existed between doctor profession and hospital. Specifically, hospital provided work platform with necessary resources for doctor, and doctor took advantage of those resources to carry out work. Relying on each other, both of them survived and developed together. The third relationship was protector and protege that hospital, as the protector, protected doctor's personal safety and necessary help such as legal aid when medical dispute happened. The last was supervisory relationship that hospital organized, managed, and supervised doctor to carry out work based on established institutions.

**Table 47 The Expected Relationship Between Doctor Profession And Hospital**

<b>Categories</b>	<b>Descriptions</b>
Employment	1.Hospital is the employer of doctor
	2.Hospitals provide work platform for doctors and conduct effective management of doctors.
	3.Doctors perform their duties on hospital platform to provide standardized services for patients.
Interdependence	1.Hospitals and doctors are interdependent with each other.
	2.Hospitals provide a work and development platform with resources for doctors.
	3.Doctors took advantage of the resources to carry out work
	4.Hospital and doctor rely on each other to survive and develop

Protector and Protege	1.When medical disputes happen, hospital protects and helps doctor resolve the disputes
Supervisory Relationship	1.Hospital organizes, manages, and supervise doctors to carry out work based on established institutions

### ***5.5.8 The Expected Relationship Between Doctor Profession And Government***

The stakeholders proposed only one relationship between doctor profession and government which is employment relationship, and doctor in this relationship referred to doctor work at public hospital (Table 42). In detail, government, as the employer, made institutions and provided necessary resources such as work place and salary for doctor, and doctor, as the employee of government, provided services for society.

**Table 48 The Expected Relationship Between Doctor Profession And Government**

Categories	Descriptions
Employment Relationship	1.The government provides resources such as work place and salary for doctors.
	2.The government makes institutions for doctor
	3.The government recruit doctor
	4. Doctors are hired be government to provide services for society

## ***5.6 Theme Two: The Ethics of Doctor in China***

### ***5.6.1 Existed Ethic Issues Of Doctor Profession***

Service discrimination and receiving kickback were the two major ethic issues of doctor in China (Table 43). Service discrimination meant that a doctor might discriminate patients based on their age, income, and medical insurance; and patients, as a result, accepted unequal services from the doctor. Receiving kickback was the second ethic

issue of doctor. Specifically, doctors received kickback from pharmaceutical companies and medical device companies and receive “hongbao” from patients and their family members. The phenomenon of doctors’ monetary driven reflected the inadequate institutional protection of doctors’ economic status in China, that was to say doctors seek for economic interest that they deserved through unethical ways.

**Table 49 Existed Ethic Issues Of Doctor Profession**

Categories	Descriptions
Service Discrimination	1. Doctors do not provide the same quality medical services for patients without considering patients’ age, income and medical insurance, etc.
Receiving Kickback	1. Doctors receive kickback from pharmaceutical companies and medical device companies.
	2. Doctors receive “hongbao” from patients and their family members.

## ***5.7 Theme Three: The Current Situation of Doctor Profession in China***

### ***5.7.1 The Statues Of Doctor Profession In China***

Stakeholders mainly mentioned two status of doctor profession in China, including social status and economic status (Table 44). Regarding social status, doctor profession had a middle social status on the whole. From social back ground perspective, the society selectively ascribed different levels of social status to doctor profession under diverse social backgrounds. For example, when social health incident such as SARS occurred, doctor’s social status was leveled up, but the level was lowered after the incident. From the perspective of doctor type, general practitioner’ s social status was lower than that of specialist.

In terms of economic status, doctor profession has a relatively low economic status in

the society, and general practitioner's economic status was lower than that of specialist.

**Table 50 The Statues Of Doctor Profession In China**

Categories	Status of Doctors
Social Status of Doctors	1.Doctor has a middle social status on the whole.
	2.The whole society selectively ascribed different levels of social status to doctor under diverse social backgrounds.
	3. Furthermore, general practitioner has a lower social status than specialist.
Economic Status	1.Doctors have a relatively low economic status in the society.
	2.General practitioner has a lower economic status than specialists.

### ***5.7.2 The major issues faced by doctor profession***

Twelve specific issues faced by doctor profession in China were proposed by the stakeholder interviewees, and the issues were categorized into four categories (Table 45). The first was government issue, including two sub-categories which were government financial investment issue and the healthcare system issue. The second was status issue comprising three sub issues-doctor social status issue, doctor economic status issue, and the issue of social misunderstanding of doctor. Work issue was the third category, and it contained two sub-categories which were pressure of daily work and promotion system. Education issue was identified as the last category, and the curriculum setting and education system of general practitioner were induced as two sub-categories.

