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Instituto Universitário de Lisboa

The Moderating Role of Leader-Member Exchange as a Moderating Variable on the Relationship between Perceived Stress and Burnout in Clincians

LI Shouqiang

Thesis submitted as partial requirement for the conferral of the degree of

Doctor of Management

Supervisor:

Prof. MA Shaozhuang, Associate Professor,

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September, 2019

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Declaration

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

Signed:  Date: 2019.8.7

Name: LiShouqiang

作者申明

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Abstract

Under the influence of internal and external environment, Chinese clinician is under great pressure. Guided by Job Demands-Resources (JD-R) model and social exchange theory, this study explores the moderating role of Leader-Member Exchange (LMX) in managing the job burnout caused by perceived stress among clinicians in China.

Based on the extensive literature review on perceived stress, burnout and LMX, this study first discussed the impact of perceived stress on burnout and its three dimensions (namely emotional exhaustion, depersonalization and reduced accomplishment) among clinician, then examined the effects of LMX on burnout and its three dimensions, and lastly studied the mediating role of LMX between perceived stress and burnout. A questionnaire survey was conducted among three hospitals in Guangzhou and 434 valid responses were collected. Then data analysis and hypothesis test were carried out using IBM SPSS 19.0 and AMOS 21.0. The regression analyses showed that the perceived stress had a significant positive impact on burnout and its three dimensions. In addition, LMX moderates the relationship between perceived stress and burnout and its three dimensions such that the relationships are weaker for clinicians with higher LMX.

The findings of this study provided useful complementary insights for the research on perceived stress of clinician, and for better managing the burnout of clinicians in China.

Keywords: Chinese clinician; perceived stress; burnout; leader-member exchange (LMX)

JEL: M10 (Management General); M12 (Personnel Management); I10 (Health General)

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Resumo

Sob a influência do meio envolvente e interno, os profissionais das saúdes chineses encontram-se sob grande pressão. Tomando por base o modelo das exigências de recursos (JD-R) e a teoria da troca social, este estudo explora o efeito moderador da LMX (Troca Líder-Membro) na gestão do burnout causado pelo stress percebido pelos profissionais das saúdes na China.

Com base numa revisão extensa de literatura sobre stress percebido, burnout e LMX, este estudo discute primeiro o impacto do stress percebido e das suas três dimensões entre profissionais das saúdes, e examina os efeitos da LMX no burnout e nas suas três dimensões, e finalmente, estuda o papel mediador da LMX entre o stress percebido e o burnout. Realizou-se um inquérito por questionário junto de três hospitais em Cantão e recolheram-se 434 respostas válidas. Testaram-se as hipóteses por via de análise de dados utilizando o IBM SPSS 19-0 e o AMOS 21.0. As análises de regressão mostraram que o stress percebido exerce um impacto positivo no burnout e nas suas três dimensões; nomeadamente na exaustão emocional, na despersonalização e desempenho reduzido. Em acréscimo, a LMX modera a relação entre o stress percebido e o burnout e as suas três dimensões de tal forma que a relações se tornam mais fracas para os profissionais das saúdes que têm maior LMX.

Os resultados deste estudo facultam um entendimento complementar útil para a investigação sobre o stress percebido nas profissionais da saúde e para melhor gerir o burnout profissionais da saúde na China.

Palavras-Chave: Profissionais das saúdes chinesas; stess percebido; burnout; Troca Líder-Membro (LMX)

JEL: M10 (Management General); M12 (Personnel Management); I10 (Health General)

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摘要

由于受到内外部环境的影响，中国的医务工作者感受到的压力与日俱增。基于工作需求与资源模型（Job Demands-Resource Model）和社会交换理论，本研究探讨领导成员交换关系能否成为缓解这种机制的调节变量。

研究在广泛阅读有关知觉压力、职业倦怠以及领导成员交换文献的基础上，讨论了医务人员知觉压力对职业倦怠以及其三个维度的影响、进一步讨论了领导成员交换对职业倦怠以及三个维度的作用、同时研究领导成员交换在知觉压力和职业倦怠间的调节作用。

本文采用问卷调查的研究方法，在广州的三家医院进行问卷调查，共收集 434 份有效样本，利用 IBM SPSS 19.0 以及 AMOS21.0 进行了数据分析和假设检验。数据结果支持了知觉压力对职业倦怠以及三个子维度（情绪衰竭、去人格化、低成就感）有显著的正向影响关系，同时领导成员交换对医务人员知觉压力与职业倦怠以及以及三个子维度（情绪衰竭、去人格化、低成就感）的关系有负向调节的作用。

本文的研究结果将会丰富医务人员知觉压力的相关研究，同时在医务人员这一群体职业倦怠的减轻作用方面有着重要的作用，为管理层面的医务人员负面倾向的规避有较为重要的作用，有一定的理论和实践意义。

关键词：中国医务工作者；知觉压力；职业倦怠；领导成员交换

JEL: M10 (Management General); M12 (Personnel Management); I10 (Health General)

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This thesis was completed under the meticulous guidance of my supervisor Prof. Ma Shaozhuang, whose profound academic knowledge, rigorous scholarly attitude, excellence in work style, tirelessness in teaching students, strict self-discipline and broad-mindedness towards others, as well as amiable personality have deeply impressed me. Inspired by his diligent scholarship and noble morals, I not only set up my ambitious learning goal but also learn a lot about how to conduct myself and deal with matters. Here I want to show my enormous respect for Prof. Ma and wholeheartedly thank for his tremendous help and meticulous guidance through my whole doctoral study from topic selection, thesis writing and paper submission, especially his patient instructions on resolving all my problems and difficulties encountered during my thesis writing.

How time flies! My doctoral life is nearing its end before I know it. With the approach of the defense date, my doctoral thesis has almost been finished. Here I want to offer my sincere thanks to all class lecturers and teachers from ISCTE Lisbon University Institute and Southern Medical University, who not only taught me professional knowledge but also the truth in life. I am also immensely grateful to my classmates and friends for their sustained support and generous help. It is safe to say that if it had not been for their continued support, I would not havesuccessfully gone through the hard journey from thesis proposal to the completion of the thesis.

The doctoral study not only widens my professional knowledge, but most importantly cultivates my new way of thinking, improves my communication skills and broadens my visions through extensive reading and personal practice. I am very glad that I have encountered so many nice teachers and friends in my study and life, who have given me selfless help and warm care so that I can enjoy a wonderful learning journey in a warm environment. My deep appreciation is beyond words for your sustained support and generous help.

Finally, I am particularly indebted to my family members including my parents and my wife who have guided me like a shining beacon light during the long journey of my life, and also express thanks for their tremendous support and unrequited love that guarantee my successful completion of my doctoral thesis. In the future, I will study and work harder to live up to my family's ardent expectations of me!

Just as an old Chinese saying goes, “Someday I will brave winds and waves to fulfill my aspirations and achieve my big dream”, after bidding farewell to my doctoral life, I am now already standing at the starting point of a new journey. In the future, I will work harder, remain true to my original aspirations and keep my dream firmly in mind to embark on a new path towards more ambitious goals.

致谢

本论文在马绍壮导师的悉心指导下完成的。导师渊博的专业知识、严谨的治学态度，精益求精的工作作风，诲人不倦的高尚师德，严于律己、宽以待人的崇高风范，朴实无华、平易近人的人格魅力对本人影响深远。不仅仅使本人树立了远大的学习目标、掌握了基本的研究方法，还使本人明白了许多为人处事的道理。本次论文从选题到完成，每一步都是在马老师的悉心指导下完成的，倾注了导师超多的心血。在此，谨向马老师表示崇高的敬意和衷心的感谢！在写论文的过程中，遇到了很多的问题，在马老师的耐心指导下，问题都得以解决。所以在此，再次对导师表示衷心的感谢！

时光匆匆如流水，转眼便是毕业时节，春梦秋云，聚散真容易。答辩日期已日趋渐进，毕业论文的完成也随之进入了尾声。从开始进入课题到论文的顺利完成，一向都离不开老师、同学、朋友给我热情的帮忙，在此我向葡萄牙里斯本大学工商管理学院和南方医科大学卫生管理学院的所有老师表示衷心的感谢，谢谢你们的辛勤栽培，谢谢你们在教学的同时更多的是传授我们做人的道理，谢谢你们孜孜不倦的教诲！

在读期间，所收获的不仅仅仅是愈加丰厚的知识，更重要的是在阅读、实践中所培养的思维方式、表达潜力和广阔视野。很庆幸我遇到了如此多的良师益友，无论在学习上、生活上，还是工作上，都给予了我无私的帮忙和热心的照顾，让我在一个充满温馨的环境中度过这段学习生活。感恩之情难以用言语量度，谨以最朴实的话语致以最崇高的敬意。

最后要感谢的是我的父母和爱人，他们让我在漫长的人生旅途中使心灵有了虔敬的归依，而且也为我能够顺利的完成毕业论文带给了巨大的支持与帮忙。在未来的日子里，我会更加努力的学习和工作，不辜负家人对我的殷殷期望！

“长风破浪会有时，直挂云帆济沧海。”，这是博士研究生学习生涯的终点，也是我新征程的起点，在未来的日子里我一定会更加努力，不忘初心，坚持最初的梦想往更高更远的方向迈进！

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Chapter 1: Introduction

1.1 Research background

Cliniciansin in China have been working in a high-risk and high-pressure environment. In the age of the internet, clinicians suffer from even heavier work pressure and psychological burden. A survey of 1600 clincian by Jinghui Management Research Institute shows that 81.35% of clincian are under moderate or serious pressure, 30.64% under severe or above pressure, and only 1.87% are under no pressure. Clincian's pressure comes from four aspects: social environment and public opinions, work pressure, life pressure and interpersonal relationship pressure.

In 2010, Fan Li, member of CPPCC National Committee and vice president of PLA General Hospital, pointed out in a group discussion that more than 80% of the medical employees in general hospitals suffer sleep disorders in varying degrees, 72% have fatigue, 48.6% have job burnout, and 27.74% have anxiety, impatience, depression and other psychological problems; 16% left medical industry due to physical and mental illness and immune system diseases; 12% suffered from depression. But owing to the strong sense of humiliation, or for fear of losing their jobs, most doctors refused to seek help from psychologists. These problems show that many clinicians in China are under great pressure, which is manifested in their different kinds of negative behaviors. However, they are shamed of seeking help because of their occupational characteristics. Therefore, how can doctors retricate them from these stressful situations?

Although China is the world’s biggest provider of medical services, it faces a serious shortage of doctors. According to the data of 2017, there are 170,000 general practitioners in China, with a shortage of 180,000 GPs. More and more reports show that the shortage of clincian is showing a severe trend. There are about 1.51 general practitioners per 10,000 people in China, with a shortage of 90,000. For example, according to the figures of the National Health and Health Commission, children aged 0-14 account for about 20% of the total population in China, while presently there are only 99 children's specialized hospitals, accounting for 0.01% of the total number of health institutions. In 2014, there were 2.12 practitioners per 1,000 people, with only 0.53 pediatricians per 1,000 children. At present, there are 118,000 pediatricians, which means that there is a critical shortage of 200,000 pediatricians in China. In order to

resolve the lack of clincian, efforts should be made to speed up the training of clincian and pay high attention to the retention of existing clincian. In response, one of the ways is to ease their increasing perceived pressure, so that they can lead a relaxed and happy life while treating the patients.

Job burnout is considered to be one of the main factors causing staff turnover. Job burnout refers to a long-term psychological response caused by the failure of an individual working in the service industry to deal with continuous work pressure, which includes emotional exhaustion, depersonalization and reduced accomplishment. Burnout is a typical response to stress. One of the serious consequences of work pressures is burnout. In the process of social development, people are increasingly demanding high quality of life and happiness. Because of their special nature of work, clincian is considered to be more likely to suffer from burnout. The burnout of clincian has become a common problem in the world. However, the occupational health of clincian is more than just a personal matter because the burnout of doctors caused by consumption of a lot of psychological energy in the process of treating and nursing patients also relates to the quality and level of medical services, the life safety of patients and the stable as well as harmonious development of the whole society. Therefore, burnout of clincian will not only cause health problems, but also trigger social and public opinions, and even increase the incidence of medical accidents.

In June 2016, the *Guidelines on Promoting Family Doctor Contract Services* (Document No. 201611 issued by the State Medical Reform Office) jointly promulgated by seven departments including the State Council Medical Reform Office and the National Health and Family Planning Commission gives high priority to the promotion of family doctor contract services from the perspective of national strategy. As the critical part of hierarchical medical system, the introduction of family doctor contract services represents the materialization of the medical reform policy and the transformation of the basic service mode. However, the contracting service of family doctors in China is still at the exploratory stage, and the disparity among different areas varies vastly, which hampers the formation of a unified and standardized system of family doctors contracting service. At present, the poor salary, low social status and long-term high pressure faced by the grassroots clincian not only dampen their work enthusiasm, but also worsen their burnout, which directly affects the quality of medical services and causes the physical and mental illness and burnout of clinicians, ultimately reducing their job satisfaction rapidly.

On July 25, 2017, the General Office of the State Council issued the Guiding Opinions of

the General Office of the State Council on the Establishment of a Modern Hospital Management System, which has made a series of regulations and adjustments to the modern hospital management system. With the deepening of health reform in China, the abolition of drug price addition policy, the increased fees for the technical service of clincian and the transformation of comprehensive nursing management mode, the grass-roots clinicians are exposed to increasing pressure and risks. If their physical and mental conditions are not adjusted in time, they will suffer from burnout. Especially with the improvement of people's health care consciousness, patients' expectations of hospitals are getting higher and higher, which invisibly increases the working pressure of clincian. Most of the patients in primary hospitals come from rural areas. Their cultural background and knowledge level are limited. They think that medical and nursing complications should not occur after their diseases are treated. However, due to the limitation of medical technology, primary hospitals cannot meet the growing health needs of the people, which gradually worsens the doctor-patient relationship. The high risks and uncertainties of the medical industry itself make the clincian feel more pressure. The medical industry is closely related to people's health and even life, which is an industry full of unknown and exploration. Therefore, clincian is faced with various uncertainties and unpredictable high risks in the process of diagnosis and treatment. Meanwhile, the requirements for their own professional level are very high.

At present, the limitation of medical technology makes it difficult for doctors to fully understand the disease conditions in the process of diagnosis and treatment. In addition, the great individual differences of patients and the unpredictability of the disease will inevitably lead to misdiagnosis and missed diagnosis, thus negatively affecting the treatment and rehabilitation of patients, especially for those in emergency department and intensive care unit. From diagnosis to treatment options to final treatment, risks run through every part of the entire treatment process, bringing varying degrees of psychological pressure to clincian. Therefore, carefully analyzing the work pressure of clincian in grass-roots hospitals and exploring the countermeasures will play an active role in improving the ability of basic-level clinicians to cope with the pressure and the quality of treatment and patient satisfaction. At present, the research on burnout of clincian by Chinese scholars is rarely based on empirical research, and the existing literature on the relationship between work pressure and burnout is mostly based on theoretical research or the study of teachers and workers in colleges. We believe that impact mechanism between the work pressure and burnout among clincian still needs to be explored. The objective of this study is whether leader-member exchange (LMX) that can affect the

impact mechanism?

On the basis of describing the perceived work pressure and burnout of clincian, this study aims to use JD-R model, social exchange theory, conservation of resource theory, coping theory, and incentive and contribution theory to find out the boundary conditions to alleviate this impact from the relationship between leaders and members, and puts forward corresponding suggestions in order to improve the enthusiasm of clincian and patient satisfaction, thus improving the quality and level of medical care, and maintaining the stable social development.

1.2 Research significance

(1) Theoretical significance

The theoretical significance of the study is as follows:

Firstly, it enriches the research of impact of perceived pressure on burnout among clincian. The existing studies on work pressure and burnout include: Ren (2014) studied them from meso-level; Guo, Wang, Wang, and Zhao (2015) discussed the coping methods; Jiang (2016) explored the impact ofpressure from work, career growth and lifeon burnout. The study examined burnout with its three dimensions, namely emotional exhaustion, depersonalization and reduced accomplishment. The purpose of the study is to further explore the impact of perceived stress on burnout among the clincian, which is of supplementary and further guiding significance to enrich the study of perceived stress and burnout in Chinese healthcare context.

Secondly, with leader member exchange (LMX) as a moderating variable, this study proposes a model regarding the moderating effect of perceived stress on burnout. At present, the study of LMX as a moderating variable mostly focuses on exploring the boundary conditions for the positive outcome variables. For example, Deng, Liu, and Qiu (2017) explored the moderating effect of LMX's formal status and work performance; Zhu (2016) explored the moderating role of LMX between goal orientation and employee entrepreneurial learning; Cao and Li (2016) explored the relationship between psychological contract breach and employee voice behavior. The purpose of this study is not to enhance the positive effects of variables, but to reduce the negative effects caused by negative factors. Therefore, the study of the moderating role of LMX is also of great significance to enrich the relevant theories of clincian burnout research.

(2) Practical significance

Firstly, the researchers in field of positive organizational behavior think that the research

on negative and positive aspects is different, and the impact mechanism leading to negative results and positive results is also different. Following the call for positive organizational behavior (Luthans, 2002), this study examines the impact of LMX on job stress and burnout, which is particularly important for the clincian. After understanding the impact of stress on burnout, we can first analyze the source of job stress and the perceived pressure of clincian then properly control the working environment and system so as to reduce the job stress and burnout of clincian. Burnout is one of the antecedent variables of turnover intention, so burnout control can be used as a basis to control turnover intention and change the traditional stress coping methods and provide guidance for clincian in improving the ability of stress resistance.

Secondly, some studies have shown that the shortage of clincian will become more severe, and the turnover rate of clincian is on the rise. By studying the relationship between burnout and job turnover, we can understand the psychological conditions of clincian, provide a basis for establishing a sound LMX and reduce the impact of perceived stress on three dimensions of burnout as well as turnover intention. As a social service-oriented organization, hospitals need a good organizational atmosphere, which, on the one hand, can improve organizational cohesion, enhance team awareness and sense of collective honor; on the other hand, it can help clincian to provide better services to the benefit of the patients. The results of this study can improve the stability of clincian and provide new ideas for hospital managers to reduce turnover rate.

1.3 Research questions

As mentioned above, clincian is under tremendous pressure, which comes not only from the social environment such as public opinions, living environment and interpersonal relations, but also from the clincian themselves resulting from inability to properly release their emotions.

Among them, work pressure comes from medical practice. Specifically, the effect of diagnosis and treatment is difficult to accurately estimate and judge, so medical disputes may occur due to missed diagnosis and misdiagnosis. Meanwhile, in the process of diagnosis and treatment, clincian may consider the patient's economic affordability and require little or no examination, which will cause potential problems and bring hidden dangers in the future. The mental stress of clincian comes from the asymmetry of information between clincian and patients. Although clincian has done their best, the treatment results may still fall short of the patients' high expectations. In extreme cases, the violent behaviors of some dissatisfied and angry patients may threaten the safety of clincian and pile mental pressure on them. Besides,

some negative reports on clinicians will further vilify the image of clinicians in the minds of the people.

Under the influence of these pressures, we want to explore whether the change of clincian's psychological feelings in the work will cause burnout or three dimensions of burnout, namely, emotional exhaustion, depersonalization and reducedaccomplishment. Starting with job stress, the study aims to reduce the occurrence of burnout, and further avoid the burnout-reduced serious consequences such as turnover and poor service attitudes and low work performance. On the other hand, we want to explore the boundary conditions that can weaken this negative effect by understanding the moderating effect of perceived stress on burnout. Based on social exchange theory and introducing the variable of LMX, it is hoped to find out the effective ways to reduce burnout of clincian and do something positive to alleviate their psychological distress, in an effort to improve the living conditions of clincian, and meanwhile minimize the negative impact on the organization.

Specifically, this study examines the following research questions:

1) What are the levels of perceived stress and burnout among Chinese clnicians? Are there significant differences among different demographic groups on stress and burnout?
2) What is the relationship between perceived stress, LMX and burnout?
3) Does LMX moderate the relationship between perceived stress and burnout?

1.4 Research methods

Empirical research method is adopted in the study, which is to first put forward reasonable hypotheses based on relevant literature research. Then, a questionnaire is designed to collect research data and analysis of sampled data is made. Finally, statistical software is used to draw conclusions. The main research methods used in the study are cross-sectional survey. Based on the empirical research paradigm of psychology and organizational behavior, this study designs questionnaire on the basis of widely-used scale to study the different degrees of perceived stress, burnout and LXM among clinicians.

1.5 Research technique route

The technical route of this study is shown in Figure 1-1. Firstly, the research direction of the study is determined, and theoretical model and research hypotheses are put forward on the

basis of literature review; secondly, the scale is carefully selected according to the theoretical model, and data collection and analysis are carried out through questionnaire survey; finally, hypotheses are tested by statistical analysis tools such as SPSS and AMOS, and the analysis results show whether a hypothesis is supported or not and corresponding reasons are given. The research results will give enlightenment in theory and management practice.

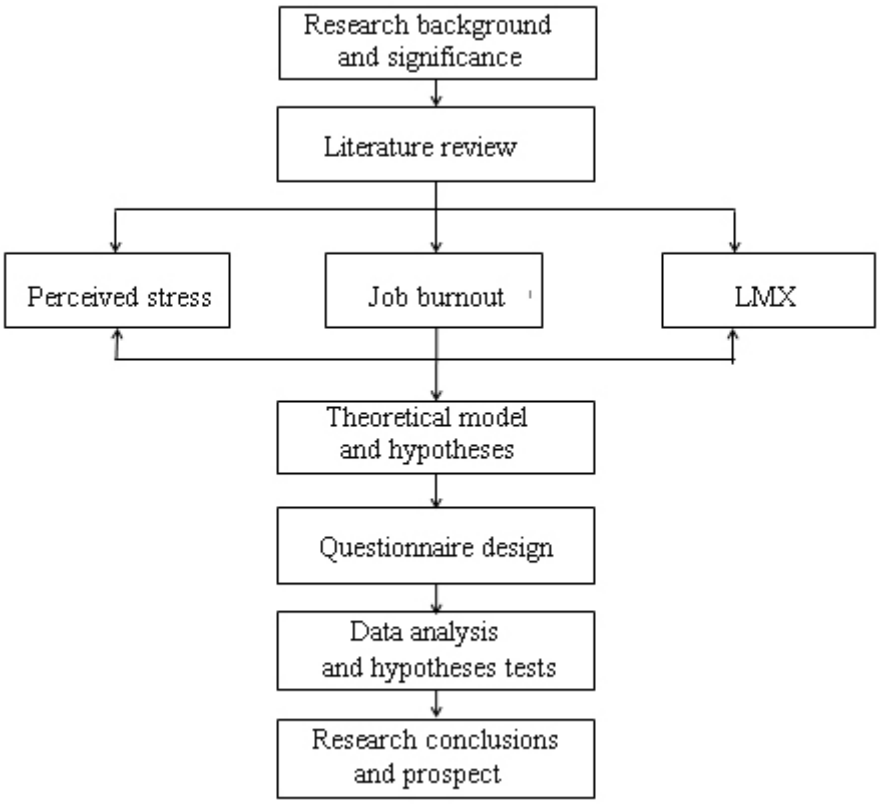

Figure 1-1 Research technical route

1.6 Thesis structure

The structure of this thesis is as follows:

Chapter 1: Introduction. Mainly introduces the research background, research significance, research contents and research methods, which lays the foundation for the entire thesis. This part briefly introduces the research background, purpose and motivation, the requirements of the research, and the previous studies in related fields. Meanwhile it explains the relationship between this research and the previous work, current research hotspots, existing problems and the significance of the thesis, thus raising problems that provoke the thoughts of readers. This chapter also gives the theoretical basis, experimental basis and research methods of this thesis,

and briefly expounds the research content.

Chapter 2: Literature review. Reviews the relevant literature and systematically analyze the current situation of burnout of clincian. Describes the concept of perceived stress, its measurement and impact results; describes the concept of burnout, its measurement and influencing factors; describes the concept of LMX, its measurement and impact results. Review the relevant theories used in this study. This chapter is mainly to provide literature support and basis for the hypotheses in Chapter 3. Based on extensive reading and review of the literature on the related research fields, the current research situation, new trends, new technologies, new findings and development prospects of perceived stress, burnout, emotional exhaustion, depersonalization and reduced accomplishment (including main academic views, previous research results and research level, focus of debate, existing problems and possible causes) are comprehensively analyzed, summarized and discussed, and the research viewpoints and ideas of this thesis are put forward.

Chapter 3: Research hypothesis. Based on coping theory, social exchange theory, conservation of resources theory and JD-R model, the study elaborates the influence of perceived stress on burnout and the moderating role of LMX in the impact of perceived stress on burnout, and puts forward the hypotheses for this study. On the basis of the research hypothesis, the research hypotheses are put forward, data analysis and hypothesis test are conducted and research conclusions are drawn.

Chapter 4: research design based on the hypotheses, including the definition of perceived stress, burnout and LMX variables and the selection of measurement scales. Meanwhile, the analysis tools and methods are introduced to lay a good foundation for the data analysis in the next chapter.

Chapter 5: Data analysis and hypothesis test. Firstly, the process of data collection and the basic situation of samples are described. Secondly, the reliability and validity of the scale are tested to indicate its fitting degree and reliability, and then the further analysis is carried out. The analysis process includes descriptive statistics, influence of control variables, correlation analysis, regression analysis and adjustment effect analysis to test the hypotheses in chapter 4. Data analysis and hypothesis test are performed using SPSS 21.0, and then each hypothesis is tested.

Chapter 6: draws conclusions based on the test results and discusses the results to give enlightenments of this study. Meanwhile, it puts forward some research limitations and ideas for future research direction. This chapter mainly focuses on analyzing the research results.

Firstly, the main research conclusions are reviewed and discussed; secondly, practical suggestions from the perspective of management are put forward. In addition, the author will put forward future research points according to the research limitations and future research directions.

1.7 Chapter summary

This chapter elaborates the research background and significance of the thesis. How clinicians can work and live better and reduce burnout under strong work pressure has aroused this study's thinking. Chapter 1 includes research background and significance, research purpose and subjects, research contents and framework, and research technical route. This chapter is the basis of research and provides guarantee for the implementation of the whole research program.

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Chapter 2: Literature Review

Before proposing the research hypothesis, this study needs to review and summarize the relevant theories and variables, including the research progress of perceived stress, burnout, leader-member exchange and other related theories, in order to provide theoretical basis for the research hypothesis. The relationship between perceived stress and burnout, and the moderating role of LMX in the relationship between perceived stress and burnout are hypothesized.

2.1 Perceived stress

2.1.1 The concept of perceived stress

Before introducing the concept of perceived stress, we should have a systematic description of the source of stress. Stressor refers to the sources of all the internal and external environmental changes that can trigger some stress responses and disturb the stable state of the human body (Hou & Li, 1999). In short, stress source refers to situations, events and activities that can lead to a certain amount of stress. When the external stimulus is perceived, the individual will produce subjective evaluation. If the adaptive response requires greater efforts to produce or it is difficult to adapt, the individual will experience tension and anxiety. There are multiple sources of stress, including internal and external environment, social environment and psychological environment, which come from people's psychological, physiological, situational and personal development (Liu, 2008). Some scholars classify the sources into three categories: biological, spiritual and social environmental stressors. The three types of stressors are discussed as follows.

Biological stressors can destroy individual survival and continuity of ethnic groups. Spiritual stressors can hinder and destroy the spiritual needs of individuals and racial groups. Social environmental stressors can hamper the social needs of individuals and human beings, including those caused by social environment and their own conditions. There is a certain relationship between pressure source and pressure response. Different pressure sources may cause the same pressure response, and pressure response may be diverse for the same source of pressure. In some cases, pressure source may be beneficial to individuals. At present, the concept of pressure source has been variously defined by different scholars in academic circles,

but all definitions are generally consistent, mainly referring to different sources of pressure.

The concept of perception refers to how sensory organs react to external stimulus. The human brain is responsible for processing received stimulus and produces perceptual response, which is influenced by the actual environment. Meanwhile the individual experience and knowledge also plays a greater role in it. The formation of perception goes through three stages: cognitive stage, sensory stage and perceptual stage. In the cognitive stage, the human brain processes objective things or interprets them through its own experience, so it can be divided into two different ways: top-down and bottom-up. Then the individual will give meaning to specific things.

The concept of stress was first put forward in 1936 by Hans Seyer, a Canadian physiologist. He defined stress as how people feel about external events, and considered it meaningful. Stress, also known as "stressor" and "tension", is a state of tension, which usually arises from an individual's response to external threats. The connotation of stress includes the following three aspects: first, the stimuli events can put the individual under pressure; second, after the individual's cognition and evaluation of the stimuli event, the individual develops a sense of tension when he finds himself unable to control the stimuli event. Finally, the pressure is expressed as an individual's internal feelings, such as fear, restlessness and tension. Therefore, stress is a state of tension when an individual feels the stimulus of the outside world is uncontrollable. This state will also cause certain physiological and psychological changes.

Perceived stress refers to a subjective perceptual evaluation when something beyond an individual’s controllability occurs. It is a cognitive process (Cohen, Kamarck, & Mermelstein, 1983), which may produce some undesirable results. Perceived stress is a process relating not only to the individual’s perception of stress, but also to the individuals' assessment of whether the stimulus event has a significant impact on themselves. Therefore, the difference between perceived stress and stress is that perceived stress is not only an individual's cognition, but also a process of evaluating the threat and significance of external stimulus events to individuals. After evaluating, individuals will have corresponding psychological responses, so the perceived pressure of individual to stimulus events can also affect stimulus events. In daily life, the perceived stress usually displays as tension and discomfort, and is manifested as uncontrollable and tense state.

In our daily life, many unhealthy things and environments will become sources of stress. When individuals perceive these situations, they will conduct in-depth and detailed analysis of these conditions and experience some psychological changes (Liao, Li, Ouyang, Zuo, Li, &

Shen, 2015). Some researchers found that perceived stress has a much greater impact than stress itself. The unhealthy things or environment does not necessarily lead to an individual's psychological tension and helplessness. It is the perception of unhealthy things that has a negative impact on an individual, whose influence is far greater than the undesirable things or the environment itself (Wang, 2016).

All these indicate that perceived stress is a more subjective concept and has a greater impact on individuals. The concept of perceptual stress adopted in this study is that after receiving adverse stimuli from external things and environment, individuals analyze and assess these situations, and experience a series of changes in psychological activities, which can be manifested as uncontrollable feelings and psychological and physical discomfort and tension (Yang & Huang, 2003). This concept has been heavily studied and applied in Chinese context, which is highly consistent with the concept of perceived stress adopted in this study.

2.1.2 Antecedents and outcome variables of perceived stress

The formation and degree of perceived stress largely depends on the cognitive evaluation of environmental stimuli. The same environmental stimulus event has different effect on different people. This suggests that many external stimuli cannot be absolutely identified as stressful events. Whether a stimulus is stressful or not mainly depends on an individual's cognitive evaluation.

According to Lazarus and Folkman (1984), the cognitive evaluation of environmental stimulus can be divided into primary evaluation and secondary evaluation. Primary evaluation is to judge whether an individual feels the threat of the environment and whether it can affect the individual. Secondary evaluation is to assess whether an individual has the resources and can adopt effective strategies to deal with the threat of the environment. Cognitive evaluation plays an important role in whether an individual can produce perceived stress or not. Therefore, the study of cognitive evaluation will be a direction of future research.

Liu (2010) investigated the work stress and stressors of nurses in children's hospitals based on the method of equidistant random sampling, and adopted the Chinese version of the perceived stress scale in order to understand the current situation of the perceived stress among pediatric clincian. The research results found that the perceived stress of clincian in children's hospital is related to the number of physical exercises per week, chronic diseases, diagnosis and treatment, patient management and interpersonal relationship. Qualitative interviews revealed that the pressure of doctors mainly comes from the heavy workload, which makes them difficult

to find the balance between scientific research, teaching and clinical practice; besides, the poor salary does not match their hard work. The pressure of nurses comes from the tense doctor-patient relationship, sense of being ignored or disrespected, and noisy working environment. The pressure of medical technicians mainly comes from the high intensity of work and heavy responsibility for the prevention of infectious diseases.

Qian, Kang, Qu, Meng, Liu, and Guan (2016) studied the perceived stress of radiation workers in a Hebei Third-Class A Hospital. Two hundred and sixteen (216) radiation workers are used as observation group, with another 216 non-radiation workers as the control group. The main purpose of the study was to observe and evaluate the burnout and perceived stress of radiation workers and meanwhile explore the sources of perceived stress. The results show the scores of burnout and perceived stress in observation group were significantly higher than those in control group.

The scores of perceived stress also increased with age. Unmarried people scored the lowest, followed by married people, and divorced people scored the highest. The score of perceived stress of medical workers with direct exposure to radiation was significantly higher than that of medical workers with indirect exposure. Meanwhile, with the increase of working years, the degree of perceived stress also increased significantly. In terms of radiologic technologists, the higher the professional title is, the stronger the degree of perceived stress. Therefore, this study shows that age, marital status, mode of exposure to radiation, length of service and professional title are all important factors affecting the perceived stress of radiologists. Research on the perceived stress of medical graduates showed that perceived stress comes from employment pressure, economic pressure and psychological abnormal pressure.

Zhu, Zhang, and Zeng (2016) found that the demographic factors affecting doctors' perceived stress in Beijing area include age, department, education level and rest time. Individual factors include personality, coping strategies and self-efficacy. In order to reduce doctors' perceived stress, doctors' rest time should be guaranteed. A survey of three hospitals in Hebei Province suggests that age, marital status, mode of exposure to radiation, length of service and professional title all have an impact on doctors' perceived stress. For radiologists, the perceived pressure of clincian with direct exposure to radiation is vastly different from that of clincian with indirect exposure.

The impact of perceived stress has been widely studied by scholars. Foreign research shows that college students' perceived stress is negatively correlated with their life satisfaction. The lower the perceived stress is, the higher the life satisfaction (Abolghasemi &Varaniyab,

2010). Coping styles are also negatively correlated with perceived stress (Lavoie, 2013). All these studies indicate that perceived stress has affected the individual's mentality to a certain extent, and is also affected by external factors. Connor (2007) found that people with anxiety disorder (including social anxiety and post-traumatic stress disorder) are more likely to perceive stress or more sensitive to stress than the ordinary people. Meanwhile, perceived stress can also be a predictor of anxiety. Beck (1991) studied the perceived stress and mental health of nursing undergraduates in Canada, and found that there was a significant correlation between perceived stress and mental health ($r = 0.415$).

The impact of perceived stress has also been studied by Chinese scholars. Jiang (2011) explored the negative correlation between perceived stress and well-being of “ant tribes” ("Ant Tribe" is the vivid portrayal of groups of low-income college graduates living in cramped space), and discussed its moderating role. Based on the "perceived stress" scale, the study surveyed 389 "ant tribe" dwellers, and found that the perceived stress of ant tribe has a negative impact on life satisfaction and positive emotions, and hope for life has a moderating role between perceived stress and negative emotions. The survey of Chinese college students using the China-specific perceived stress scale comes to similar conclusions. These research results in China show that the higher the perceived stress, the lower the life satisfaction. A survey of 485 college students based on the perceived stress scale, emotional intelligence scale and adult psychological elasticity scale showed that there was a negative correlation between perceived stress and emotional intelligence and psychological resilience. Emotional intelligence played a mediating role between perceived stress and well-being. Stress could directly predict satisfaction (Xie & Fan, 2014).

From the perspective of positive psychology, Sun, Jiang, and Yu (2012) examines the influencing factors of turnover intention in high-tech enterprises and the role of sense of humor in it. A survey of employees of high-tech enterprises in Guangzhou, Dongguan and Shenzhen found that perceived stress can directly and positively predict employees' turnover intention, while sense of humor can play a moderating role between them. Therefore, it is suggested that managers should make efforts to reduce perceived pressure so as to reduce turnover intention, and meanwhile foster sense of humor within team, implement humor management and recruit employees with a sense of humor to reduce the level of turnover intention.

Liu, Zhang and Yang (2017) surveyed 1296 doctors in Beijing to measure their perceived stress, self-efficacy and work well-being, and meanwhile test the correlation between them and moderating effect. The results show that perceived stress has a certain relationship with

individual well-being. Self-efficacy plays a moderating role between perceived stress and work well-being. Perceived stress can affect work well-being through self-efficacy. Self-efficacy can make doctors feel more job well-being. Therefore, the research put forward new ideas to improve job happiness. In high-tech enterprises, the rapid technological change makes employees face greater pressure.

Perceived pressure can also cause some negative problems, such as turnover intention. But turnover intention can be reduced through effective communication. Communication can help employees vent frustrations, release complaints and acquire new resources to offset the emotional loss caused by stress, and meanwhile to a certain extent avoid employee turnover intention (Yu & Liu, 2014). Besides, Xu, Zhang, and Liu (2013) surveyed 179 college students to measure their perceived stress, mindfulness and sleep problems. The multilayer linear regression and correlation analysis showed that perceived stress was negatively and significantly correlated with mindfulness level (r=-0.602, P=0.000), positively and significantly correlated with sleep problems (r=0.459, P=0.000). Mindfulness level was negatively and significantly correlated with sleep problems (r=-0.427, P=0.000), so perceived stress has a certain impact on the individual's physical conditions, and mindfulness level plays a mediating role between perceived stress and sleep problems. This research results provide some enlightenment for this study and should also arouse great attention.