**Table 51 The Major Issues Faced By Doctor Profession**

Categories	Sub-categories	The Major Difficulties Faced by the Doctor Occupation/Profession
Government Issue	Governmental financial Investment	1. Insufficient national investment on health care. 1. The majority of financial resource was distributed to big public hospitals
	The Healthcare System	1. The current health care system at a certain degree results in conflicts between doctors and patients
Status Issue	Doctor Social Status	1. the social status of doctor profession in China are not high enough
	Doctor Economic Status	1. the social status of doctor profession especially for resident doctor and attending doctor in China are not high enough
	Social Misunderstanding of Doctor	1. People think that doctor is high income class
		2. People think that a patient can get better service if “hong bao” is given to the doctor
		3. People think doctor’s first objective is to earn money rather than helping patients
Work Issue	Pressure of Daily Work	1. Doctor’s working pressure is too high especially in big hospitals
	Promotion System	1. Doctor does not have enough time to do research to public SCI paper which is necessary for promotion
Education Issue	Curriculum Setting	1. The curriculum is lagging behind that of the medical schools of developed countries. (research course, nutrition course, communication skill course, rehabilitation medicine course, etc.)
	The education system of general practitioner	2. The education system of general practitioner is lagging behind

### ***5.7.6 The role of doctor association***

Regarding the role of doctor association, stakeholders indicated that it should play four roles, including the organizer of academic activity, the protector of doctor profession, the platform of education, and the constitutor of doctor profession institutions (Table 46).

***Table 52 The Role Of Doctor Association***

<b>Categories</b>	<b>Descriptions</b>
Organizer of Academic Activity	1. Leading Doctors to conduct medical academic research.
	2. Organizing academic conference
Protector of Doctor Profession	1.Rights protection is the main function of doctor associations.
	2.Protecting doctor rights as medical disputes occur
Platform of Education	1Provide a platform that enables doctors to understand, learn and grasp new knowledge and skills after graduation.
Constitutor of profession Institutions	1.Doctor association should assist government to make relevant institutions
	Build and implement access mechanism for medical disciplines.

## **CHAPTER 6 – INTEGRATED ANALYSIS OF QUANTITATIVE AND QUALITATIVE STUDY**

This chapter integrates and analyze the quantitative study and qualitative study together to deep and board the understanding of the development of doctor profession in current China. The whole analysis is carried out with the focus on professional commitment, and two critical questions are raised-what are the factors affecting doctors' professional commitment and what are the factors affected by the professional commitment?

The key finding of the quantitative study answers the questions that it is found that professional commitment plays a mediating role of between prosocial motivation and intention to leave profession. Regarding the relationship between prosocial motivation and professional commitment, besides the test result of the quantitative model proved the positive impact of prosocial motivation (PM) on affective professional commitment (APC) and normative professional commitment (NPC) , the descriptive analysis shows that the average degrees of the PM, APC, and NPC of the 1953 doctors are not as high as expected-average value of PM equals to 5.45, meaning on average the doctors are basically neither willing to nor not willing to help others; the average values of APC and NPC equal to 4.83 and 4.55, respectively, meaning the doctors even do not affectively and normatively commit to the doctor profession. Based on the proved causal relationship between PM and APC&NPC, at a certain degree it can be explained that because doctors do not have a positive PM, they do not have positive attitudes towards both APC and NPC. As a result, another critical question is raised-why the doctors in general hold such a neutral prosocial motivation?

To answer the above question, it is necessary to analyze and understand the deep meaning of prosocial motivation to doctors. The data of the qualitative study provides an important information that prosocial motivation is one of the fundamental motivations of an individual's decision making of being a doctor. More than 32% of the 112 doctor interviewees said "the reason why I chose to be a doctor was because I considered doctor profession a sacred profession and esteemed by the society, it has a unique attribute of helping people by saving life, and I enjoy the feeling of saving life." In short, an individual decides to be doctor is because he/she want to help others by treating their diseases. However, the ideal is very beautiful, the reality is cruel-in the real work, doctors in China face many obstacles and difficulties in the process of providing medical services for patients.

The obstacles and difficulties can be understood as doctors' abhorrent things at work. In Chapter 5 those things are induced into six categories, including (1) the deterioration of doctor-patient relationship, (2) excessive non-medical affairs, (3) low work autonomy, (4) high workload, (5) unreasonable income, and (6) negative direction of public opinion made by media.

Regarding the deterioration of doctor-patient relationship, about 35.7% of the 112 doctor interviewees mentioned this category. They felt that they were misunderstood and not understood by patients, it was difficult to communicate with patients, and the doctor-patient relationship was strained. So why do doctors feel this way? From my perspective, it is resulted from the institution system in which doctors are located, and this system has direct and significant impacts on the rest four doctors' adherent categories at work.