A survey of 2,532 respondents by Lv, Tian, and Yang (2010) in different occupations from construction industry, service industry, and school in Guangzhou, Hangzhou and Taiyuan measured the perceived stress of the surveyed groups based on the Chinese version of Perceived Stress Scale (CPSS). The public perceived pressure during epidemic period has a negative impact on health behavior. With the increase of pressure, the frequency of adoption of hand washing before meals, hand washing after defecation, window ventilation, avoiding coughing and sneezing right in front of others, and exercise behavior decreases in turn. Therefore, the higher the public perceived pressure, the lower the rate of adoption of health behavior. Increasing public awareness of emergency events and providing social support can reduce this perceived pressure.

Perceived stress also has a certain impact on some medical professions. For example, some scholars used online questionnaire to collect data and conducted correlation analysis and multiple regression analysis to examine the correlation between perceived stress and burnout. The results showed that perceived stress has effect on burnout and organizational psychological attachment of anesthesiologists. It is also found that burnout plays a complete mediating role

between perceived stress and organizational attachment. It provides some enlightenment for medical managers (Li, Cui, Zhang, Cun, Wang, & Shi, 2017). The studies on the job well-being of clincian found that self-efficacy plays a mediating role between perceived stress and job well-being. The improvement of job well-being can promote the physical and mental health of clincian, so it is very important to control perceived stress (Liu & Zhang, 2015).

When an event is considered to be stressful in a particular environment, it will bring challenges, threat and harm to people, and the individual will react to the event. When the degree of perceived stress is different, the coping behaviors and results are also different. Previous conclusions have shown that perceived stress has a certain impact on individual's physical and mental health, so varying degree of perceived stress will also have different damage to the body and mind. An individual's physical and mental health will have a great impact on life quality. In work, the personal factors (including physical quality, nerve type, quality of will, personality characteristics, cognitive level, life experience, moral and ethical concepts, values) will affect individual's cognitive evaluation of stimulus events. They will also have a great impact on the state of stress. Different coping styles will produce different results. This impact may make employees feel powerless and unsatisfactory, and even in worse cases lead to employee turnover.

2.1.3 The dimensions and measurement of perceived stress

Before discussing the dimensions of perceived stress, we need to understand the classification of stress. Psychologists classify stress into several categories. The first is the pressure arising from the approach-approach conflict. The approach-approach conflict means that when two incompatible things have strong attraction, the achievement of one thing will lead to the failure of another. In this case, an individual will experience distress because of having to choose between two competing things. The second is the pressure caused by approach-avoidance conflict. The approach-avoidance conflict arises when a goal has both desirable and undesirable characteristics. In this instance, an individual feels the danger of a goal while trying to achieve it. Therefore, individuals are put under great pressure. The third is the avoidance-avoidance conflict, also known as double-avoidance conflict, which refers to a specific conflict situation where there are two equally objectionable alternatives. In this case, individuals will be in passive position because they cannot make decisions. The last one is double approach-avoidance conflict, which results from the confrontation of the choice between two goals or desires that have both desirable and undesirable aspects, leading the individual to

feel pressure or conflicted regarding how to make choice. As for the dimensions and measurement of perceived stress, there are different versions of scales at home and abroad. The early widely-used scale includes three dimensions: tension, unpredictability and uncontrollability. It can measure adverse and unexpected events in real life. Chinese scholars have shown that this scale can be used to assess the perceived stress of individuals experiencing these events (Xie & Fan, 2014).

As for the measurement of perceived stress, scholars Lazarus and Folkman (1984) divide stress into the following several types: first, stimuli-oriented stress. They think that stress is a kind of stimulation, and how stress is produced and the source of stress is the focus of our attention; second, response-oriented stress. They think that stress is not spontaneous, but results from an individual's response to external stimuli; the third is the interactive-oriented stress, which holds that stress is the result of an interaction between a person and the external environment. Cohen, Kamarck, and Mermelstein (1983) developed the Perceived Stress Scale (PSS) to assess the degree to which individuals perceive stress in their lives. The scale has three versions: 14 questions (PSS-14), 10 questions (PSS-10) and 4 questions (PSS-4).

The Perceived Stress Scale is mainly used to evaluate two aspects: 1. the individuals' overload in their lives; 2. the discomfort and tension caused by unpredictable and uncontrollable factors. Cohen, et al's PSS scale is suitable for Canadian and American respondents, which has good reliability and validity. Some other researchers also found that the PSS scale showed good reliability and validity when used for Japanese and Spanish respondents. Researchers in China also use one of the scales to measure perceived stress at work. As an effective tool for assessing individual subjective perceived stress, the scale has been translated into many languages and applied to the study of perceived stress among various kinds of groups.

Besides the development and application of perceived stress scale by Western scholars, scholars in China also revised and localized the foreign perceived stress scale in order to better meet the research in Chinese context. At present, Pressure Perceived Scale (PSS) has been generally accepted by researchers all over the world and widely used in the study of perceived stress. Yang (2003) revised the PSS scale based on the traditional cultural background of China. The Chinese version of the Pressure Perceived Scale (CPSS) is translated from the English version and the revised version is suitable for perceived stress measurement in Chinese context.

Chinese scholar Yang revised the foreign PSS scale through the following process to ensure the accurate rendition from English version to Chinese one: first, two Chinese scholars translated English version of PSS into Chinese version; secondly, two Chinese-American

scholars translated the Chinese version back to English version; thirdly, compared the original version of PSS and back-translation version to see whether there are deviations in sentence comprehension; lastly, based on the cross-review of Chinese and Chinese-American scholars and combined with the advices of some experts, the preliminary Chinese version of PSS was finalized and used for pilot test. A major survey of large number of groups showed that the Chinese version of the perceived stress questionnaire has good reliability and validity, which meets the current research situation and research needs in Chinese context. The Chinese Perceived Stress Scale (CPSS) has 14 questions, each of which focuses on uncontrollability and tension.

After extensive study, the dimension “unpredictability” was removed from the CPSS scale (Lv, Tian, & Yang, 2010) and relevant analysis was conducted. In the subsequent studies, some scholars have tested the practicality of the scale, which shows that the scale has good reliability and validity, and is suitable for the Chinese context (Wu, Feng, Zhu, Li, & Yang, 2008). Because the perceived pressure in this study is also based on the Chinese context, so the CPSS scale is used in this study.

2.2 Burnout

2.2.1 The concept of burnout

The concept of burnout was first put forward by Freudenberger (1974), an American psychologist. It mainly refers to the physical and psychological exhaustion experienced by employees. Under the enormous pressure of work, employees experience physical and mental exhaustion while their mental energy is depleted. Burnout is not physical fatigue but mental exhaustion. Generally, burnout suffers always feel fatigue and boredom and find it difficult to arouse interest in work. It is generally believed that burnout refers to an individual's response to stress when his job is not going well. The accumulation of prolonged stress will lead to the individual's emotional and behavioral breakdown and failure. At present, burnout is thought of as a problem experienced by those who have a people-helping job. Therefore, the occurrence of burnout is closely related to the industry.

A person’s motivation can stimulate, guide and maintain his individual behavior. Motivation is closely related to an individual's needs and interests. When individuals show little or no interested in the work they are engaged in or lack the necessary motivation, they will be physically and mentally exhausted, and work efficiency will be significantly reduced,

ultimately resulting in burnout. Burnout has some characteristics. Firstly, employees are not enthusiastic about their work and become easily irritable, and they commonly begin to maintain an emotional distance from others and things around them. Secondly, they lose patience and always take an indifferent attitude toward service recipients and are easily irritable in the process of service. For example, clincian with burnout has poor service attitude towards patients. Thirdly, the person experiencing burnout has a negative evaluation of his own work, and thinks that the value is low, and in worse cases he has intention to leave the current job.

After continuous development and evolution, the concept of burnout proposed by Maslach, Schaufeli, and Leiter (2001) is the most widely used, which is divided into three dimensions, namely emotional exhaustion, depersonalization and reduced accomplishment. Among them, emotional exhaustion is the core dimension of burnout, which is the experience of feeling drained of all energy or all used up due to excessive consumption of emotional resources. Depersonalization refers to an indifferent and alienated attitude towards the service recipients. Reduced accomplishment means individuals negatively assessed or negated their work and self-worth (Maslach, Schaufeli, & Leiter, 2001). This concept of burnout is adopted in this study and the measurement is based on the three dimensions.

2.2.2 Influencing factors of burnout

Because the burnout in this study is used as outcome variable, only the influencing factors of burnout are reviewed. By reviewing relevant literature and semi-structured interviews, a questionnaire was designed to survey 200 teachers and the results showed that 25.2% of teachers experienced burnout, with 2.4% suffering severe burnout. Meanwhile, although gender and age have no significant impact on burnout, they have remarkable interactions with burnout. Besides, a regression analysis of the influencing factors of teacher's burnout found that besides demographic factors, job burden, social support, career development and income have significant impact on burnout (Cai & Zhu, 2013). There is statistical significance between different occupations. Research shows that the overall burnout of clincian is more serious than that of teachers and bankers (Zhao & Su, 2009). Studying the burnout of different occupations is an important research idea at present. Apart from statistical variables, environment and individual characteristics also have a certain impact on burnout. Social environment factors also have an impact on burnout. Some scholars have explored the relationship between job stress and burnout among primary and secondary school teachers. Three hundred and sixty-seven (367) primary and secondary school teachers were surveyed based on self-made job stress

questionnaire and burnout questionnaire. The results show that primary and secondary school teachers are facing greater work pressure, which includes examination pressure, work load, teachers' responsibilities, employment and career development pressure. These pressures have a significant positive correlation with emotional exhaustion. Interpersonal relationship and employment stress have significant positive correlation with emotional exhaustion, interpersonal relationship stress have significant positive correlation with reduced accomplishment. The interpersonal relationship stress has a positive predictive effect on reduced accomplishment, so the conclusion is that there is a significant correlation between job stress and burnout among primary and secondary school teachers. There are different correlations between different sources of stress and burnout and its three dimensions (Xu, 2003). Teacher is also a high-pressure profession, so controlling the generation of pressure plays an important role in controlling the occurrence of burnout.

There are also some studies on the burnout of clincian, including the burnout of nurses and its influencing factors. The nurses' burnout scale was used in these studies. 486 front-line nurses in a third-class grade B hospital were investigated using questionnaire and the sample data were analyzed by SPSS and variance analysis. The results showed that the score of burnout was higher. Meanwhile, there were significant differences in the impact of marriage, job title, age, marital relationship, income and working time on burnout. Therefore, nurses' burnout is generally higher. Hospital leaders need to pay attention to the main factors that easily lead to burnout (Jiang, Chen, & Yu, 2013). In this regard, efforts should be made to establish a good relationship between employees and employers, and improve the working environment of nurses to reduce burnout.

Based on Maslach’s Burnout Scale, Wang (2013) surveyed 536 nurses from four hospitals and found surveyed nurses suffer moderate emotional exhaustion, low degree of depersonalization and severe degree of reduced accomplishment. Besides, working environment factors such as internal work motivation, teamwork and cultural acuity are also closely related to the degree of burnout, so we need to pay more attention to them. This study tells us to create a better working environment for clincian. Xu, Xie, and Mo (2015) collected more than 40 measuring tools used to measure burnout and its three dimensions through ten-year meta-analysis and literature review. Then they conducted a study on burnout of university teachers, surveyed more than 10,000 samples, and conducted a grouping meta-analysis of collected data on the basis of demographic characteristics. The results show that demographic variables like gender, age and professional title have an impact on the burnout of University

teachers, but marriage and position have little impact. By studying the university teachers who are most likely to suffer from burnout, Xu and colleagues provide a new way to solve the burnout of university teachers.

Xie, Yin, Li, Chen, Liu, and Liu (2013) analyzed the current situation of burnout of clincian, and discussed the relationship between coping styles and burnout in order to provide effective interventional measures. Questionnaires on burnout and coping styles were issued to clincian in three hospitals of a city. The results showed that age had a significant impact on the three dimensions of burnout. Clincian aged 30-39 had a higher degree of emotional exhaustion and clincian aged 40-49 had a higher sense of personal accomplishment. Besides, age also has an impact on the burnout of clincian. The emotional exhaustion of clincian aged 10-19 years is high, and the sense of achievement of clincian aged 20-29 years is high. In addition, the departments where the clincian works can also influence burnout. Obstetricians and gynecologists generally have a high degree of emotional exhaustion. Psychiatrists are more likely to face a more serious degree of depersonalization. Finally, coping styles have significant positive correlation with burnout, so individual characteristics such as coping styles have a close relationship with burnout.

There is also relevant research on the influence of nurses' sense of benefit on burnout as a way improve the level of their occupational health. In this study, 298 nurses were measured by self-designed Nurse Benefit Scale and Maslach Burnout Scale, and the correlation analysis and regression analysis were carried out. The results showed that nurses' sense of benefit was at the intermediate level, and their burnout and three sub-dimensions were higher than the average level. The sense of occupational benefits negatively affects emotional exhaustion and depersonalization.

In terms of objective environmental factors, the main factor affecting emotional exhaustion and depersonalization include stable income, convenient family care, sense of achievement and self-value realization, and free time management. Also, learning opportunities, stable work income and career development prospect have a greater impact on the sense of achievement. Therefore, the results show that nurses' sense of occupational benefit can reduce the burnout. Therefore, hospital managers should pay high attention to nurses' occupational benefits and create favorable conditions so that they can have such sense of benefits so as to cope with burnout and mental stress (Xiao, Hu, Liu, Zhang, & Zhang, 2014). The study of nurse’s sense of benefit also contributes to the research on the influencing factors of burnout, and nurses' self-intervention measures can weaken burnout, which can be categorized as the

influence of individual characteristics of clincian on burnout.

Among the clincian, emergency nurses are a special group. Liu, Gao, Li, Hao, and Yang (2016) discussed the empowerment management model in order to enhance professional identity and alleviate burnout. The types of illness in emergency department are complex and diverse, and the disease progression is fast and the risk of nursing is high. In her study, 22 clincian in the emergency department was divided into five groups, with four in each group. The researchers conducted nursing risk control in each group and observed it for six months. The effect of empowerment management model was evaluated by the quality of nursing, the burnout of nursing staff and the professional identity of nursing staff. The results show that after the implementation of the model, the nursing quality, knowledge and skills, equipment and drug management in emergency department were improved. Meanwhile, some indicators of professional identity such as occupational identity, goals, attitudes and values, have also markedly improved. Therefore, empowerment management model has a significant effect on enhancing the professional identity and alleviating burnout of clincian in emergency department. It can be seen that the influencing factors of burnout have been heavily studied in China.

Maslach et al's Job-Person Fit Theory shows that the mismatch between individual and work is probably the cause of burnout. Burnout increases with the increase of misfit degree. According to the study, there are several factors that affect individual burnout: workload, sense of control, salary, communication, fairness and values; meanwhile, the causes of burnout can be explained from the perspective of job demand and resources model (Zhao & Su, 2009). Primack, Dilmore, Switzer, Bryce, Seltzer, and Li (2010) conducted a survey of some doctors who had not been working for a long time, and found that a considerable number of them had burnout. Moreover, the study also found that female doctors over 35 years old and employees with minority status experienced more severe burnout.

Based on the revised version of Job Stress Scale and the general version of Eysenck Personality Questionnaire, Li (2011) surveyed 605 clincian from different departments in several military hospitals and the results showed that different personality traits of military clincian cause different degree of perceived job stress. Therefore, strengthening psychological quality education can alleviate the job stress of clincian (Li, Niu, Cui, & Li, 2011). A study by Bakker andCosta in 2014 showed that the burnout of individuals in an organization is caused not only by personal reasons, but by the mismatch between themselves and work (Bakker & Costa, 2014).

2.2.3 Dimensions and measurement of burnout

At present, there are many scales for burnout research, most from widely-used foreign scales. The most widely used scales were proposed by Maslach and Jackson developed MBI (1981). MBI-GS is a general version of MBI widely-used by researchers across the world. The commonly used burnout scale in China is a revised scale based on MBI scale in order to suit China's actual conditions. The questionnaire scale translated and revised by scholar Li and Shi on the basis of MBI-GS has been widely used by most Chinese scholars in their studies (Li & Shi, 2003). Li, Liu, Lian, and Wang (2009) studied the reliability and validity of scales used to measure burnout of mental workers. Meanwhile the stratified cluster random sampling method was used to conduct questionnaire survey of 1,250 mental workers from managers and university teachers for questionnaire analysis. Through exploratory factor analysis, three extracted common factors were found to be consistent with the original theoretical model. The three factors extracted were emotional exhaustion, depersonalization and reduced accomplishment. The Cronbaeh alpha values of the questionnaire and three dimensions (emotional exhaustion, depersonalization and reduced accomplishment) range between 0.721 and 0.832. Meanwhile, confirmatory factor analysis results show that the fitting degree of the model is good. Three latent factor load is greater than 0.4 ($P<0.01$). The results showed the revised Burnout Questionnaire is a reliable and effective measuring tool that can be used for the research on burnout of mental workers.

Liang, Li, Wang, and Jin (2017) evaluated the reliability and validity of the Burnout Scale in the study of clincian. A stratified sampling and random sampling were used to investigate 1,921 clincian in a hospital. The revised version of the Burnout Scale was used to test the Cronbach's alpha coefficient and the intra-group correlation coefficient in order to evaluate the scale reliability. Meanwhile Pearson correlation coefficient, exploratory factor analysis and confirmatory factor analysis were also used to evaluate the validity of the scale. The results showed that the reliability coefficient of emotional exhaustion, depersonalization and reduced accomplishment, and the total scale of burnout is more than 0.881, but less than 0.922. The intra-group correlation coefficient is between 0.750 and 0.833, so the reliability of the scale is relatively high. The correlation between the total scale and the three dimensions is high, and the content validity of the scale is good. The construct validity was measured by factor load of the scale and is greater than 0.4, so the construct validity is better. Therefore, MBI-G scale can be used to measure burnout of clincian.

With high reliability and validity, it is a reliable and effective burnout scale. Chinese

scholars also studied the applicability of burnout scale to the military personnel. The study adopted the random cluster sampling method to conduct questionnaire survey of 1,185 military personnel based on the burnout scale and the job stress scale. Fifty-four (54) people were selected to retest after a week. The exploratory factor analysis and correlation analysis were used to test the reliability and validity of the Burnout Scale, which includes 30 items. There is significant positive correlation between the factors, and also between the factors and the total scale. The reliability coefficient of the scale ranges from 0.7 to 0.9, and the reliability of the scale is good. The burnout scale is also significantly correlated with other sub-scales, so the study concluded that the reliability of the burnout scale is consistent with the requirements of psychological measurement.

Xu (2013) interviewed clinicians and nurses at all levels after reviewing a large number of literatures, and summarized the basic framework of the scale, which includes the following items: physical and psychological burnout, work and emotional experience, sense of achievement and doctor-patient relationship. In the latter stage of the interview, the preliminary items of the burnout scale were established with semi-open questions, and the items were discussed with experts to determine the ideal framework. Finally, the preliminary scale of burnout was formed after pilot test and formal test. Four hundred and sixty (460) clinicians were selected by random cluster sampling method, and the reliability and validity of the scale were tested. The results show that the reliability and validity of the scale are good and meet the requirements of psychological measurement, so it can be popularized in further research.

At present, the revised Chinese version of the Burnout Scale has been widely used in China's studies, for example, the analysis of the burnout of a medical college (Yang & Yang, 2008), the survey on the burnout of college counselors (Xue, Tu, & Hu, 2012), the study on burnout of policeman (Li, 2009) The results prove its good applicability. Therefore, this study also uses the burnout scale revised by scholar Li, which contains 15 items and three dimensions.

2.3 Leader Member Exchange (LMX)

The evolution of the concept of LMX has gone through several stages. The first stage is the theory of leadership traits, which holds that leaders naturally possess talents and abilities that ordinary people do not possess. This inherent trait enables individuals to become outstanding leaders. The second stage is the theory of leadership behavior, which challenges the theory of leadership traits and argues that leadership talent is not innate but acquired,

including acquired self-learning and cultivation. A person can become qualified leader through learning the leadership behavior model. The third stage is the contingency theory of leadership, which claims that leadership is neither innate nor has a fixed model, but experiences a dynamic process. The leadership style changes according to the change of environment (Yun, 2013), as a popular Chinese saying goes "The times produce their heroes".

The current LMX is based on the role theory. The role in the organization is relatively vague and employees can only achieve development by role-making (Graen, Orris, & Johnson, 1973). After a certain period of development, researchers have introduced the social exchange theory to explain the relationship between leaders and subordinates, that is, leaders and members interact based on the principle of mutual benefit and reciprocity. The in-group members can gain high-quality trust and support from leaders that out-groups members do not have. It is another kind of exchange relationship beyond employment relationship (Xu & Zhao, 2011). In this study, the terms "in-group" and "out-group" are used to represent whether the LMX quality is high or not.

2.3.1 The concept of LMX

The concept of leader-member exchange was put forward by Graen and Dansereau in 1972. Through VDL model research and deduction, they concluded that leaders do not treat all followers in the same way. Therefore, the team members are divided into two groups, in-group and out-group according to LMX quality. Because of the limited time and resources, leaders establish a special relationship with a small number of members, known as in-group, who can receive the attention and care of the leaders. Compared to the in-group, the members of out-group who maintain ordinary relationship with leaders do not receive any additional attention and care.

LMX theory is a widely used theory in organizational behavior. It is mainly used to describe the relationship between managers and their subordinates. Its basic idea is that due to the limited time and resources, leaders tend to form differentiated relationships with their followers (Graen & Cashman, 1975). Graen's LMX theory shows that there are three kinds of relationships between leaders and subordinates. The first is the relationship between leaders and some subordinate. This subordinate is treated favorably by leaders compared to others on a one-to-one basis. The second is that the leaders treat subordinate groups in different ways. The third is that leaders have different attitudes towards different subordinate groups, but they have the same attitudes towards members of the same group. This concept has laid the basis for

supplementing and perfecting the concept of LMX.

The LMX quality evolves with the passage of time, through the stages of contact, evaluation, recognition, action, emotion and trust. In the stage of contact and evaluation, leaders and new subordinates know little about each other. Therefore, demographic characteristics and individual similarity will play a major role in the development of the relationship. In the second stage, leaders and subordinates have more contacts, and the halo effect plays little role at the time. The members' performance largely depends on their personal abilities and the perceived acquisition of resources and power. Leaders' empowerment is risky to themselves, so leaders must first build sufficient trust in their subordinates before they can empower them. Employees with high performance and strong competence are more likely to gain trust from their superiors (Lewis & Weigert, 1985).

High-performance employees will gain further trust and empowerment. Leaders and members will continue to accumulate emotions and exchange trust, and form high-quality LMX (Bauer & Green, 1996). While subordinates who fail to gain trust and empowerment in the exchange can only suffer low quality LMX. Leaders and members are in "dualistic" relationships, which are also influenced by organizational structure and organizational culture. The organizational culture refers to the common values shared by employees and leaders. In enterprises with strong organizational culture, leaders and most members have common development goals. At present, most organizations have adopted a flat organizational structure, leaders and members can use a variety of high-tech means to establish information exchange, which makes it more convenient for full empowerment.

2.3.2 Role of LMX

At present, there are a series of studies on LMX outcome variables at home and abroad, including individual behavior (such as advice, innovation and organizational citizenship behavior), psychological tendency (turnover intention, organizational commitment) and job performance. Some foreign scholars have studied the interactions among LMX, perceived organizational support and affective commitment, with Chinese enterprises as research objects (Casimir, Yong, Wang, & Ooi, 2014).

There are many Chinese studies focusing on the individual behaviors. Some scholars have indicated that in the face of fierce market competition, enterprise managers need to improve the degree of employees' work engagement, which is conducive to creating core value for enterprises. Keeping a good relationship between enterprise leaders and employees can improve

subordinates' work efficiency, reduce the employee turnover rate and enhance enterprise stability. Based on the theory of leader-member exchange, Li (2016) discussed the influence of leader-member exchange on the degree of work engagement. With work environment as the mediating variable between LMX and work engagement, the scholar made a questionnaire survey of enterprises in Hunan Province and 416 questionnaires were sent out. The results of hierarchical regression analysis using SPSS software showed that the LMX quality of employees in enterprises was above average level, the demographic factors have a greater impact on the quality of LMX, and LMX has a significant positive correlation with work engagement. Therefore, enterprises need to make efforts to improve the LMX quality, which is not only helpful to arouse the enthusiasm of employees in work engagement, but also conducive to achieving objectives of enterprises.

A questionnaire survey was conducted among 253 employees in a branch of China Mobile company. It was found that there was a significant positive correlation between LMX and employee voice behavior. LMX plays a moderating role between psychological contract breach and employee voice behavior, that is, LMX can weaken the negative effect of psychological contract breach on voice behavior (Cao & Li, 2016).

Based on the research of Chinese organizations, a questionnaire survey was conducted among 462 employees to explore the role of LMX between organizational performance assessment and employee innovation behavior. The results showed that the differentiated LMX plays a moderating role between organizational performance assessment and employee innovation behavior. Therefore, China's hierarchical order plays an important role in organizational performance assessment and employees' innovative behavior (Jiang, 2017). LMX plays a mediating role between transformational mentor style and postgraduate Innovative behavior. Transformational mentor style can promote the LMX between tutors and students. The research puts forward new perspectives and suggestions for postgraduate training (Jie & Han, 2016), which is aimed at the innovative behavior of specific group and supports the role of LMX as intermediate variable; the LMX of R&D team can also influence innovation behavior.

For R&D team, innovation is the hardcore ability, so studying the role of LMX has strong practical significance (Peng & Zhao, 2011). Tan, Song, and Tan (2016) adopted computational experimental methods to study the relationship between LMX and organizational citizenship behavior. The results suggest that LMX in network organizations can also promote organizational citizenship behavior of knowledge workers. In the case of high quality of LMX,

when employee's work efficiency increases, organizational citizenship behavior at individual and organizational levels can also be promoted. Poor quality of LMX does not obviously affect the behavior change. LMX has a positive impact on the output of the organization.

Guo and Liu (2013) studied the various classifications of in-group and out-group as a result of different leader-member exchange and put forward some countermeasures and suggestions. The study concluded that the LMX will enable leaders to give more resources and support to "in-group members" while "out-group members" could not get enough resources. Although the members in inner circle own more resources to achieve their personal and organizational goals, it has inevitably a darker side, so we need to use this relationship properly. Some scholars have also studied the prediction of negative behavior.

Zhu (2017) showed that LMX is related to the employee reticent behaviors; LMX has a negative predictive effect on employee reticent behaviors. Scholars have also done relevant research on job performance. By analyzing 715 matching samples of superiors and subordinates, scholar Zhu studied the innovation-oriented performance and conventional performance of employees with different position level. The results show that the middle-level employees have the lowest innovation performance, while their conventional performance is between that of low-level and that of terminal employees. It also shows that LMX has the most obvious effect on promoting innovation-oriented performance of mid-level formal employees, and thus provides new management directions and suggestions for improving innovation performance of mid-level employees (Deng, 2017).

Based on confirmatory factor analysis and nested model, some studies also studied the psychological tendency of employees. A comparison of the network-based survey and pencil-and-paper survey found LMX has a negative impact on employee turnover intention and affective commitment (including commitment to organization and leaders) plays a mediating role between them (Liu, 2014).

Chinese scholars have also done some research on the moderating role of leadership member exchange. Most of the research on authentic leadership focuses on its relationship with job performance. Through a questionnaire survey on leaders and members in electric power enterprises, a study explores the mediating role of psychological capital in authentic leadership and employees' innovative behavior. The hierarchical regression results show that LMX plays a moderating role in authentic leadership, psychological capital and innovative behavior (Han & Yang, 2011).

LMX can enhance innovative behavior and bring benefits to enterprises. Leader-member

exchange also plays a positive mediating role between learning goal orientation and employee creativity. That is, when quality of leadership member exchange is high, its positive role between learning goal orientation and employee creativity will be enhanced (Wang & Zhao, 2011).

There is also some research on negative regulation. A survey on the matching data between leaders and members in small and medium-sized enterprises in Hunan Province found that abusive supervision can lead to the reticent behaviors of employees to varying degrees when different degree of LMX occurs (Yan, 2012).

LMX plays a moderating role between psychological contract breach and employee voice behavior (Cao & Li, 2016). Jiang, Wang, and Liu (2016) studied the influence of collectivism on altruistic behavior. Based on role theory and LMX theory, 253 employees of Telecommunications Research Institute were surveyed and results showed the lower the level of LMX, the more significant the positive impact of collectivism on altruistic behavior and task performance. Scholar Chen, Geng, and Wang (2017) studied the influence of Leader-Member Exchange on assessor's behaviors. Evaluator's behavior will be affected by such factors as assessor's own characteristics, assessee's characteristics and the relationship between assessor and assessee.

With LMX as the main variable, Chen collected 232 valid sample data and statistical analysis results show that LMX has a positive impact on manager’s assessment behavior. When managerial assessment purpose is introduced as a moderator, the influence of LMX varies differently. Leader-member exchange theory holds that LMX quality has an important impact on employee's proactive behavior. An analysis of 800 questionnaires from W Company found that LMX can positively influence subordinates’ proactive behaviors; LMX and psychological empowerment are also positively correlated; psychological empowerment is also positively correlated with leader-member exchange; psychological empowerment plays a partial intermediary role between LMX and fellows’ proactive behaviors (Wang, 2017).

2.3.3 Dimensions and measurement of LMX

First of all, we need to pay attention to the dimension of LMX. In the initial study, scholars considered LMX as a single-dimensional variable, that is, it is just a job-related variable describing the overall situation of work (Graen, Orris, & Johnson, 1973). Graen, Orris, and Johnson believe that if the exchange relationship between leaders and members is limited to work scenarios, the measurement of LMX should be one-dimensional. LMX reflects the quality

of the relationship between leaders and subordinates. From the low quality LMX (out-group) to the high quality LMX (in-group), scholars have developed five-items and seven-item LMX scales. The widely used seven-item scale is also used in this study. Previous studies have found that the internal reliability of LMX-7 scale is high, with coefficients ranging from 0.8 to 0.9. Domestic scholars have also revised LMX-7 to suit China's conditions, and the reliability of LMX-7 in Chinese context is about 0.86.

Other scholars believe that LMX is not a unidirectional communication, but a two-way interaction. The reason is that the relationship and interaction between leaders and subordinates does not exist only in the working scenarios. In fact, this role theory focuses on the multi-dimension of roles and therefore, both leaders and members must be included in the measurement. Dienesch and Liden (1986) think that LMX includes three dimensions: contribution, affect, and loyalty. Later, Liden conducted a new study in 1998 to explore the dimensions of LMX and discovered "professional respect" as the fourth dimension of LMX, thus establishing a four-dimensional LMX.

According to the definition of four-dimensional structure in their study, affection is built by leaders and subordinates based on mutual attraction rather than professional knowledge of work. Both sides can promote the exchange relationship through interactions. Affection is the basic and important factor affecting trust, loyalty and sense of responsibility and plays an important role in improving LMX quality. Loyalty means that the leader and members agree with the goals and qualities of the other party. Loyalty is an important basis for the development of high-quality trust. Leaders will arrange loyal fellows to do tasks that need to take responsibilities and make judgment. The third dimension is contribution, which refers to the perceived efforts made for the common goal in the leader-member exchange. This dimension is related to work. Employees who contribute more and perform well can give good impression to leaders and thus have more chances to gain support. Professional respect refers to the reputation perceived by both parties in their work and work competency is crucial for high-quality LMX.

The above four dimensions are the core elements of the LMX scale. The scale has 12 items with three items under each dimension. The study shows that the reliability of the scale ranges from 0.6 to 0.8, and its construct validity is also good.

At present, there are still disagreements as to whether LMX is one-dimensional or multi-dimensional, but scholars with both views have developed their scales. The single dimension scale includes LMX-5 and LMX-7 and Graen's version is widely used, which contains seven

items. Multidimensional scale includes LMX-MDM scale proposed by Dienesch and R. M., which has four dimensions and 12 items and good reliability (Sui, 2013). Apart from the above scales, there are other types of LMX scales, such as Ohio Leaders Behavior Description Scale and Leadership Behavior Scale. This study adopts the indigenized Chinese version of Graen's LMX scale, which shows good reliability and validity in China's context.

2.4 Related theories

2.4.1 Job Demands-Resources model (JDR theory)

Job Requirement-Resources Model (JD-R) was first proposed by the scholar Demerouti, Bakker, and Nachreinerin (2001), which focuses on job requirements and work resources. This model is mainly used in the study of burnout. The Job Requirement-Resource Model is constructed on the basis of conservation of resource theory. Job Requirement requires efforts and depletes psycho-physiological resources. Work stress can also occur when efforts required by job demands are not paid in return. Work resources refer to psychological and material resources that can help individuals accomplish their tasks in the working environment. They come from many sources, including organizational and interpersonal relationships. Job requirements and work resources complement each other. In many working scenarios, it is found that job requirements may lead to health problems and other negative behaviors. On the one hand, work resources can meet job requirements and help employees realize self-actualisation. When job requirements and job resources are out of balance, employees are likely to experience burnout or emotional exhaustion (Demerouti et al., 2001). The interaction between job requirements and work resources has a positive impact on burnout (Zhang & Xu, 2009).

On the basis of previous studies, Schaufeli and Bakker incorporated employee engagement into the extended JD-R model (Schaufeli & Bakker, 2004). Later, the JD-R spiral model put forward by Bakker and Demerouti (2008) claimed that both work and personal resources will affect employee engagement; job requirement plays a moderating role between the two kinds of resources and employee engagement; job requirement will affect work resource's prediction of employee engagement to a certain extent. Panagiotis, Fotios, and Panagiota (2014) used the JD-R model to study the burnout of clincian, and took some measures to solve it. Some studies have statistically proved that work resources can alleviate the negative impact of job demand on burnout (Bakker & Demerouti, 2016). At present, scholars have found that job requirements

can predict emotional exhaustion, which are indirectly related to in-role performance; work resources can predict alienation, which are indirectly related to extra-role performance (Zhang, Liu, & Jia, 2009).

Presently, there are relatively few studies on JD-R model in China, and most of them focus on the field of psychology. In recent years, JD-R model has been used in the field of management and many other fields, such as burnout, work-family balance and employee relationship. Theoretically, JD-R model can explain various problems in human resource management, such as work-family conflict and work stress from perspective of resources loss. Meanwhile, we can also use incremental spiral logic to interpret job satisfaction, organizational commitment and other issues. In the sense of management, managers can construct stress-oriented human resource management system based on JD-R model, and take certain measures to balance resources in enterprises. For example, organizations can take active management methods to nurture employees' positive feelings. In addition, by introducing the rotation system, employees can experience the responsibilities of different positions, which can not only enhance their empathy, but also help release their bad emotions and alleviate burnout. This study also hopes to theoretically interpret the impact of perceived stress on burnout based on JD-R model, and further explore new management methods to alleviate burnout of clincian and gain new inspiration.

2.4.2 Social exchange theory

The theory of social exchange began to emerge in the 1960s and spread widely around the world based on the assumption of human nature. It holds that human activities and social relations are driven by rewards. The social exchange theory has the following several views: Firstly, the utilitarian exchange based on classical economics, whose theory holds that human beings are selfish and tend to seek benefits and avoid disadvantages. Therefore, a lot of social exchange theories emerged based on the idea of economic transactions (Li, 2018). The second is the social exchange theory based on cultural anthropology. A literature review of social exchange theory by Lin and Su (2017) found that James, an anthropologist in England, studied marriage and kinship in the early civil society and discovered that power is a product of exchange. Another researcher Marcel thinks that social exchange will engender the emergence of social normative behaviors.

A French scholar pointed out that social exchange can be expressed as direct or indirect behavior, but this behavior must conform to the moral standards of social exchange. The third

is the view of social traditional exchange, which holds that its sociological origin comes from the social exchange theory of German scholar Simmel. Its main idea is that the social exchange can only occur when two parties think what the other side possesses is valuable. The fourth is the social exchange theory based on behavioral psychology, whose main views come from Homans's theory and Skinner's research on operational behavior. He believes that human has latent consciousness and physiology acts as the intermediary to meet the conditions of demands, so it is necessary to establish the relationship between stimulation and response.

Zhang (2017) pointed out that the representatives of modern exchange theory in social exchange theory include George and Peter. Among them, Homans founded behaviorism exchange theory based on Skinner's behavioral psychology. Holmans's viewpoint is that social exchange behaviors exist universally in society and its content includes six main propositions: success, stimulation, value, deprivation - satisfaction, attack - approval and rationality. Success proposition refers to the fact that individual's behavior will be motivated by prospect of success; stimulation proposition means the actors always pay attention to the influence of stimulation; value proposition means the individual cares about whether behaviors can create value; deprivation-satisfaction applies the economic principle of marginal utility; attack-approval has laid the foundation for the first four propositions; the last one is the rational proposition, that is, Homans believes that the possibility of occurrence of behaviors is the product of value and probability, and that human beings have rational thinking. Holmans's thoughts have injected subjective factors of human beings and changed the rational hypothesis of economic man, but its shortcomings are obvious.