Specifically, doctors in China have been being highly controlled by the state (government). Considering excessive non-medical affairs, participating in the



organization activities of the Communist Party is a typical example. A doctor, if he/she is a Communist Party member, he/she must comply with the institution of participating in the party's educational activities on a regular basis. This kind of non-medical related activity takes up considerable energy from the doctor, and at a certain degree doctor is a political piece who should strictly obey the Party's institutions. Regarding high workload, it is the government who makes the institution of allocating most medical resources to third grade class A hospital, as a result, almost all patients in China always choose to see a doctor at those hospitals because they know that those hospitals have the best doctors, medical equipment, and medical technics, also most of doctors want to work at those hospitals. Then the finally result is doctors at third grade class A hospitals have to serve a large number of patients everyday and have to sacrifice the time spent on each patient and the service quality. In addition, the excessive non-medical affairs could also make doctors cannot be highly involved in their work-the quantitative study data shows that the average value of job involvement of the 1953 doctors was merely 4.77 lower than the neutral value 5. Furthermore, the excessive non-medical affairs and high workload also mean sacrificing time to learn professional knowledge and skills. The quantitative study shows that learning orientation plays a mediating role between prosocial motivation and affective professional commitment. It is not shocking that the average value of learning orientation of the 1953 doctors is only 5.55 which represents a neutral attitude, and doctors from both general hospital and infectious hospitals show a negative attitude (4.48 and 4.30, respectively) of participating in academic activity held by associations. The development of medicine is very fast, and doctors must have enough time to learn new knowledge and skills or they, otherwise those doctors will gradually be eliminated. This is actually inevitable that artificial intelligence (AI) has been gradually replacing those general doctors in medical fields such as imaging.

Moving to another adherent category low work autonomy, the quantitative study data shows that it has significant impact on both affective professional commitment (coefficient=0.111,  $p<0.000$ ) and normative profession commitment (coefficient=0.105,  $p<0.000$ ). Furthermore, the low work autonomy reflects an institutional lack in terms of doctors' rights protection, and the issue of patient safety priority (PSP) is a typical example. More precisely, PSP is one of the focuses of the medical institutions made by the government, but it, as discussed in Chapter 4, guide doctors to a direction of keeping patients' safety as well as doctors' personal safety rather than make best effort to apply possible medical means to treat patients. Doctors in China, however, are not dare to apply those possible medical means because there is no institution protecting doctors and helping them afford the medical risks resulted from the application of those medical means. A regrettable reality is that the Chinese government has neither made relevant institutions to protect doctors nor empower any doctor to organize such institutions. At a certain degree such institutional lack also reflects doctors' low social status in China.

In terms of unreasonable income, it is a key criteria evaluating whether doctor can be defined as a profession since a profession should get financial rewards based on the knowledge and skilled mastered by the profession, and it is a worldwide consensus that doctor is profession needing to master high level professional knowledge and skills. Doctors in China, however, obviously have not got the economic status the profession deserves-45% of the 112 doctor interviewees said the income of doctor profession in China was not consistent with the value created by the profession.

Last but not least, the negative direction of public opinion made by media makes doctors feel insecure since it is always the doctors who are criticized and described as a group of people who more pursue economic benefits rather than patient benefits. In the qualitative study, 35.7% of the 112 doctor interviewees presented the same feeling and 100% of them said the situation did not changed in the past three years. In fact, the

negative direction of public opinion made by media reflects the lack of review and accountability institutions. Media can publish medical accident news without a specific institution system and will not be held accountable if the media publish unreal news, and this directly leads to a negative impression of patients on the entire group of doctors.

After analyzing the factors affecting doctors' prosocial motivation which has a positive impact on affective and normative professional commitments, it is necessary to analyze the relationship between the two commitments and intention to leave profession. Not only did the quantitative study has proved there is a negative causal relationship between them, but also the qualitative data especially supports the negative relationship between affective professional commitment and intention to leave doctor profession- among the 40 out of 112 doctor interviewees who said they never considered of leaving doctor profession, 70% of them said since they are fond of being a doctor, or say affectively commit to the doctor profession, they do not want to leave the profession.

However, we must pay more attention to the rest 72 doctor interviewees who ever considered leaving doctor profession, and pressures, deterioration of practice environment, inconsistency between profession's economic status and profession value, and inconsistency between profession's social status are the four key reasons motivating the doctors consider leaving doctor profession. It is interesting that all the four reasons are the doctors' adherent categories at work. As discussed before, these adherent categories reflect lack of reasonable institutions. Hence, we can conclude that at a certain degree it is the lack of reasonable institutions resulting in doctors' idea of leave the profession.

To conclude, doctor is a sacred profession with a responsibility to save lives. The government has the responsibility to develop or authorize relevant associations to develop necessary institutions whose fundamental objective is establishing a

harmonious doctor-patient relationship. The institutions should focus on the reduction of doctors' non-medical affairs and workload, the improvement of doctors' profession autonomy and economic income, and the supervision of public opinion led by media. There is no doubt that the development of those institutions is effective to improve doctors' prosocial motivation-they will have adequate time to learn and master new knowledge and skills to provide higher quality medical services for patients, they will serve patients wholeheartedly as they get the deserved social and economic statuses, and doctors' intention to leave profession will be dramatically reduced. As a result, the professionalization of doctor could also be improved based on the establishment of needed institutions. For the institutions, the key is the real objective of establishing institutions-it should serve for the development of the profession rather than others such as political objective.