Firstly, the study based on individual level cannot explain the social mechanism at macro level; secondly, the possible unfairness in social phenomena has not been noticed. Another is the theory of structural exchange, in which social structure is divided into macro and micro structure. Social exchange in micro structure opposes the theory of psychological restoration. Social exchange is not entirely a psychological process of exchange. Human activities include not only exchanges, so social interactions can only occur when they meet two criteria: interaction with others will become a necessary condition for achieving behavioral goals, and the two sides of interactions need to face the choices, which are important and common problems. Social exchange is based on economic exchange, but compared with the latter, social exchange is constrained by cultural norms.

The theory of social exchange also plays its role in Chinese society. The social life, moral norms and customs are full embodiment of the theory of social exchange. For example,

"etiquette" is a Chinese form of social exchange and a standardized exchange system, which can adequately regulate and restrict exchange, and also produce social and cultural morals. China is a country well known for its morals and rituals and the exchange of etiquette is actually the exchange of social resources, which includes the content and form of social exchange, as well as a series of criteria of social exchange.

The theory of social exchange analyzes the rewards and costs in the process of social interactions. Remuneration is a beneficial thing that individuals gain in the process of social interactions and different people have different definitions of remuneration (Sun & Guo, 2016). Rewards must be special and concrete. The peculiarity of rewards lies in that providers determine the value of rewards. Concretization means rewards are visible goods rather than abstract ones. The costs are the negative result of personal social interactions, such as the cost of time and energy.

An important premise of social exchange is the balance of exchange relationship, and there are several important influencing factors: social rules, relative resources and the principle of minimum interest. Firstly, according to social rules, individuals with lower positions at work will obey those with higher positions, and parents will have greater power in life than their children. Secondly, resources can help individuals achieve their goals more easily, and those with more resources have greater influence (Yan, 2016). Finally, the principle of minimum interest, that is, the initiative is always in the hands of the party who has less interest in exchange than the other party. When one party depends heavily on the exchange relationship, it is often forced to accept the wishes of the other side to maintain the current relationship. However, this exchange relationship is unbalanced and unhealthy, and will not achieve long-term and stable development.

2.4.3 Conservation of resource (COR) theory

The conservation of resources theory is an important theory based on which the model and research hypotheses in this study are established. Specifically, the perceived stress of clincian leads to burnout and its three dimensions, which can be understood as a process and result of resource consumption. The high-quality LMX is an important social relationship and social resource that can be used to make up for the consumption of resources caused by perceived stress, thereby reducing the impact of perceived stress on burnout.

The conservation of resource (COR) theory (Hobfoll, 2001) holds that individuals have the instinct to acquire and maintain their own resources. When the environment in which they

live makes them aware that they may lose some resources, or have lost some resources, or have little access to new resources, they will suffer from stress and develop sense of insecurity. COR can not only explain motivation, but also provide resource-based analysis of behaviors. It can better predict employees' behavior in the case of limited resources (Qu, Cao, & Cui, 2014).

Pressure has been highly influential on people's work and life, and thus has received widespread attention from the scholars. As a historical issue since the industrial revolution, work pressure has troubled many people in modern society. Excessive pressure not only has a negative impact on their health, but also lead to low work efficiency and rising turnover rate. Therefore, it has received high attention from sociologists and management scientists.

Scholars have tried many different ways to study the causes and consequences of stress in resolving the work stress and creating a good working environment for employees, which has resulted in some theories. Scholars have found that the conservation of resource theory can better explain the causes of stress from the perspective of resource gain and loss and thus COR theory is widely accepted. On the one hand, the COR theory can explain the causes of pressure, and on the other hand, it can explain the work performance well, so it has a wide range of applications.

However, at present, the COR theory in China is mostly found in the study of burnout and turnover intention. From a macro perspective, the COR theory is a new perspective with the emergence of pressure theory. The emergence and development of stress theory has experienced three stages: focusing on the physiological effects - focusing on the physiological and psychological effects - focusing on the physiological, psychological and behavioral effects. The three stages of research have resulted in three schools: stimulation school, reaction school and stimulation-response school. A number of theoretical models have been put forward and the model of "any environmental balance" is the most widely accepted, but there are also some problems in the balance model. One is that there is no very clear definition of core concepts. Second, there is no standardized tool to measure the core concepts. Consequently, the "Conservation of Resources Theory" has been developed to explain individual behavior under pressure.

Psychological research has proved that individuals will pursue success and happiness, and in order to guarantee success, individuals have to find ways to acquire resources and training opportunities through social interactions and exchange. Therefore, Hotfoll put forward the COR theory in 1989 to explain this process. The hypothesis of COR theory is that individuals will make every means to keep and protect their own resources. If they perceive that resources have

or will be lost, they will take some measures to prevent the loss. Resources can meet the needs of individuals and also be used for personal social positioning.

The COR theory divides resources into four categories: the first is material resources, which is related to the social and economic status, and it is an important resource to resist pressure. The second is conditional resources, which determine whether an individual can obtain key resources, including the ability to resist pressure; the third is personality characteristics, which determine the internal ability of an individual to resist pressure, such as personal self-efficacy; the fourth is energy resources, which can help individuals to obtain the three other resources.

The COR theory holds that when individuals sense the resources have or will be lost, they will suffer tension and stress. The pressure will lead to the loss of resources and discourage individuals from further investing resources for fear of losing more resources. When individuals own resources, they will increase their investment in resources to obtain more quality resources, so resources will gradually increase. The COR theory studies the process that individuals acquire, preserve and utilize resources. Different ways of utilizing resources lead to different results. Therefore, the COR theory can be used to discuss the impact of burnout and stress from the perspective of resource depletion.

Hotfoll's recent research shows that the value-added spiral effect in resource conservation theory plays an equally important role in both work and cross-work situations, so resource conservation theory has been widely used in work-family balance and other relationships. At present, researchers mainly study burnout from perspectives of job demands and job resources. The main content of the research on job demand focuses on resource consumption caused by job demand. The COR theory is used to explain the main reasons of burnout. Job demand causes the resources loss and meanwhile employees need to consume resources to adjust their emotions. When resources are lost, they will easily suffer from burnout (Cheng & Chen, 2010).

In addition to the loss of resources caused by job demands, many factors such as organizational environment and management conditions can also lead to the loss of resources. For example, feeling uneasy at work can also cause the changes of employees in psychological pressure, which leads to the imbalance of employees' own resources and eventually to emotional exhaustion (Zhang, Zeng, Jia, Wu, Wang, & Li, 2013). The study of the COR theory based on work resources mainly focuses on the increase of personal resources brought about by work resources. It is used to study how to alleviate the individual's work pressure and improve the working attitude.

From perspective of work resources, some scholars discuss how individual characteristics and organizational support improve employees' work stress. From the point of view of individual characteristics, different individual values will lead to different evaluation of resources and different responses to stress (Neil & Christopher, 2012). Meanwhile, individual resource characteristics are also related to their own burnout. Individuals with negative emotions easily suffer from emotional exhaustion. On the contrary, positive individual characteristics can alleviate sense of the stress. For example, happiness in employees' minds can be used as a positive resource to help employees deal with various problems of work and life. Some studies have shown that psychological capital has a certain relationship with turnover intention. Employees with higher psychological capital can properly dissolve negative emotions, and thus their turnover intention is lower (Gao, 2012).

The organizational support is a beneficial social resource for individual employees, which can bring resources for individuals and promote their job performance and reduce burnout and stress. Some studies have shown that employees' emotional commitment is in fact the result of exchanging resources with organizations. Employees with high emotional commitment can grow with enterprises and safeguard the interests and development of enterprises. Employees with organizational support have more trust in the enterprise, which also reduces their possibility of turnover intention. Conversely, if employees do not feel the support of the organization, they will lose their trust in the organization, and they will experience job stress and burnout and even have intentions to leave. Some studies have found that perceptions of organizational politics can reduce perceived organizational support. As a result, employees will reduce their emotional commitment to the organization and work engagement, resulting in bad behaviors and poor performance (Qu, Cao, & Cui, 2014).

Presently, there are relatively few studies on JD-R model in China, and most of them focus on the field of psychology. In recent years, JD-R model has been used in the field of management and many other fields, such as burnout, work-family balance and employee relationship. Theoretically, JD-R model can explain various problems in human resource management, such as work-family conflict and work stress from perspective of resources loss. Meanwhile, we can also use incremental spiral logic to interpret job satisfaction, organizational commitment and other issues.

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employees' positive feelings. In addition, by introducing the rotation system, employees can experience the responsibilities of different positions, which can not only enhance their empathy, but also help release their bad emotions and alleviate burnout. This study also hopes to theoretically interpret the impact of perceived stress on burnout based on JD-R model, and further explore new management methods to alleviate burnout of clincian and gain new inspiration.

2.4.4 Coping theory

The emergence of coping theory is thanks to the attention paid to mental health by the whole society. Before the 1960s, coping behavior was more commonly seen in daily life and thus did not be introduced into the academic field. But when Freud S studies neurological disorders, he finds that internal and external stimuli can cause emotional fluctuations, and when individuals are nervous, they often use reflective or habitual psychological activities to deal with internal and external conflicts. Although many defense mechanisms are habitual psychological activities, they will result in subsequent predictive actions. The defense mechanisms discovered by Freud S can be divided into three categories: mature, immature and intermediate.

Under the hypothesis that human beings have self-healing ability, modern physiologists generally believe that the adaptability of an individual's organism to strong external stimulation is strongly correlated with the internal stability. H. Seley, a Canadian scholar, put forward the theory of stress in the 1930s. The stress theory holds that the individuals' different responses to external stimuli, including physiological, psychological and behavioral responses, are called stress. In this case, the individual will show some negative emotional reactions. Stress can help individuals temporarily defend themselves against external stimuli while protecting themselves, but such stress is a habitual negative reaction. If the reaction lasts too long or is too intense, it will be harmful to individuals. In the long run, it will easily lead to physical and psychological diseases, which is not conducive to personal growth and development.

After the 1960s, a group of psychologists represented by Lazarus introduced the cognitive evaluation theory. On the basis of the previous "stress theory", they proposed that when faced with external stimuli, in order to maintain the psychological balance, individuals would produce "coping" behavior. The meaning of "coping" is that when faced with external stimuli or pressures, individuals try to minimize the negative effects of the external forces. The "coping behavior" is not an unconscious negative response to external stimulus, but an active and

balanced action in the face of pressure, so as to achieve internal and external coordination. The coping actions aim to adjust the actors' own cognition and needs in order to coordinate with the external environment.

There are also several stages in the development of coping theory. The first stage is trait theory. The theory holds that the stabilizing behavior of an individual reacting to external stimulus is the adaptive behavior of coping. Personal coping style is determined by the inherent personality characteristics of the individual. Therefore, the change of external environment will not affect the individual's coping style, which has its stability and consistency. Therefore, by testing the individual's personality characteristics, we can predict his coping style. Many studies at home and abroad have confirmed this theory. Mccrae and Costal (1986) found that neurotic people tend to have negative reactions such as avoidance, while extroverts tend to adopt a more rational and positive way of thinking. Some Chinese scholars also studied the coping styles of trait theory. Shi (1998) found that different personality characteristics have different coping styles. Shy people tend to take evasive attitude rather than rational analysis when they encounter some problems. Therefore, positive coping style can make people feel more balanced and healthy mental state. Although trait theory has established the connection between personality characteristics and coping style, different scenarios require different coping styles, instead of simply positive and negative coping style, so the theory lacks flexibility.

The second is the process theory of coping. Based on the previous studies, Lazarus and Folkman emphasized the cognitive and behavioral process of response to stress. Stress is the tension caused by external stimulus. An individual makes multiple evaluations of stressors before producing coping behavior. The coping behavior is not a static process, but a dynamic and changeable one. Process theory does not regard coping behavior as a one-off action, but a complex process requiring full play of subjective initiative. The process theory of coping describes the coping process as follows: first, the stressor emerges and then the individual reacts to the stimuli; after assessment of the stimulus, the individual makes coping strategies; the individual carries out the coping behaviors; and finally individual makes feedback according to perceived degree of adaptation.

The important idea of process theory is that individuals and environments have certain connections, and coping behavior aims to respond to this interaction. There are three main parts of the interactive process: the first is the efforts made by the internal and external environment, the second is the change of the environment, and the third is the efforts made at the internal cognitive level. The individual's each coping process and corresponding action can help him

gain experience so that he can better cope next time. Foreign scholars also studied the process theory of coping. In 1984, Lazarus and Folkman believed that there were two types of individual coping: problem-centered and emotional-centered. The process theory of coping explains that individuals can produce cognitive and behavioral changes and it reflects the subjective initiative of individuals to a certain extent. However, the process theory does not analyze the inherent characteristics of the coping mode itself. Therefore, it is necessary to analyze the specific meaning of coping from both internal and external aspects.

Besides, the theory of coping also includes the cognitive processing theory of coping, which mainly focuses on the impact of traumatic events on individuals and coping situations. The main contribution of cognitive methods lies in the new enlightenment to the study of chronic diseases. The attack of chronic diseases will cause challenges to patients' cognition. The individuals hope to avoid such diseases. Once they suffer the disease, they need to make psychological adjustment, which will enable them to get positive emotions in bad experiences. Cognitive processing theory holds that individuals first feel certain impact on stressful events and then make coping strategy, such as social comparison strategy. Social comparison strategy refers to a process by which an individual compares himself with others to confirm his own information and make self-evaluation, which is mainly classified into upward comparison and downward comparison. Downward comparison is a hotspot in the study of chronic diseases. For example, when a patient understands that the condition of other patients is more serious, his psychological burden will be reduced and more positive emotions will be produced.

Leventhal put forward a self-regulation model for disease coping behavior. The model has a view that symptoms will affect how individuals evaluate the threat of disease to their health. In addition, the model also puts forward many key factors affecting coping styles: individual's discovery of health problems, evaluation of disease duration, prediction of consequences, types and characteristics of health problems, and disease controllability. The innovation of self-regulation model is that seeking treatment and self-care are seen as coping behaviors, and how to cope with health threats caused by disease has become one of coping situations.

At present, whether coping styles can affect the progression of disease has become the focus of health research. The relevant research focuses on the risk relationship between the coping styles and disease development. The relationship between coping styles and causes of cancer has been heavily studied. Many scholars believe that cancer is a result of a variety of combined factors such as the genetic, environmental and immune factors. Scholars argue that psychological factors and individual personality also contribute to cancer to a certain extent.

For example, some scholars have found that breast cancer is caused not only by inheritance and other environmental factors, but by depression or denial of psychological coping mechanism when dealing with stressful life events. Studies have shown that negative or repressive coping styles have a moderate impact on the chances of developing breast cancer. Many studies have shown that the causal relationship between coping styles and risk of diseases needs to be confirmed. Some studies have shown that coping styles may have an impact on the disease development while others have shown that that illness changes individuals' coping styles. Some scholars have studied the situation theory of emergency management of unconventional emergencies. As an important paradigm to deal with unconventional emergencies, scenario-response pays more attention to the internal situation and influencing factors of events, thus affecting risk management. The United States has proposed 15 different scenarios for emergency management and established a case base. Chinese researchers have also classified scenarios into different categories, and conducted descriptive studies from the aspects of performance, expression and elements.

The coping theory and its application have made great progress till now. At present, coping theory also puts forward a number of related concepts, such as stress, coping and adaptation. Researchers are also constantly seeking breakthroughs such as diary assessment, which requires a high degree of time-intensive log, so changes in coping styles can be clearly perceived, and long-term adaptability can be predicted by coping strategies of stressors. In terms of the definition of coping behavior, whether coping behavior is conscious, purposeful or spontaneous still needs to be discussed. It is necessary to distinguish between the problem-centered coping behaviors and the emotion-centered coping behaviors. At present, when studying the relationship between coping and disease, in the process of analyzing the relationship between disease development and coping styles, many control variables, such as the severity of disease and psychological factors have not yet been considered.

Therefore, in future research, scholars need to agree on the basic views in the field of disease response, and try to adopt dynamic rather than static methods such as daily records, so as to reduce the impact of disturbance variables; clarify the situational factors and personality characteristics related to disease, so as to develop more effective means to help clinical experts improve the physical and psychological quality of patients.

2.4.5 Incentive and contribution theory

After World War II, western modern management thoughts have seen rapid development.

As the founder of social system theory, Barnard put forward the theory of organizational balance, or known as incentive and contribution theory. Barnard proposed that the survival and development of organizations need to ensure the internal and external balance of organizations. The internal balance of organizations means that organizations need to use incentives to motivate employees to ensure the quality of their work, thus maintaining the balance between individual incentives and contributions. The "incentives" include material and non-material stimulus. Material incentives refer to money and non-material incentives mainly refer to the prestige and social status. "Contribution" refers to the individual's efforts in achieving organizational goals. The external balance of the organization refers to the process in which the enterprise as a whole system can dynamically adapt to the environment (Li, 2009).

The balance between organization and external environment means that the organization is an important part of the environmental system. Its functions and efficiency depend on the extent to which the organizational objectives and the external environment match each other. When the individual's incentives and contributions are balanced, the organization members will make enough efforts. In this case, the internal and external balance of the organization will be easier to achieve, and the efficiency of the organization will be higher. The internal balance of the organization mainly refers to the balance between the organization as a whole and its members. When an organization can meet the needs of employees, they will be motivated to make their contributions to the organization. The dynamic balance of the organization means various factors in the organization are changing, so the new balance needs to be constantly established while the old balance needs to be broken, and managers need to properly deal with the contradiction between stability and change.

As a systematic entity, the organization needs to adapt to the changes of the environment before achieving organizational effectiveness. Organizations need to create incentives and then distribute them to individuals to achieve organizational efficiency (Zhao & Yan, 2016). To achieve organizational goals, organizations need to provide sufficient incentives to meet the needs of team members in the organization. Incentives include economic incentives and non-economic incentives. Economic incentives refer to the financial rewards for employees' contribution. Non-economic incentive refers to non-material rewards. Compared with economic incentive, Barnard pays more attention to the non-economic incentives, such as honor, prestige and power, sense of competence and pride in work; interpersonal relationship, habits, opportunities for development, psychological anxiety and persuasion.

Most of the material and non-material incentives are objective, but the incentive of

"persuasion" is subjective. Managers need to change their members' subjective feelings to balance the incentives and contributions, so as to solve the problem of insufficient sources of incentives. Barnard put forward the following views regarding persuasion: first, mandatory methods. By terminating contracts, moving employees to lower position and dismissing the employees who have little contribution and weak cooperation ability, enterprises can punish some employees as a warning to the remaining members, thereby reducing the incentives standards. The second is to rationalize incentives. When an organization requires employees to make contributions, it needs to make clear what the employees can gain in return for their efforts. The third is to inculcate motivation. Enterprises need to inculcate new motivations into employees, so as to change the original motivation and bring into full play of incentives. For example, providing in-service training and education will increase the possibility for employees to pay more attention to the growth of the enterprise.