# **CHAPTER 7 - CONCLUSION**

## **7.1 Introduction**

This chapter presents a summary of the research findings that identified that mechanisms through which doctors' intention to leave profession is affected, the views of doctors on the categories which are important to their profession, the current progress of doctor professionalization in China. The responses to all of the research components were included to form a response to the principal question: what is the direction of doctor profession development in China? The research's limitations are also presented, along with suggestions for further research.

## **7.2 Summary of Findings**

The quantitative study of this research sought to identify the mechanisms through which doctors' intention to leave profession is affected. There are four mediating mechanisms and two moderating mechanisms were proved. Regarding the mediating mechanisms, both affective professional commitment and normative profession mediated the negative casual relationship between prosocial motivation and intention to leave profession- higher prosocial motivation will lead the doctor to make the decision to more commit the profession in terms of affective commitment and normative commitment, and then such high professional commitments keep the doctor stay in the doctor profession rather than generate a leave intention. In addition, learning orientation mediated the positive causal relationships between prosocial motivation and both of affective and normative professional commitments-the doctor's prosocial motivation had a positive impact on his/her learning orientation, which also positively affect the doctor's professional commitment. In terms of the moderating mechanisms, it was

proved that patient safety priority negatively moderated the positive causal relationships between prosocial motivation and both of affective and normative professional commitments.

View from the perspective of career motivation theory, the quantitative study extended the theory. Viewed from retrospectively rationality processes, individual characteristics (learning orientation) play a mediator role between the casual relationship between individual characteristics (prosocial motivation) and decisions & behaviors (professional commitment). In addition, decisions & behaviors (professional commitment) also play a mediator role between the casual relationship between individual characteristics (prosocial motivation) and decisions & behaviors (intention to leave profession). In term of the interaction effect between priority of patient safety and prosocial motivation on professional commitment, it also extends the model in a way that situational characteristics, from retrospective rationality processes, can moderate the casual relationship between individual characteristics and decisions & behaviors.

What is more, the descriptive analysis of the means of nine constructs and the comparison between doctor at general hospitals and doctors at infectious hospitals, and between doctors in Beijing and doctors outside Beijing, make a quantitative understanding of doctors' attitudes towards doctor profession and their work. Specifically, except the construct intention to leave doctor profession which doctors showed a weak negative attitude and the construct patient safety priority which doctors presented a neutral attitude, doctors expressed weak negative attitude towards other six constructs, including affective and normative professional commitments, prosocial and intrinsic motivation, learning orientation, and job involvement. Considering the comparison between doctor at general hospital and those at infectious hospitals, doctors at general hospital show higher degrees of agreement in affective professional

commitment, job involvement, prosocial motivation, and academic activity. By contrast, doctors at infectious hospital present higher intention to leave profession and patient safety priority. In terms of intrinsic motivation and expostulation activity, doctors at general hospital and infectious have no difference. For the comparison between doctors in Beijing and those outside Beijing, the results showed that doctors in Beijing had higher degrees of agreement in affective professional commitment and prosocial motivation. By contrast, doctors outside Beijing presented higher intention to leave profession and patient safety priority. In addition, there was no difference between doctors in Beijing and outside Beijing in terms of job involvement, intrinsic motivation, academic activity, and expostulation activity. Professional activity was a new three component construct developed in this research, the components included academic activity, doctor association activity, and expostulation activity.

Moving to the qualitative study, it has three significant contributions that it provides both deeper and boarder understanding the quantitative model, as well as provides a comprehensive understanding of the development progress of doctor professionalization in China. In the aspect of deepening and boarding the quantitative model, the qualitative study identifies that 1) prosocial motivation is one of the fundamental incentives motivating doctors to choose to be a doctor since it is highly consistent with the sanctity/nobleness of doctor profession. This reveals that the evaluation of prosocial motivation is crucial for the election of medical candidate; 2) another three key factors including family influence, lack of doctor, and cultural influence are also identified as the key causes of the selection of doctor profession; 3) the difficulties in changing profession, achieving self-actualization, personal preference, and profession stability are the four key factors making doctors insist on doctor profession rather than leave the profession; 4) Pressure, deterioration of practice environment, inconsistency between profession value and income status, inconsistency between profession value and social status are the four key causes leading doctor to

produce an intention to leave doctor profession; 5) the passion for doctor profession, difficulties in changing profession, and successful profession development are the three main reasons explaining why some doctor never considered of leaving profession; 6) doctors, who never considered of leaving doctor profession, may decide to plan to leave the profession because of personal issues, new job opportunity, and deterioration of profession environment; 7) there are three types of things that doctors learn and improve, including skills (communication skill with patient and specialized skill), abilities (updating professional knowledge, doing scientific research, working as general practitioner, synthetical analysis), and knowledge (psychological knowledge, jurisprudence knowledge, and economic knowledge).

In terms of providing a comprehensive understanding of the development progress of doctor professionalization in China, the qualitative details 1) the doctor profession's daily work from three aspects, including doctors' favorite things at work, doctors' abhorrent things at work, and difficulties at work; 2) profession status, including economic status and social status, and law protection; 3) the development of doctor profession, including the profession development difficulties, career goals for next five to ten years, and the responsibilities of doctor association; 4) the role of doctor profession, including the identification of the role of doctor profession, the effectiveness of role play of doctor profession, the responsible objects of doctor profession, and the relationship between doctor profession and three objects including patient, hospital, and government; and 5) The ethical issues of doctor profession.

For doctor profession's daily work, the doctors' favorite things are grouped into four categories, including (1) curing patients, (2) doing surgery, (3) being recognized by patients, and (4) communicating with patients, and the doctors' abhorrent things are grouped into six categories, including (1) the deterioration of doctor-patient



relationship, (2) too many non-medical affairs, (3) low work autonomy, (4) high workload, (5) unreasonable income, and (6) negative direction of public opinion made by media. Doctor have been facing seven types of difficulties at work, including (1) lack of time; (2) psychology pressures; (3) deterioration of doctor-patient relationship; (4) interest balance; (5) medical technology; (6) institutions; and (7) vision of future development.

For profession's status, the results show that more than 39% and 11% of interviewees believe that their economic status is normal and low, respectively, and more than 31% and 13% of interviewees say their economic status is high and very high, respectively. On average, the economic status of doctor profession in China is a middle-up position, and doctors on the whole are not satisfied to the economic status since doctor, from their perspective, is a profession with high sanctity/nobleness, high training cost, and high significant impact on people's live hood. Considering doctor profession's social status, (2.68%) and 11.20% of interviewees think that the level of their current social status is very low and low, respectively, and 35.71 viewed the level as normal, and the other 36.61% and 16.07% believed that the level was high and very high, respectively. Overall the doctor's profession's social status in China shows a middle-up position. Interviewees also indicate that high economic status and social status protects the profession's dignity, and improves the profession's ethics and doctor-patient relationship.

In the category of the development of doctor profession in China, three types of difficulties are identified based on individual doctors' results, including institution difficulty, doctor-patient relationship difficulty, and work pressure difficulty. The doctors' goals for the next five to ten years comprise three categories which are the goal of improving skill, ability, and knowledge, the goal of research, and the goal of

promotion. For the responsibilities, four main responsibilities are identified, including protection of doctor's rights and interest, the training and examination of doctor, the management of doctor profession, and the publicity and communication. From stakeholders perspective, government issue, profession's status issue, work issue, and education issue are the four main issues that doctor profession are facing in China.

In the aspect of the role of doctor profession in China, doctor play four key roles including professional medical service provider, professional researcher, educator of public health, and executor of public health institutions, and all the four roles, from stakeholders' perspective, are ineffectively played by doctor. The ineffectiveness of the role play of doctor profession in China is because of six causes, including 1) excessive expectation on doctor, 2) misunderstanding of doctor, 3) injustice of doctor remuneration, 4) backward healthcare system, 5) backward medical education system, and 6) unbalance between demand and supply. Stakeholders believe that doctor profession should be responsible for four objects which are 1) patient whose expected relationship with doctor is service object and service provider, and is collaborative; 2) hospital whose expected relationship with doctor is employment, interdependent, protector and protégé, and supervisory; 3) government whose expected relationship with doctor is employment; and 4) doctor association whose expected relationship with doctor is membership. From stakeholders' perspective, doctor association should play more significant roles in terms of organizer of academic activity, the protector of doctor profession, the platform of education, and the constitutor of doctor profession institutions, but those roles have not effectively played.

Last but not least, two the ethical issues of doctor profession is indicated by stakeholders. One is the service discrimination that doctors in China do not provide the same quality medical services for patients without considering patients' age, income and medical insurance, etc. The other issue is the receive of kickback that doctors

receive kickback from pharmaceutical companies and medical device companies, and receive “hongbao” from patients and their family members. Stakeholders indicate institutional defects are the key cause resulting in the ethical issues.

To conclude, doctor has been a profession in China, but the development progress of professionalization is still in a mid-development phase. The most urgent issue needed to be solved is the reform of medical institutional system of China. The development of doctor profession may embark on the road from professionalism to elitism with the development of technology such as artificial intelligence technology, and higher humanities is indispensable for doctor elites.