The internal balance of incentives and contributions is unstable, but managers must maintain their balance, because the imbalance will cause dissatisfaction among employees, and work efficiency will be reduced. In addition, in order to ensure the balance of income and expenditure, it is necessary to adopt the principle of differential incentives, and fairly and impartially evaluate the contribution of employees, so as to distribute the economic and non-economic incentives according to the contribution of employees to the organization (Liu, 2014).

The external balance of the organization means that the organization improves its efficiency by maintaining a balance with the external environment. There are two aspects to deal with: one is the balanced relationship between the organization as a subsystem and other systems. The other is the balance between organizational system and external environment.

Organizational dynamic balance refers to that many factors in an organization are in a state of change. Organizational balance is not accomplished in an action. The original balance will be broken when the internal and external environment of the organization changes. Meanwhile, the organization itself will also break its original balance. The organization is a contradictory organism full of differences and conflicts. Therefore, properly handling the stability and changes can keep an organization in sound balance in organizational development.

With the acceleration of globalization process, hospitals as an organization also need to participate in the global competition, and the competition always focuses on capital, talent, technology and market. According to incentive and contribution theory, it is necessary to provide sufficient incentives to clincian and find a balance point according to the changes of the environment. In terms of internal balance, it is necessary to establish a people-oriented

management atmosphere based on the incentive and contribution theory, so that employees have a strong willingness to cooperate (Xiao, Liu, & Cui, 2001). From the external balance point of view, the development of global economy has also intensified the competition between hospitals. Hospitals need to find a balance with the environment, adjust their talent strategies and methods, constantly adapt to the changing environment in development, so as to ensure the internal and external balance.

In addition, the patients are the customers of hospitals, so we should strengthen the concept of "patient-centered" service. The patient's satisfaction is crucial for the survival and development of the hospital. Therefore, as the main group directly contacting patients, the clincian should pay attention to the service consciousness and level. We should pay attention to several aspects: first, the internal balance of hospitals is a dynamic process and the incentives need to be created and adjusted according to the needs of clincian, so as to ensure the internal balance (Wang, 2002). In the process of maintaining internal balance, we need to provide material incentives for employees, but also pay attention to the important role of non-material incentives. The energy and interpersonal relationship of medical workers have a great impact on their mental state and service attitude. We should cultivate the professional quality and foster the spirit of cooperation, love and solidarity among medical workers. The internal and external balances of hospitals are complementary and mutually reinforcing, so they play an indispensable role in the sustainable and coordinated development of hospitals.

2.5 Summary of literature review

At present, the research on perceived stress has extended to all sectors at home and abroad, with research subjects focusing on teachers and doctors and other high-risk groups who are easy to feel pressure. There are many studies on the impact of perceived stress, but we find that most of the studies focus on the causes of stress and some positive effects, such as job well-being and life satisfaction. Some scholars have studied the effects of perceived stress on healthy behavior, but with few studies on negative impacts or behaviors, which is the focus of this study. Especially there are few studies on perceived stress and burnout of clincian. In addition, the boundary conditions for the impact of perceived stress on negative behavior are not sufficiently studied. That is to say, under what circumstances the influence of perceived stress on negative behavior or tendency will be reduced, which is also a problem we need to explore. Therefore, this study attempts to introduce LMX to study the impact of perceived stress on burnout. This study has innovative significance in the construction of the theoretical framework.

The previous studies on the influencing factors of burnout have been statistically sufficient. Meanwhile, the job-person fit theory studies the influencing factors of job-person fit, personal traits and environmental factors. However, the empirical studies on the relationship between perceived stress and burnout from the perspective of psychological resources based on coping theory is rarely found. At present, the research on burnout mostly focuses on teachers, with less attention paid to clincian. This study further explores the causes of burnout of clincian from a new theoretical perspective, which makes theoretical contributions and has practical significance.

There are already sufficient studies on LMX in academic circles, most focusing on the existing outcome variables. Besides, most studies focus on the positive role of LMX as mediating variable, such as improving job performance and promoting organizational citizenship behavior. However, there are few studies discussing the impact of LMX on burnout. In this study, we will discuss the moderating role of LMX in improving the burnout of clincian. Therefore, the study of LMX has more profound theoretical significance and management practical significance. In this study, LMX will be studied as the core of the mediating mechanism.

Based on exchange theory, job requirement-resource model and coping theory, this study, from the perspective of resource gains and losses, discusses how employees feel under pressure and what coping styles they will use to prevent the loss of their resources. LMX is a kind of exchange relationship and thus it can be explained using social exchange theory. Based on incentive theory, the leaders can motivate subordinates to make contributions by offering incentives in process of leader-member exchange.

To sum up, this study discusses the relationship between perceived stress and burnout of clincian, and takes LMX as a moderating variable, which has theoretical significance and practical significance for medical industry management.

2.6 Research hypothesis

2.6.1 Influence of perceived stress on burnout

The hypotheses of this study are about the effect of perceived stress on burnout and impact paths. Therefore, LMX is introduced as mediating variable between perceived stress and burnout of clincian, hoping to understand the effect of perceived stress on burnout. Besides, the correlations among perceived stress, LMX, burnout and its three dimensions are also analyzed.

2.6.2 Influence of perceived stress on burnout

Burnout is an individual's sense of tension and uncontrollability, which includes three dimensions, namely emotional exhaustion, depersonalization and reduced accomplishment. These three dimensions reflect the depletion of employees' psychological resources and their attitudes towards customers and work. Current research on the influencing factors of burnout is focused on the following aspects: First, the impact of burnout on employees' negative behaviors, such as turnover behavior and counterproductive behavior. The current research results show that perceived stress can predict positive and negative behaviors. Secondly, what are the antecedent variables of burnout and how do these variables affect burnout? At present, scholars have pointed out that one of the antecedent variables of burnout is perceived stress (Li, 2011).

From the point of view of job requirement-resource model, perceived stress, as a kind of tension felt by clincian, can make them lose their own resources. On the one hand, they are afraid that the existing resources cannot be preserved and on the other hand, they are unwilling to invest new resources, so the renewed resources will be reduced. This forms a vicious circle, leading to the aggravation of negative emotions. The research found that burnout is caused not only by personal factors but also by the job-person mismatch (Bakker & Costa, 2014). The mismatch between an individual and his job results in a reduced accomplishment, which is one of dimensions of burnout. According to the coping theory, after the stress assessment, the individual evaluates his ability to control the pressure, and then carries out corresponding coping strategies (Wang & Song, 2015).

Such coping strategies may generate positive emotions and behaviors, such as working harder to relieve stress and achieving satisfaction through achievement at work. However, the coping strategy may also be negative emotions and behaviors, such as generating tension, feeling that life and work are meaningless, and losing patience with the service recipients.

In this study, perceived stress refers to the sense of tension and uncontrollability resulting from external stimuli (Yang & Huang, 2003). According to coping theory, when such tension and uncontrollability occur, clincian will adopt such coping measures as "problem-centered" or "emotion-centered" or "avoidance" strategy. Avoidance is a negative response caused by perceived pressure of clincian in this study. Specifically, the clincian suffering from resources loss experiences emotional exhaustion. Clincian experiencing emotional exhaustion always takes bad service attitude towards patients, and release bad emotions to them, resulting in depersonalization; poor service attitude will result in lower patient satisfaction, which will

affect the performance of clincian, leading to reduced accomplishment. So we propose hypothesis 1:

Hypothesis 1: Perceived stress is positively related to burnout.

Hypothesis 1a: Perceived stress is positively related to emotional exhaustion.

Hypothesis 1b: Perceived stress is positively related to depersonalization.

Hypothesis 1c: Perceived stress is positively related to reduced accomplishment.

2.6.3 The moderating role of LMX between perceived stress and burnout

The perceived stress of clincian comes from challenging cases, unexpected events and occupational hazards (Li, Cui, Zhang, Sun, Wang, & Shi, 2017). To study of the impact of perceived stress on individual psychological positive state includes satisfaction and happiness. Some scholars have also studied the effects of perceived stress on negative attitudes, such as the relationship between perceived stress and burnout (Guo, Wang, Wang, & Zhao, 2015). To explore the moderating role of LMX between perceived stress and burnout, it is necessary to study LMX as a boundary condition.

According to the theory of social exchange, there is exchange relationship between people in social interactions, and when this relationship is in balance, it will benefit the both sides. For clincian, superiors have resources and powers that subordinates do not have, while subordinates can help their superiors to accomplish their tasks. Therefore, under certain conditions, high quality LMX can promote employees' positive behavior towards the organization. When employees have negative emotions, a good LMX can still keep employees loyal, thus alleviating their negative emotions. In the study of the effects of perceived stress on burnout, some scholars pointed out that coping style can be used as a moderating variable between job stress and burnout among primary and secondary school teachers, that is, problem-solving and emotional-solving can reduce stress (Liu & Wu, 2007).

Stress can be coped with by positive thinking and emotions, or by communicating with others and receiving help from others for emotional counseling. As for the clincian, if the leaders can actively provide psychological counseling for clincian under greater pressure, it may reduce the possibility of burnout. According to the incentives and contributions theory, leaders have resources that employees do not have, and it is an important factor that can motivate subordinates to make positive contributions (Ma & Wang, 2010).

Therefore, if employees need such resources, they need to establish a good exchange

relationship with leaders though active communication and timely feedback and make positive contributions to the organization. From the perspective of medical workers, negative emotions and difficult problems can be solved by means of communication. Good communication can ease the negative emotions of workers, and the effective communication between leaders and employees is the key to solve the problems, so we use LMX as a moderating factor in this study. The study of other occupations found that occupational commitment also plays a moderating role between teachers' stress and burnout (Huang, Xian, & Zhang, 2009), and LMX can promote positive occupational attitudes to a certain extent, so we can infer that LMX can also moderate the impact mechanism of burnout. Some studies show that there is a correlation between LMX and employee's organizational commitment (Yu, Zhao, & Jiang, 2014), which to some extent can provide evidence for LMX to alleviate employee's negative attitudes, namely burnout. Therefore, we can infer that LMX may exist as a boundary condition to moderate perceived stress and burnout. Therefore, we propose hypothesis 2:

Hypothesis 2: LMX will moderate the relationship between perceived stress and burnout such that the relationship is weaker for clinicians with higher quality of leader-member exchange (LMX).

Hypothesis 2a: LMX will moderate the relationship between perceived stress and emotional exhaustion such that the relationship is weaker for clinicians with higher quality of leader-member exchange (LMX).

Hypothesis 2b: LMX will moderate the relationship between perceived stress and depersonalization such that the relationship is weaker for clinicians with higher quality of leader-member exchange (LMX).

Hypothesis 2c: LMX will moderate the relationship between perceived stress and reduced accomplishment such that the relationship is weaker for clinicians with higher quality of leader-member exchange (LMX).

2.7 Research model

Based on the above analysis, we established a research model (See Figure 2-1) regarding the impact of perceived stress on burnout, with LMX as a moderating variable. Therefore, the main effects of this model relate to the influence of perceived stress on burnout and its three sub-dimensions (emotional exhaustion, depersonalization and reduced accomplishment). The moderating effect is: LMX negatively moderates the relationship between perceived stress and

burnout, between perceived stress and emotional exhaustion, between perceived stress and depersonalization, and between perceived stress and reduced accomplishment. The main research points are as follows.

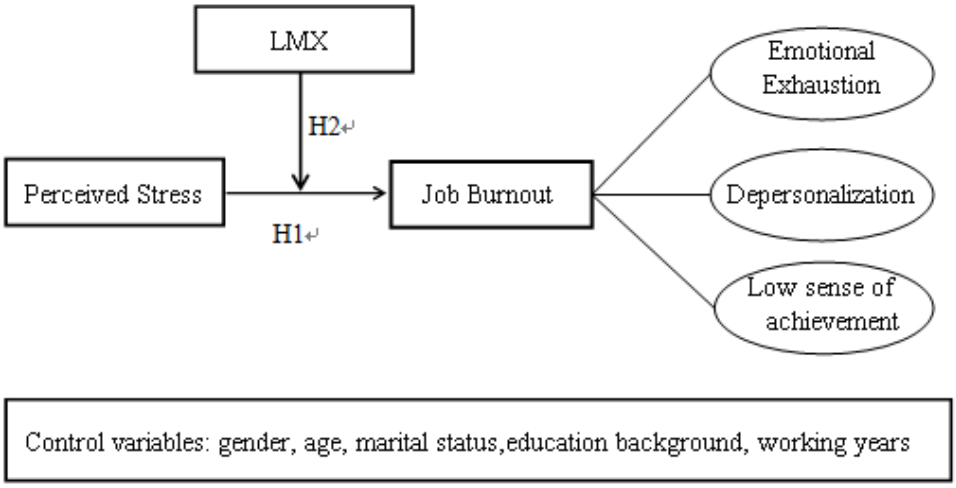

Figure 2-1 Research model

Firstly, explore whether perceived stress affects burnout and its three dimensions.

That is, H1: perceived stress has a positive effect on burnout; H1a: perceived stress has a positive effect on emotional exhaustion; H1b: perceived stress has a positive effect on depersonalization; H1c: perceived stress has a positive effect on emotional exhaustion.

Secondly, explore whether LMX moderates the relationship between perceived stress and burnout of clincian.

That is, H2: LMX negatively moderates the relationship between perceived stress and burnout; H2a: LMX negatively moderates the relationship between perceived stress and emotional exhaustion; H2b: LMX negatively moderates the relationship between perceived stress and depersonalization; H2c: LMX negatively moderates the relationship between perceived stress and reduced accomplishment. In this model, the control variables include gender, age, marital status, education background and working years.

2.8 Chapter summary

This chapter reviews the research variables in the research model, including the concept, dimensions and measurement of variables, the outcome and antecedent variables. Meanwhile, it makes an analysis of the theory used to explain the relationship between variables, and gives

a comprehensive description of the current situation of the research, which provides theoretical and literature support for the hypothesis. Based on the existing literature, the research hypotheses of this study are put forward, and the relationship between perceived stress, LMX and burnout is discussed. Meanwhile, the moderating role of LMX between perceived stress and burnout is proposed. There are eight hypotheses remained to be tested in this study.

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Chapter 3: Research Methods

This chapter discusses the definnitions, measures of variables, sampling and data collection. In addition, it introduces the analysis strategy and the validity and reliability resuts of key variables.

3.1 Definition of variables

(1) Definition of independent variable

In this study, the independent variable "perceived stress" is defined as a series of mental changes caused by adverse stimuli from external environment, which is psychologically and physically manifested as discomfort, powerlessness and tension (Yang & Huang, 2003).

(2) Definition of dependent variable

The definition of "burnout" proposed by Maslach and Jackson (2001) is adopted in this study, which involves three dimensions, namely emotional exhaustion, depersonalization and reduced accomplishment. Burnout was first proposed by F reudenberger in 1974 who believed that burnout is the common symptom of emotional exhaustion that easily occurs in people-helping situations. Later Maslach called the psychological syndrome caused by long-term emotional and interpersonal stressors at work as burnout. It is generally believed that burnout is an extreme reaction when an individual can not smoothly cope with job stress, which refers to a kind of exhaustion in emotion, attitude and behavior caused by long-term pressure. Emotional exhaustion is the core dimension of burnout, which refers to the state of extreme fatigue, excessive consumption of individual emotional resources, fatigue and loss of energy. Emotional exhaustion is a feeling of emotional, energetic and energy exhaustion. It is also a psychological state that makes people feel exhausted, stressed-out, helpless and emotional burnout. In the state of emotional exhaustion, individuals experience anxiety, tension, depression and other negative emotions, feel exhausted and avoid work, do the bare minimum when at work and lack dedication and commitment to work; depersonalization represents the indifferent and cold attitude of service staff towards the service recipients; reduced accomplishment means the service staff tends to negatively evaluate or negate the value of work and self-worth. The burnout of clinicians is measured based on the three dimensions.

(3) Definition of moderating variable

The concept of LMX proposed by Dienesch and Liden (1986) is adopted in this study, which refers to the differentiated relationships formed between superiors and subordinates after multiple exchanges of information and resources. It is a dynamic relationship that reflects the needs of leaders and members. The subordinates are placed into in-group and out-group respectively according to the quality of LMX. The degree of closeness between leaders and their subordinates is an important variable affecting leadership performance. Leaders treat subordinates differently according to their contribution, time pressure and personal preferences, and form a leader-member exchange relationship of different quality with subordinates. The subordinates enjoying high-quality leader-member exchange relationship are treated as in-group members, while subordinates suffering from low-quality LMX are regarded as out-group members.

Table 3-1 Perceived stress scale

No.	Item
A1	Feel disturbed and upset about something unexpected
A2	Feel unable to control important things in life
A3	Feel nervous and stressed
A4	Successful in dealing with annoying things in life
A5	Able to effectively handle important changes in life
A6	Feel confident in handling your problems
A7	Feel that things are developing according to your wishes
A8	You find that you cannot accomplish what you have to do
A9	Being able to deal with the unpleasant things in life
A10	Feeling able to control things in your life
A11	Feeling angry about something that is out of your control
A12	Find yourself always keeping something you have to do on mind
A13	Feeling able to control how you use your time
A14	Find that problems have piled up and remain unsolved

3.2 Measurement

Based on the previous definitions of variables and the widely-used scales developed by previous scholars (two-way translation between English and Chinese), this study designed a questionnaire to investigate the perceived stress and burnout of clinicians, and measure the

variables based on a five-point Likert-type scale, with 1-5 representing "extremely disagree", "disagree", "neither disagree nor argee", "agree", "extremely agree" respectively.

3.2.1 Perceived stress scale

The Chinese version of the Perceived Stress Scale (CPSS) revised by Yang and Huang (2003) is used in this study. CPSS scale has been widely used in the field of psychology, which contains 14 questions and has a satisfactory degree of fitting (See Table 3-1).

3.2.2 LMX scale

The LMX-7 scale developed by Scandura and Graen (1984) is used in this study. The scale is a one-dimensional scale with 7 items (See Table 3-2). Wang and Zhao (2011) confirmed the cross-cultural applicability of the scale in his research.

Table 3-2 LMX Scale

No.	Item
B1	How do you feel about your working relationship with your supervisor?
B2	Supervisors use their powers to help you solve your difficulties with tasks
B3	You think your supervisor understands your potential
B4	You think your supervisor knows your problems and needs at work.
B5	You know your supervisor is satisfied with your work performance.
B6	Your supervisor will sacrifice his own interests to help you get out of your work difficulties.
B7	You have full confidence in your supervisor, and even if he or she is absent, you will believe in and support his or her decisions.

3.2.3 Burnout scale

The Burnout Scale translated and revised by Li and Shi based on MBI-GS is used in this study, which has 15 items, including three dimensions: emotional exhaustion, depersonalization and reduced accomplishment (See Table 3-3). The Chinese scholars have proved that the scale has good reliability and validity.