## 7.3 Research Limitations

The application of a quantitative and qualitative in this research potentially includes some limitations. The key limitation for both is the sampling method that only doctors working at the highest-level hospital in China-third grade hospital are selected, but the doctors working at second grad, first grade, and community hospitals/clinics are ignored. In other words, the results obtained could not represent the whole doctor population in China. For the quantitative study itself, the one-wave data collection may result in bias since it is a cross sectional study that at least independent variable and dependent variable should be collected by two waves, respectively. For the qualitative study, the core limitation is the interpretive nature of qualitative research. More precisely, a single researcher who is myself collected, transcribed and conducted the data analysis and its interpretation which are dominated by my subjective judgment. Banister, Burman, Parker, Taylor and Tindall (1994) mentioned this limitation, and they suggest that the researcher is central to the sense-making of data. What is more, diverse researchers may provide different interpretations of data collected. A further limitation may have been that the interviewees in this research are all located in Beijing. That is, the points of view from doctors outside Beijing are ignore, and the qualitative data collected cannot totally represent all doctors in China.

# APPENDICES

## Appendix 1-Interview Agenda

Chinese Doctors Research: Interview Agenda-doctors

During this interview, we have a series of questions regarding your career, your medical work, professional status and development.

This is not a questionnaire that we would like to find out not only yes or no answer but your views on the issues concerned. Therefore, please say as much as you can.

We promise that the interview will be kept strictly confidential.

Part 1: Your Career

We would like to start with your medical career:

When did you decide to be a doctor?

Why did you choose doctor as your career? Are there any reasons that stimulated your likeliness towards medicine?

Would you please provide a brief career summary starting from your entrance to the profession?

Included:

Where and when were you qualified to be a doctor?

Where did you work: hospital and region?

Your specialization?

And others.....

Regarding the future development, what are your goals within the coming 5 to 10 years? Please explain.

Did you ever consider of leaveting the profession and start a new career?

Why/ Why not?

Under what circumstances would you leave the profession? Probability: Very much possible, possible, hardly possible?

## Part 2: Your work

1. Generally speaking, what do you like best regarding your job? Why?
2. Generally speaking what do you hate most regarding your job? Why?
3. Regarding your job, what are the major difficulties or the biggest challenges? Please explain.
4. How did you deal with these difficulties or challenges

## Part 3: Opinions on the healing profession

1. What are the major difficulties or challenges facing by your profession? Please explain.
2. In your opinion, what is the best way to deal with these difficulties and challenges? What should be the role of the following agents do you think is the most appropriate when dealing with these difficulties or challenges?  
Ministry of Health  
Other government agents  
Professional Association

Others ...

3. Could you please comment on the effectiveness of the Chinese Medical

Association and the Chinese Doctor Association? Please explain.

Could you provide some suggestions for the future development of these associations?

4. In your opinion, to whom should the profession directly responsible for?

Please rank the following and explain: Our Nation

Society

Patients

Others

5. Do you think your profession deserve a better social and economical status? Why?

#### Part 4: Institution & Reforms

1. In your opinion, please comment on the effect of marketization upon your profession.

2. Could you please comment on the internal and external impacts of medical reforms upon your profession?

This is the end of the interview.

Do you still have any questions that you want to put forward? Or is there any important issues that we have not mentioned or asked?

### **Chinese Doctors Research: Interview Agenda-stakeholders**

在这次访问中, 我们有一系列关于医生专业在中国的发展问题希望提出与您讨论。这不是一份问卷, 所以我们不单是寻找对或错的答案, 而是希望得到您对本课题的整体意见 – 因此请您畅所欲言。访谈共分 5 个部分, 共计 11 个问题

#### **医生在中国的角色**

1. 您认为医生在中国社会中的角色是什么? 特别是您对医生在提供他们的服务时有什么期望?

2. 医生应该向谁负责 – 国家, 医生协会, 顾客, 其他?

3. 国家与医生的正确关系是怎样? 医院与医生的正确关系? 患者与医生的正确关系?

#### **医生在中国的专业水平**

1. 根据您的意见, 医生是否有效地扮演他们的角色(或在社会上有没有起到应有的作用)? 特别是您对中国医生的专业水平的意见如何?请说明.

##### **1a. 改革措施**

承接对上一题 (第 2 题), 假如答案是否定的:

为什么医生未能有效地扮演他们的角色(或在社会上有没有起到应有的作用)?

可以实施什么改革措施来解决这些问题?

### **1b. 改革措施**

承接对第 2 题, 假如答案是肯定的:

是否需要进一步提升他们的表现?为什么?

可以怎样改善他们的表现?

### **医生在中国的专业操守**

1. 您是否看到一些(关于医生整体道德的)问题?为什么这些道德(或专业操守)问题会出现?

2. 有什么改革措施可以推行去解决这些道德(或专业操守)的问题?

### **中国医生的专业地位**

1. 您认为什么是当前医生专业所面对的主要困难或重大挑战?

2. 您认为中国医生是否已经达到真正的“专业”地位?

### **在中国医师协会的角色**

1. 请您说出您认为在中国医师协会(如中国医师协会, 北京医师协会)现在所扮演的角色.

问题重点: 它们现在扮演什么角色? 是否需要改变现有的角色? 如何改变?

2. 根据您的意见, 中国在医生培养方面存在哪些问题?

问题重点: 在医生培养方面有什么问题, 什么原因造成的这些问题, 如何解决这些问题, 现有条件下能否解决这些问题及为什么?

### **所有问题完结**

请问您有没有其他问题您想提出? 或是有些重要的事情我们是没有提及或询问?

谢谢!!!



## Appendix 2-Quantitative Study Questionnaire

DRAFT SURVEY INSTRUMENT- doctors

Please answer all questions.

It is important to us to get your opinions on all items in the questionnaire.

As a doctor, to what extent do you agree or disagree with each of the following statements about the doctor profession?

(Please circle one number for each item – Strongly disagree = 1 to Strongly agree = 7.)

11. Currently, how many patients on your unit/specialty have complex problems that are not well understood?

A. a few    B.  $\leq 20\%$     C. about 50%    D. 75%    E.  $\geq 80\%$

12. How many hours on actual duty in house (not on call) before getting 8 hours consecutive off (no call)?

\_\_\_\_\_

13. In house, how many hours you are actually working on duty without rest?

\_\_\_\_\_

14. How many hours on call (off site); how often do you get call?

\_\_\_\_\_

11. The following information will help us to analyze the results. Please respond by circling a number or completing the blank, as appropriate.

1. Which department you work at?

\_\_\_\_\_

2. On average, how long do you work every day?

\_\_\_\_\_ hours

3. How long have you worked for the hospital you currently work for? \_\_\_\_\_ years

4. In total, how long have you been working as an doctor? \_\_\_\_\_ years.

5. Did either of your parents work as doctors?

1 Yes 2 No

7. Your Gender: 1 Male 2 Female

8. Your birth date: year \_\_\_\_\_ month \_\_\_\_\_ day \_\_\_\_\_

9. Marital Status: 1 Married or Living as Married 2 Single

3 Others (Separated/Divorced/Widowed)

10. What is your highest level of education?

- a. postsecondary b. Bachelor  
c. Master d. Doctorate  
f. Post- Doctorate  
e. others (please specify) \_\_\_\_\_

11. Related information:

a. What is your professional title?

- ( ) Chief Physician ( ) Associate Chief Physician  
( ) Attending Physician ( ) Resident

\_\_\_\_\_

a. What is your academic title?

( ) Professor ( ) Associate Professor

b. Do you have an doctor qualification from overseas?    i ).    Yes                  ii).       No

c. Do you have an doctor degree from overseas?    i ).    Yes                      ii).    No

**Thank you for completing the questionnaire!**

*If you have any further comments, please write them below.*

## Appendix 3-Measurements

**Table 53 Professional Commitment**

Affective Professional Commitment	
1. 能成为医生行列中的一员，我感到自豪	1. I am proud to be in the doctor profession.
2. 我对做医生工作很有热忱	2. I am enthusiastic about doctor.
3. 我后悔自己当了医生	3. I regret having entered the doctor profession.(reversed)
4. 以医生为职业对我的个人形象很重要	4. Working as a doctor is important to my self-image.
5. 我不喜欢当医生	5. I dislike being a doctor.(reversed)
Normative Professional Commitment	
1.我觉得自己有责任继续做医生工作	1. I feel a responsibility to the doctor profession to continue in it.
2.我坚持当医生是因为我干这行就忠于这行	2. I am in the doctor profession because of a sense of loyalty to it.
3.我认为受过专业训练的人有责任在医生职业工作较长的一段时间	3. I believe people who have been trained in a profession have a responsibility to stay in that profession for a reasonable period of time.
4.如果我完全离开医生职业，我会觉得没尽到责任，感到内疚	4. I would feel guilty if I left the doctor profession completely.
5.我没有责任一定要留在医生职业队伍中	5.I do not feel any obligation to remain in the doctor profession.(reversed)
6.就算我获得一份其他的好工作，我也觉得离开医生职业是不对的	6. Even if it were to my advantage, I do not feel that it would be right to leave the doctor profession now.

**Table 54 Intention to Leave Profession**

Intention to Leave Profession	
1.去寻找医生职业以外的其他就业机会	1.Explore alternative career opportunities to the doctor profession.
2.离开医生职业从事另外一份工作	2.Leave the doctor profession for another job.
3.我经常希望不再从事医生这个职业	3.I frequently think of leaving the doctor profession completely.

**Table 55 Job Autonomy**

Job Autonomy	
1.在现在的工作岗位上，是别人在决定我做什么和怎么去做	1. In my current job, someone else decides both what I do and how I do it. (reversed)
2.对我工作中发生的事情，我可以独立自主工作	2.In my current job, I can work independently.
3.我对我的工作有很大的话语权	3.I have a lot of say over what happens in my job.