3.2.4 Control variables

This study selected gender, age, marital status, education level and length of service as control variables. It is hoped that we can understand the variances of impact of different control variables on the main variables so as to explore the impact mechanism of burnout of clinicians.

Table 3-3 Burnout scale

Dimension	Item No	Item
Emotional exhaustion	C1	Work makes me exhausted physically and mentally.
	C2	I feel exhausted after work.
	C3	I have to drag myself to work in the morning and have trouble getting started, which makes me very tired.
	C4	Working all day is really stressful for me.
	C5	Work gives me a sense of nearing a breakdown.
Depersonalization	C6	Since I took this job, I have become less and less interested in it.
	C7	I am not as enthusiastic about my work as I used to be.
	C8	I doubt if the work I have done is meaningful.
	C9	I am increasingly not care about the contribution of my work.
Reduced accomplishment	C10	I can effectively solve problems in my work.
	C11	I think I am making a positive contribution to the health undertakings.
	C12	I think I am good at my job.
	C13	I am very happy when I finished some of the work.
	C14	I have done a lot of valuable work.
	C15	I am confident that I can accomplish all kinds of work effectively.

3.3 Data collection

This survey of burnout of clincian was conducted on a population of clinicians employed in hospitals in Guangzhou. After the measurement scales were selected, the research data were collected from August 5, 2017 to September 15, 2017. Questionnaire survey was conducted among clinicians from three hospitals, including the Red Cross Hospital of Huangpu District, Guangzhou, Guangzhou Development Zone Hospital and Guangzhou Panyu Central Hospital.

Located in the southeastern part of Huangpu District, the Red Cross Hospital of Huangpu District is Grade II non-profit general hospital with a total of 416 employees. It occupies a building area of 13,800 square meters. With many enterprises and residential areas in the vicinity, the hospital is capable of providing medical service for a population of nearly 300,000 people. At present, the hospital has 218 beds and 416 employees including 53 senior clincian and 196 intermediate clincian. There are ordinary outpatient clinics and expert outpatient clinics for gynecology and pediatrics, department of ophthalmology and otorhinolaryngology, department of stomatology, department of traditional Chinese medicine, department of orthopedics, department of dermatology, department of physiotherapy, department of pediatrics,

department of gynecology and obstetrics, department of surgery 1, department of surgery 2 and department of internal medicine. With an annual outpatient visits of 102,000 and annual hospitalization of 16,000, the annual business income of the hospital is 210 million yuan.

Since 2011, the hospital has carried out a series of activities aimed at developing hospital culture and ethics, such as "achieving three excellent standards", "practicing medicine honestly, correcting malpractices in the medical industry" and "quality service month", in order to continuously improve the quality of medical care and service attitude. In 2015, the hospital was awarded the title of Best Medical Service Organization by Guangzhou Health Bureau. At present, it has been approved as Grade II Class A Hospital and Baby-friendly Hospital.

Guangzhou Development Zone Hospital is a Grade II non-profit general hospital with a total of 551 employees. It is a public comprehensive hospital sponsored by Huangpu District Government and Guangzhou Development Zone Administrative Committee. Located in the eastern part of Guangzhou and capable of serving nearly 400,000 people, the hospital is adjacent to the Pearl River and the Dongjiang River, with a building area of 76,500 square meters. The hospital now has 480 beds and 551 employees.

The hospital has more than 30 medical departments, among which gynecology and obstetrics, trauma surgery, pediatrics and other advantageous specialties have reached the advanced level compared with those of other hospitals in Guangzhou. The hospital is equipped with more than 100 large medical equipments such as nuclear magnetic resonance (NMR), helical CT, DSA, digital gastrointestinal X-ray machine, digital mammography target, bone densitometer, bedside X-ray machine, DR and vehicle-borne DR machine, CBCT, and high-end four-dimensional color ultrasound devices. In recent years, the hospital has attached great importance to the introduction and cultivation of talents.

Founded in 1958, Guangzhou Panyu Central Hospital is Grade III Class-A Chinese Medicine Hospital with a total of 990 employees including 849 medical technicians and nurses, including 93 graduate students and 6 doctoral students, 172 senior professional technicians and 352 intermediate technicians. Located in the center of Qiaocheng District of Panyu, the hospital is a comprehensive third-level first-class Chinese medicine hospital with complete service functions and advanced equipment, integrating medical treatment, preventive health care, teaching and scientific research. In 2018, the annual number of outpatient and emergency visits was 933,892, and the number of discharged patients was 20,282. The hospital has 600 beds. There are a full set of departments, including 32 clinical departments and 11 technical departments.

In order to ensure the accuracy of the study, 500 questionnaires were sent out and 476 were recovered. After eliminating the invalid and unanswered questionnaires, 434 questionnaires were considered to be valid, and the recovery rate of the questionnaires was 91.18%.

An average of 145 samples was collected from each hospital and the respondents included department directors, ordinary physicians and basic-level nursing staff. Before the questionnaire survey was conducted, the research team held a meeting with each department of the surveyed hospitals and reassured respondents that the results of the survey were only for research purposes, and would not pose any adverse influence on the work assessment and career development of employees. Therefore, the participants were required to answer all questions according to actual experience and true feeling. The recovered valid questionnaires will be used for research analysis. Researchers mainly use random sampling and convenient sampling methods to distribute questionnaires offline. Through contacting relatives, friends and colleagues working in hospitals, they conducted questionnaire survey and collected questionnaires in grass-roots hospitals around Guangzhou. The recovery rate of questionnaire is high and meets the analysis requirements.

3.4 Data analysis

3.4.1 Analysis tools

The software IBM SPSS 21.0 and Amos 19.0 were used for data analysis and processing. Hypotheses were tested through a series of statistical analysis, and then the research model was tested.

3.4.2 Analysis methods

Based on the hypotheses of the relationships among perceived stress, burnout, its three sub-dimensions and LMX, this study adopts descriptive statistics, reliability and validity analysis, exploratory factor analysis, confirmatory factor analysis, correlation analysis, variance analysis and regression analysis, which will be discussed in details in the next chapter.

3.5 Validity and reliability test

In this part, the reliability and validity are tested to examine whether the sample data is authentic and effective. Regarding the validity test, the content validity and construct validity

are tested respectively.

Validity

Validity refers to a quality of a measurement indicating the degree to which the measure reflects the underlying construct, that is, whether it measures what it purports to measure. There are many methods of validity analysis, including item analysis, independent scale validity analysis and factor analysis commonly used in communication studies.

The validity test is used to examine whether the research content is in consistent with the purpose of the study. The scales widely used by previous scholars are adopted in this study. Their content validity has been tested by scholars. Besides, the convergent validity is mainly used to test the correlation between each item in the scale. The stronger the correlation is, the higher the convergence validity. We use exploratory and confirmatory factor analysis to test the construct validity. The results of KMO and Bartlett test are obtained through exploratory factor analysis. If the KMO value is close to and greater than 0.7, it means that the data is preferred for factor analysis, and meanwhile the results need to reach a certain level of significance. In the confirmatory factor analysis, we use several indicators such as X^2/df (Chi-Square Test of Fitting Index), GFI (Goodness of Fit Index), CFI (Comparative Fitting Index), NFI (Normed Fit Index), RMSEA (Root-mean-square error of approximation) to test whether the fitting degree of the model is in a reasonable range and whether the model is suitable for data analysis.

Reliability

Reliability refers to the consistency of the results of repeated measurements of the same object using the same method. Reliability indicators are mostly expressed by correlation coefficients, which can be roughly divided into three categories: stability coefficients (cross-time consistency), equivalence coefficients (cross-form consistency) and internal consistency coefficients (cross-project consistency).

The reliability test is an important tool to measure the internal consistency and stability of the scale. SPSS is used for reliability test and Cronbach alpha coefficient is measurement index. When Cronbach α is greater than 0.9 and less than 1, the reliability is preferable, and if Cronbach α is less than 0.7, some items should be deleted.

Common Method Bias

Because the scale in this study is self-report scale and all measurement items are filled out by one person, and therefore Harman single factor analysis is used to analyze the common variance of all variables before other analyses are conducted. The results showed that the first

factor without rotation revealed the measurement variability all measurement variances is 28.84%, which is less than the threshold value of 40%, showing further data analysis can be carried out.

3.5.1 Validity and reliability analysis of perceived stress scale

(1) Validity analysis: Exploratory factor analysis

The KMO value of perceived stress is 0.937 (>0.7), which meets the requirements of data analysis. The significance level of the test is 0.000 and this result indicates that the scale of perceived stress is suitable for factor analysis.

As shown in the Table 3-4, the factor load level is higher than 0.6 and the result is satisfactory. The cumulative proportion of variance explained is 58.302%, which indicates that the construct validity of the perceived stress scale is preferable.

(2) Reliability analysis

Based on the analysis of SPSS, the reliability of the perceived stress scale is analyzed. The Cronbach α of the scale is greater than the critical value of 0.7, which indicates the reliability of perceived stress scale is satisfactory.

Table 3-4 Exploratory factor analysis of perceived stress scale

Item		Factor 1
A1	Feel disturbed and upset about something unexpected	0.747
A2	Feel unable to control important things in life	0.843
A3	Feel nervous and stressed	0.799
A4	Successful in dealing with annoying things in life	0.774
A5	Able to effectively handle important changes in life	0.757
A6	Feel confident in handling your problems	0.779
A7	Feel that things are developing according to your wishes	0.774
A8	You find that you can't accomplish what you have to do	0.673
A9	Being able to deal with the unpleasant things in life	0.706
A10	Feeling able to control things in your life	0.736
A11	Feeling angry about something that is out of your control	0.745
A12	Find yourself keeping something you have to do on mind	0.833
A13	Feeling able to control how you use your time	0.739
A14	Find that problems have piled up but remain unsolved	0.767
Cumulative Proportion of Variance Explained (%)		58.302

3.5.2 Validity and reliability analysis of LMX

(1) Validity analysis: Exploratory factor analysis

The KMO value of LMX is 0.937 (>0.7), which meets the requirements of data analysis. The significance level of the test is 0.000 and this result indicates that the scale of LMX is suitable for factor analysis.

As shown in the Table 3-5, the factor load level is higher than 0.6 and the result is satisfactory. The cumulative proportion of variance explained is 65.585%, which indicates that the construct validity of LMX scale is preferable.

Table 3-5 Exploratory factor analysis of LMX scale

Item		Factor 1
B1	How do you feel about your working relationship with your supervisor?	0.795
B2	Supervisors use their powers to help you solve your difficulties with tasks	0.851
B3	You think that your supervisor understands your potential	0.784
B4	You think that your supervisor knows your problems and needs at work.	0.846
B5	You know your supervisor is satisfied with your work performance.	0.787
B6	Your supervisor will sacrifice his own interests to help you get out of your work difficulties.	0.799
B7	You have full confidence in your supervisor, and even if he or she is absent, you will believe in and support his or her decisions.	0.805
Cumulative Proportion of Variance Explained (%)		65.585

(2) Reliability analysis

Based on the analysis of SPSS, the reliability of the LMX scale is analyzed. The Cronbach α of the scale is 0.912 (>critical value of 0.7), which indicates the reliability of LMX scale is satisfactory.

3.5.3 Validity and reliability analysis of burnout scale

(1) Validity analysis: Exploratory factor analysis

The KMO value of burnout is 0.883 (> 0.7), which meets the requirements of data analysis. The significance level of the test is 0.000 and this result indicates that the scale of burnout is suitable for factor analysis.

Table 3-6 Exploratory factor analysis of burnout scale

Item		Factor 1		
C1	Work makes me exhausted physically and mentally.	0.853		
C2	I feel exhausted after work.	0.759		
C3	I have to drag myself to work in the morning and have trouble getting started, which makes me very tired.	0.766		
C4	Working all day is really stressful for me.	0.854		
C5	Work gives me a sense of nearing breakdown.	0.774		
C6	Since I took this job, I have become less and less interested in it.		0.816	
C7	I am not as enthusiastic about my work as I used to be.		0.774	
C8	I doubt if the work I have done is meaningful.		0.799	
C9	I am increasingly not care about the contribution of my work.		0.775	
C10	I can effectively solve problems in my work.			0.682
C11	I think I am making a positive contribution to the health undertakings.			0.840
C12	I think I am good at my job.			0.823
C13	I am very happy when I finished some of the work.			0.788
C14	I have done a lot of valuable work.			0.780
C15	I am confident that I can accomplish all kinds of work effectively.			0.821
		25.890	22.841	17.684
Cumulative Proportion of Variance Explained (%)		25.890	48.730	66.415
		Emotional exhaustion	Depersonalization	Reduced accomplishment

As shown in the Table 3-6, the factor load level is higher than 0.6 and the result is satisfactory. The cumulative proportion of variance explained is 66.415%, which indicates that the construct validity of the burnout scale is preferable.

(2) Reliability analysis

Based on the analysis of SPSS, the reliability of the burnout scale is analyzed. The Cronbach α of the scale is 0.872 (> critical value of 0.7), which indicates the reliability of burnout scale is satisfactory.

(3) Confirmatory factor analysis

AMOS is used for confirmatory factor analysis of the scale. And the results are shown in the Table 3-7.

Table 3-7 Confirmative factor analysis of perceived stress

Fitting Index	x^2/df	GFI	NFI	CFI	RMSEA
Perceived stress value	2.641	0.936	0.948	0.967	0.062
Burnout value	2.151	0.947	0.943	0.968	0.052
LMX value	2.579	0.975	0.98	0.987	0.06

The analysis results of the perceived stress showed X^2/df was less than 3, and the values of GFI, NFI and CFI were all greater than 0.9. Meanwhile, the value of RMSEA was less than 0.062 (< 0.08). Therefore, the scale of perceived stress has satisfactory fitting degree.

The analysis results of the burnout showed X^2/df was less than 2.151(<critical value of 3), and the values of GFI, NFI and CFI were all greater than 0.9. Meanwhile, the value of RMSEA was 0.052, within a reasonable range. Therefore, the scale of burnout scale has satisfactory fitting degree.

The analysis results of the LMX showed X^2/df was 2.579 (<critical value of 3), and the values of GFI, NFI and CFI were all greater than 0.9. The value of RMSEA was 0.06, within a reasonable range. Therefore, the scale of LMX scale has satisfactory fitting degree.

3.6 Chapter summary

This chapter elaborates the preparatory work before data analysis, including the definition of variables, the selection of scales, the selection of control variables, the introduction of main analytical tools and methods. This selection of the scales provides the basis for data collection, so as to make the data analysis more smoothly. The reliability and validity analysis testifies and confirms the rationality of the questionnaire selection and the questionnaire can be used for variable measurement in the following study.

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Chapter 4: Results

This chapter conducts a series of analysis of the collected data, including descriptive statistical analysis, variance analysis of control variables, correlation analysis between variables, regression analysis and mediating effect analysis. The data analysis mainly aims to test research hypotheses and provides the data basis for the research conclusions.

4.1 Demographic information of samples

The study collected samples from Red Cross Hospital of Huangpu District, Guangzhou Development Zone Hospital and Guangzhou Panyu Central Hospital. Samples collected are as follows: in terms of gender, there are 214 male clincians, accounting for 49.3% of the total, and 220 female clincians, accounting for 50.7%.

In terms of marital status, there are 236 unmarried clincians, accounting for 54.4%, 164 married and childless clincians, accounting for 37.7%, 34 married clincians with children, accounting for 7.9%.

In terms of age, there are 192 clincians aged 18-27, accounting for 44.2%; 196 clincians aged 28-37, accounting for 45.1%; 37 clincians aged 38-47, accounting for 8.7%; and 8 clincians aged 48 and over, accounting for 2%.

In terms of the educational level, there are 246 clincian with bachelor degree, accounting for 56.6%; 104 clincian with master degree, accounting for 24%; 56 clincian with college degree, accounting for 12.9%; 20 clincian with education experience in high school or technical secondary school, accounting for 4.6%; 8 clincian with doctoral degree, accounting for 2%. It should be noted that in China bachelor degree holders are eligiable to be clinican and doctor in hospital. Because the samples are mainly from primary hospitals where bachelor degree holders are more popular than the tertiary hospitals where higher level of education (e.g. doctorate) are required.

In terms of working years, there are 200 clincian with working years less than one year, accounted for 46.1%; 35 clincian with working years of 1-2 years, accounted for 8.3%; 12 clincian with working years of 3-5 years, accounting for 2.8%; 152 clincian with working years of 6-10 years, accounting for 35%; 34 clincian with working years more than 10 years,

accounting for 7.8%.

The basic information of collected samples is shown in the above table have the following characteristics: gender ratio is balanced; the married and unmarried respondents almost account for half of the total and the number of unmarried is the largest, accounting for 54.4% of the total. In terms of age, the respondents are generally young, with vast majority of them being 37 years old and below. Regarding the education level, the respondents are generally well educated, with samples holding bachelor degree accounting for 56.6%. In relation to working years, the samples working for less than one year and 6-10 years' account for the largest proportion, making up 46.1% and 35% respectively. The number of respondents with other working years is roughly similar.

4.2 Descriptive statistical analysis

Appendix 2 suggests that the sampled clinicians perceived high level of stress, probably because the whole group of clinicians is facing a greater pressure. The low average level of LMX indicates that the leader-member relationship among clinicians has not been well established. The high average level of burnout and its three dimensions shows that the clinicians as a whole responded with symptoms of high level of emotional exhaustion. This also provides some data basis for us to study the burnout of clinicians and find countermeasures to relieve the symptoms for them (See appendix 2 for detail).

4.3 Variance analysis

According to the grouping of demographic variables, this study uses independent sample T test (two groups) and one-way ANOVA (more than two groups) to test their impact on each research variable. In independent sample T test, the homogeneity of variance is tested first, if the results show homogeneity ($P > 0.05$), and then the significance variance of mean value is further tested. In one-way ANOVA analysis, we first observe whether there is a significant variance in the population variance of variables ($P<0.05$). If there is, we need to test the homogeneity of population variance. If the population variance also shows homogeneity ($P>0.05$), we should use LSD two-pair T test to determine whether there is a significant variance in the mean value. In this study, the independent sample T test is used for gender, and one-way ANOVA analysis is used for other demographic variables.

4.3.1 Variable difference on gender

Table 4-1 Impact of variances in gender on research variables (1)

Research Variables	Gender	Nr. of samples	Mean	F value	Sig.
Perceived stress	Male	214	3.4162	1.770	0.184
	Female	220	3.4705		
LMX	Male	214	2.7697	2.895	0.090
	Female	220	2.9006		
Burnout	Male	214	2.9732	1.335	0.248
	Female	220	3.0418		
Emotional exhaustion	Male	214	3.0841	0.143	0.706
	Female	220	3.1145		
Depersonalization	Male	214	2.8925	0.017	0.896
	Female	220	2.9432		
Reduced accomplishment	Male	214	2.9346	0.212	0.646
	Female	220	3.0470		

Note: *p<0.05; **p<0.01; ***p<0.001

From the above Table 4-1, the variance homogeneity test shows that in terms of gender, the significance P value of perceived stress, LMX, burnout and its three sub-dimensions is 0.184, 0.090, 0.248, 0.706, 0.896 and 0.646, respectively. The P value is all greater than 0.05.