4.我的职务使我能够参与对自己工作有影响的决策	4.My job allows me to take part in decisions that affect my work
-------------------------	--

**Table 56 Job Involvement**

Job Involvement	
围绕自己的工作所发生的事情往往是我最重要的事情	1.The most important things that happen to me involve my job.
我时时刻刻都将自己与工作融为一体	2.I live, eat and breathe my job
我大部份的个人兴趣都与自己的工作有关	3.Most of my interests are centered around my job
我对现在的职业有很深的感情，这是很难改变的	4.I have very strong ties with my present job which would be very difficult to break.
我大部份的个人目标都与自己的工作有关	5.Most of my personal goals are job-related.
我认为我的工作对于自己的人生是最重要的	6. I consider my job to be very central to my life.

**Table 57 Patient Safety Priority**

Patient Safety Priority	
为了完成工作，我必须忽视一些有关于患者的医疗安全的问题	In order to get the work done, I must ignore some patient safety categories
面对工作压力，无论何时我都倾向于尽快完成工作，即使这意味着会有医疗安全问题	Whenever pressure builds up, the preference is to do the job as fast as possible, even if that means compromising on patient safety
医院人力资源短缺降低了患者的医疗安全标准	human resource shortage undermines safety standards.
关于患者的医疗安全章程和程序被忽视了	Patient safety rules and procedures are ignored
安全规则和程序无非就是一个对法律诉讼的掩盖。	safety rules and procedures are nothing more than a cover-up for lawsuits.
忽视患者的医疗安全是可以被接受的	Ignoring patient safety is acceptable.
只要对患者的医疗安全问题没有负面影响，那么工作的完成方式就是无所谓了	It doesn't matter how the work is done as long as there are no accidents that negatively affect patient safety

**Table 58 Learning Orientation**

Learning Orientation	
我愿意接受挑战性病例	I am willing to take on challenging cases that they can learn a lot from
我会经常寻找学习新技能和新知识的机会	I often look for opportunities to develop new skills and knowledge.
我热衷于富有挑战性的可以使我学习新技能的疑难病例	I enjoy challenging and difficult cases where we can learn new skills.

为了能够承受风险，掌握知识、提高技能与能力对我来说非常重要	Development of physicians' knowledge, skills and abilities is important enough for me to take risks
我倾向于负责那些需要高能力水平的病例	I prefer to work on cases that require a high level of ability and talent.

**Table 59 Prosocial Motivation**

Prosocial Motivation	
因为我在乎能通过自己工作来造福他人	Because I care about benefiting others through my work
因为我想通过我的工作来帮助别人	Because I want to help others through my work
因为我想对他人产生正面影响/传递正能量	Because I want to develop positive effects on others
因为通过我的工作来造福他人对我来说很重要	Because it is important for me to do good for others through my work

**Table 60 Intrinsic Motivation**

Intrinsic Motivation	
因为我喜欢这份工作	Because I like the work
因为这份工作有趣	Because the work is fun
因为这份工作令我专注投入	Because the work makes me dedicated
因为我享受这份工作	Because I enjoy the work

**Table 61 Professional Activities**

<b>Professional Activities</b>	
自愿参加由医师协会组织的培训课程	1.Attend a voluntary training session organized by doctor association
向上级部门如卫生局或医管局提出自己对医生制度的意见	2.Input my views on the Doctors' system to the Local Health Bureau
向中国医师协会或地方医师协会提出自己对医生制度的意见	3.Input my views on the Doctors' system to the national, or local Doctors' Association
出席中国医师协会或地方医师协会组织的专业会议	4.Attend professional meetings organized by the national, or local Doctors' Association
出席中国医师协会或地方医师协会组织的医生社交活动	5.Participate in social activities organized by the national, or local Doctors' Association
在中国医师协会或地方医师协会组织的医学学术会议上发表论文	6.Present a paper at a conference or meeting organized by the national or local Doctors' Association
为政府部门、企事业单位或大学做讲座	7.Conduct a guest lecture for a government department, agency or university
在本地大学里兼任教师	8.Take up part-time teaching in a local tertiary institution
为医生专业的报纸或期刊撰写文章	9.Write an article for a professional doctor journal or periodical
撰写和出版关于医生的书籍	10.Write a book for publication
邀请或接待国外的医生界代表访问	11.Host or receive professional doctor delegations from other countries
出席北京市或全国性的医生会议	12.Attend a local, provincial or national conference on doctor
在北京市或全国性的医生会议上发表论文	13.Present a paper at a local, provincial or national conference on doctor
参加国际性的大型医生会议	14.Attend an international conference on doctor
在国际性的医生会议上发表论文	15.Present a paper in an international conference on doctor

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