From the above Table 4-2, we can see that the mean difference level P of gender for each variable is greater than 0.05, indicating that there is no significant difference in the impact of gender on each variable.

Table 4-2 Impact of variances in gender on research variables (2)

		Equivalence of Mean t test					
		t	DoF	Significance (double tailed)	Mean difference	95% confidence interval	
						Min	Max
Perceived stress	Equal variances assumed	-0.644	432	0.520	-0.05423	-0.21979	0.11133
	Equal variances not assumed	-0.644	430.267	0.520	-0.05423	-0.21988	0.11141
LMX	Equal variances assumed	-1.551	432	0.122	-0.13096	-0.29688	0.03497
	Equal variances not assumed	-1.553	431.226	0.121	-0.13096	-0.29672	0.03481
Burnout	Equal variances assumed	-1.122	432	0.262	-0.06861	-0.18877	0.05155
	Equal variances not assumed	-1.123	431.928	0.262	-0.06861	-0.18870	0.05148
Emotional exhaustion	Equal variances assumed	-0.362	432	0.717	-0.03043	-0.19559	0.13472
	Equal variances not assumed	-0.362	431.746	0.717	-0.03043	-0.19558	0.13471
Depersonalization	Equal variances assumed	-0.698	432	0.486	-0.05066	-0.19330	0.09198
	Equal variances not assumed	-0.698	431.856	0.485	-0.05066	-0.19328	0.09196
Reduced accomplishment	Equal variances assumed	-1.277	432	0.202	-0.11239	-0.28536	0.06058
	Equal variances not assumed	-1.278	431.976	0.202	-0.11239	-0.28527	0.06049

Note: *p<0.05; **p<0.01; ***p<0.001

4.3.2 Variable difference on marital status

Table 4-3 Impact of variances in marital status on research variables

Research variables		Sum of squares	DOF	Mean square	F	Significance	Variance homogeneity
Perceived stress	Intra-group	8.500	2	4.250	5.648	0.004	Yes
	Inter-group	324.339	431	0.753			
	Total	332.839	433				
LMX	Intra-group	2.517	2	1.258	1.627	0.198	Yes
	Inter-group	333.332	431	0.773			
	Total	335.848	433				
Burnout	Intra-group	3.799	2	1.899	4.764	0.009	Yes
	Inter-group	171.853	431	0.399			
	Total	175.652	433				
Emotional exhaustion	Intra-group	6.638	2	3.319	4.411	0.013	Yes
	Inter-group	324.342	431	0.753			
	Total	330.980	433				
Depersonalization	Intra-group	0.035	2	0.018	0.031	0.970	Yes
	Inter-group	247.061	431	0.573			
	Total	247.096	433				
Reduced accomplishment	Intra-group	8.126	2	4.063	4.917	0.008	Yes
	Inter-group	356.176	431	0.826			
	Total	364.302	433				

In this study (See Table 4-3 and table 4-4), the marital status was categorised into unmarried, married without children and married with children. It can be seen that at the 95% confidence level, there is no significant difference in the impact of marital status on the LMX and depersonalization, but there are significant differences on the perceived stress, burnout, emotional exhaustion and reduced accomplishment regarding marital status. Therefore, LSD method is used to study respondents with different marital status.

Table 4-4 shows the results of LSD pairwise comparison of different marital status. It can be seen from the table that in terms of perceived stress, the mean difference between unmarried (3.57±0.05) (Mean±STD, the same below) and married without children (3.27±0.07) is 0.295, and the P value is less than 0.05.

The results show that there are significant differences in perceived stress between unmarried and married without children, and the level of perceived stress of unmarried group is higher than that of married without children.

In terms of burnout, the mean difference between unmarried (3.09±0.04) and married without children (2.91±0.05) is 0.183, and the P value is less than 0.05. The results show that there are significant differences in burnout between unmarried and married without children,

and the level of burnout of unmarried is higher than that of married without children.

Table 4-4 LSD pairwise comparison of respondents with different marital status

Dependent variable			Mean difference (I-J)	Significance
Perceived stress	Unmarried	Married without children	.29545*	0.001
		Married with children	0.16264	0.307
	Married without children	Unmarried	-.29545*	0.001
		Married with children	-0.13281	0.417
	Married with children	Unmarried	-0.16264	0.307
		Married without children	0.13281	0.417
Burnout	Unmarried	Married without children	.18334*	0.004
		Married with children	0.20723	0.074
	Married without children	Unmarried	-.18334*	0.004
		Married with children	0.02389	0.841
	Married with children	Unmarried	-0.20723	0.074
		Married without children	-0.02389	0.841
Emotional exhaustion	Unmarried	Married without children	.24442*	0.006
		Married with children	0.26565	0.096
	Married without children	Unmarried	-.24442*	0.006
		Married with children	0.02123	0.897
	Married with children	Unmarried	-0.26565	0.096
		Married without children	-0.02123	0.897
	Unmarried	Married without children	.26693*	0.004
		Married with children	0.30770	0.066
Reduced accomplishment	Married without children	Unmarried	-.26693*	0.004
		Married with children	0.04077	0.812
	Married with children	Unmarried	-0.30770	0.066
		Married without children	-0.04077	0.812

Note: *p<0.05; **p<0.01; ***p<0.001

In terms of emotional exhaustion, the mean difference between unmarried (3.21±0.06) and married without children (2.97±0.07) is 0.244, and the P value is less than 0.05. The results show that there are significant differences in emotional exhaustion between unmarried and married without children, and the level of emotional exhaustion of unmarried is higher than that

of married without children.

In terms of reduced accomplishment, the mean difference between unmarried (3.12±0.08) and married without children (2.85±0.07) is 0.267, and the P value is less than 0.05. The results show that there are significant differences in reduced accomplishment between unmarried and married without children, and the unmarried responded with higher level of reduced accomplishment than the married without children.

4.3.3 Variable differences on age

In this study (See Table 4-5 and table 4-6), the respondents are divided into several age groups, including 18-27 years old, 28-37 years old, 38-47 years old and over 48 years old. It can be seen that at the 95% confidence level, there is no significant difference in impact of age on the LMX and depersonalization, but there are significant differences on the perceived stress, burnout, emotional exhaustion and reduced accomplishment in terms of different age groups. Therefore, LSD method is used to study different age groups.

The Table 4-6 shows the results of LSD pairwise comparison of different age groups. It can be seen from the table that in terms of perceived stress, the mean difference between respondents aged 18-27 (3.07±0.04) and respondents aged 38-47 (2.69±0.09) is 0.616, and the P value is less than 0.05; the mean difference between respondents aged 28-37 (3.42±0.07) and respondents aged 38-47 (2.92±0.14) is 0.497, and the P value is less than 0.05.

The results show that there are significant differences in perceived stress among 18-27 years old, 28-37 years old and 38-47 years old, and the level of perceived stress of 18-27 and 28-37 ago groups is higher than that of 38-47 age group.

In terms of burnout, the mean difference between 18-27 (3.54±0.05) and 38-47 (2.69±0.09) and between 18-27 (3.54±0.05) and over 48 (2.57±0.14) is 0.381 and 0.506 respectively, and the P value is less than 0.05; the mean difference between 28-37(2.998±0.05) and 38-47 (2.69±0.09) is 0.306, and the P value is less than 0.05. The results show that there are significant differences in burnout among 18-27, 38-47 and over 48 age groups, and the level of burnout of 18-27 age group is significantly higher than that of 38-47 age group and over 48. Meanwhile, the level of burnout of 28-37 age group is significantly higher than that of 38-47 age group.

In terms of emotional exhaustion, the mean difference between 18-27 (3.17±0.06) and 38-47 (2.68±0.14) and between 18-27 (3.17±0.06) and over 48 (2.45±0.23) is 0.496 and 0.721 respectively, and the P value is less than 0.05; and the mean difference between 28-37

(3.11±0.07) and 38-47 (2.68±0.14) and between 28-37 (3.11±0.07) and over 48 (2.45±0.23) is 0.436 and 0.661 respectively and the P value is less than 0.05. The results show that there are significant differences in emotional exhaustion between 18-27, 28-37 and 38-47, over 48 age groups, and the level of emotional exhaustion of 18-27 age group and 28-37 age group is significantly higher than that of 38-47 and over 48 age groups.

Table 4-5 One-way ANOVA of age's effect on variables

		Sum of squares	DOF	Mean square	F	Significance	Variance homogeneity
Perceived stress	Intra-group	11.187	3	3.729	4.985	0.002	Yes
	Inter-group	321.652	430	0.748			
	Total	332.839	433				
LMX	Intra-group	3.460	3	1.153	1.492	0.216	Yes
	Inter-group	332.389	430	0.773			
	Total	335.848	433				
Burnout	Intra-group	5.771	3	1.924	4.869	0.002	Yes
	Inter-group	169.881	430	0.395			
	Total	175.652	433				
Emotional exhaustion	Intra-group	10.376	3	3.459	4.639	0.003	Yes
	Inter-group	320.604	430	0.746			
	Total	330.980	433				
Depersonalization	Intra-group	0.264	3	0.088	0.153	0.928	Yes
	Inter-group	246.832	430	0.574			
	Total	247.096	433				
Reduced accomplishment	Intra-group	9.833	3	3.278	3.976	0.008	Yes
	Inter-group	354.469	430	0.824			
	Total	364.302	433				

Note: *p<0.05; **p<0.01; ***p<0.001

In terms of reduced accomplishment, the mean difference between 18-27 (3.09±0.06) and 38-47 (2.57±0.12) is 0.518, and the P value is less than 0.05; and the mean difference between 28-37 (3.95±0.07) and 38-47 (2.57±0.12) is 0.378 and the P value is less than 0.05. The results show that there are significant differences in reduced accomplishment between 18-27, 28-37 and 38-47 age groups, and the level of reduced accomplishment of 18-27 age group and 28-37 age group is significantly higher than that of 38-47 age group.

Table 4-6 LSD pairwise comparison of different age groups

Dependent variable			Mean difference (I-J)	Sig.
Perceived stress	18-27	28-37	0.11845	0.183
		38-47	.61566*	0.000
		over 48	0.28753	0.356
	28-37	18-27	-0.11845	0.183
		38-47	.49720*	0.003
		over 48	0.16908	0.590
	38-47	18-27	-.61566*	0.000
		28-37	-.49720*	0.003
		over 48	-0.32812	0.338
	over 48	18-27	-0.28753	0.356
		28-37	-0.16908	0.590
		38-47	0.32812	0.338
Burnout	18-27	28-37	0.07541	0.244
		38-47	.38121*	0.001
		over 48	.50621*	0.026
	28-37	18-27	-0.07541	0.244
		38-47	.30580*	0.012
		over 48	0.43080	0.059
	38-47	18-27	-.38121*	0.001
		28-37	-.30580*	0.012
		over 48	0.12500	0.615
	over 48	18-27	-.50621*	0.026
		28-37	-0.43080	0.059
		38-47	-0.12500	0.615
Emotional exhaustion	18-27	28-37	0.05979	0.501
		38-47	.49619*	0.002
		over 48	.72119*	0.021
	28-37	18-27	-0.05979	0.501
		38-47	.43639*	0.009
		over 48	.66139*	0.035
	38-47	18-27	-.49619*	0.002
		28-37	-.43639*	0.009
		over 48	0.22500	0.510
	over 48	18-27	-.72119*	0.021
		28-37	-.66139*	0.035
		38-47	-0.22500	0.510
Reduced accomplishment	18-27	28-37	0.14068	0.132
		38-47	.51819*	0.003
		over 48	0.54944	0.093
	28-37	18-27	-0.14068	0.132
		38-47	.37751*	0.033

		over 48	0.40876	0.215
		18-27	-.51819*	0.003
	38-47	28-37	-.37751*	0.033
		over 48	0.03125	0.931
		18-27	-0.54944	0.093
	over 48	28-37	-0.40876	0.215
		38-47	-0.03125	0.931

Note: *p<0.05; **p<0.01; ***p<0.001

4.3.4 Differences in impact of education level on research variables

In this study (See Table 4-7 and table 4-8), the education level is divided into high school or technical secondary school, college, bachelor, master and doctor. It can be seen that at the 95% confidence level, there is no significant difference regarding education level on the burnout and emotional exhaustion, but there are significant differences on the perceived stress, burnout, depersonalization and reduced accomplishment in the terms of education level. Therefore, LSD method is used to study respondents with different education level.

Table 4-7 One-way ANOVA of education level's effect on variables

		Sum of squares	DOF	Mean square	F	Significance	Variance homogeneity
Perceived stress	Intra-group	13.444	4	3.361	4.514	0.001	Yes
	Inter-group	319.395	429	0.745			
	Total	332.839	433				
LMX	Intra-group	2.203	4	0.551	0.708	0.587	Yes
	Inter-group	333.645	429	0.778			
	Total	335.848	433				
Burnout	Intra-group	7.367	4	1.842	4.695	0.001	Yes
	Inter-group	168.286	429	0.392			
	Total	175.652	433				
Emotional exhaustion	Intra-group	1.713	4	0.428	0.558	0.693	Yes
	Inter-group	329.267	429	0.768			
	Total	330.980	433				
Depersonalization	Intra-group	6.031	4	1.508	2.683	0.031	Yes
	Inter-group	241.066	429	0.562			
	Total	247.096	433				
Reduced accomplishment	Intra-group	17.255	4	4.314	5.332	0.000	Yes
	Inter-group	347.047	429	0.809			
	Total	364.302	433				

Note: *p<0.05; **p<0.01; ***p<0.001

Table 4-8 shows the results of LSD pairwise comparison of respondents with different education level. It can be seen from the table that in terms of perceived stress, the mean

difference between respondents with bachelor degree (3.58±0.06) and respondents with college degree (3.11±0.11) is 0.473; the mean difference between respondents with bachelor degree (3.58±0.06) and respondents with master degree (3.29±0.08) is 0.286, and the P value is less than 0.05. The results show that there are significant differences in perceived stress between bachelor dergee and college, master degree, and the level of perceived stress of bachelor dergeeis significantly higher than that of college, master degree.

Table 4-8 LSD pairwise comparison of respondents with different education level

Dependent variable			Mean difference (I-J)	Sig
Perceived stress	High school or technical secondary school	College	0.41071	0.068
		Bachelor	-0.06257	0.755
		Master	0.22390	0.288
		Doctor	0.16071	0.656
	College	High school or technical secondary school	-0.41071	0.068
		Bachelor	-.47329*	0.000
		Master	-0.18681	0.192
		Doctor	-0.25000	0.444
	Bachelor	High school or technical secondary school	0.06257	0.755
		College	.47329*	0.000
		Master	.28647*	0.005
		Doctor	0.22329	0.472
	Master	High school or technical secondary school	-0.22390	0.288
		College	0.18681	0.192
		Bachelor	-.28647*	0.005
		Doctor	-0.06319	0.842
	Doctor	High school or technical secondary school	-0.16071	0.656
		College	0.25000	0.444
		Bachelor	-0.22329	0.472
		Master	0.06319	0.842
Burnout	High school or technical secondary school	College	0.29190	0.074
		Bachelor	-0.07000	0.631
		Master	0.07231	0.637
		Doctor	0.36333	0.166
	College	High school or technical secondary school	-0.29190	0.074

		Bachelor	-.36190*	0.000
		Master	-.21960*	0.035
		Doctor	0.07143	0.763
	Bachelor	High school or technical secondary school	0.07000	0.631
		College	.36190*	0.000
		Master	0.14231	0.053
		Doctor	0.43333	0.055
	Master	High school or technical secondary school	-0.07231	0.637
		College	.21960*	0.035
		Bachelor	-0.14231	0.053
		Doctor	0.29103	0.206
	Doctor	High school or technical secondary school	-0.36333	0.166
		College	-0.07143	0.763
		Bachelor	-0.43333	0.055
		Master	-0.29103	0.206
	High school or technical secondary school	College	0.12500	0.522
		Bachelor	-0.19461	0.265
		Master	-0.06250	0.733
		Doctor	0.18750	0.550
	College	High school or technical secondary school	-0.12500	0.522
		Bachelor	-.31961*	0.004
		Master	-0.18750	0.132
		Doctor	0.06250	0.826
Depersonalization	Bachelor	High school or technical secondary school	0.19461	0.265
		College	.31961*	0.004
		Master	0.13211	0.133
		Doctor	0.38211	0.157
	Master	High school or technical secondary school	0.06250	0.733
		College	0.18750	0.132
		Bachelor	-0.13211	0.133
		Doctor	0.25000	0.364
	Doctor	High school or technical secondary school	-0.18750	0.550
		College	-0.06250	0.826
		Bachelor	-0.38211	0.157
		Master	-0.25000	0.364
Reduced	High school or	College	.50476*	0.032

accomplishment	technical secondary school	Bachelor	-0.03008	0.886
		Master	0.19936	0.364
		Doctor	0.68333	0.070
	College	High school or technical secondary school	-.50476*	0.032
		Bachelor	-.53484*	0.000
		Master	-.30540*	0.041
		Doctor	0.17857	0.600
	Bachelor	High school or technical secondary school	0.03008	0.886
		College	.53484*	0.000
		Master	.22944*	0.030
		Doctor	.71341*	0.028
	Master	High school or technical secondary school	-0.19936	0.364
		College	.30540*	0.041
		Bachelor	-.22944*	0.030
		Doctor	0.48397	0.143
	Doctor	High school or technical secondary school	-0.68333	0.070
		College	-0.17857	0.600
		Bachelor	-.71341*	0.028
		Master	-0.48397	0.143

Note: *p<0.05; **p<0.01; ***p<0.001

In terms of burnout, the mean difference between respondents with bachelor degree (3.10±0.04) and respondents with master degree (3.96±0.06) is 0.362; the mean difference between respondents with bachelor degree (3.10±0.04) and respondents with college degree (2.74±0.08) is 0.220, and the P value is less than 0.05. The results show that there are significant differences in burnout between bachelor degree, master degree and college degree and the level of burnout of bachelor degree and master degreeis significantly higher than that of college degree.

In terms of depersonalization, the mean difference between respondents with bachelor degree (3.01±0.05) and respondents with college degree (2.60±0.12) is 0.505 and the P value is less than 0.05. The results show that there are significant differences in depersonalization between bachelor degree and college degree and the level of burnout of bachelor degree is significantly higher than that of college degree.

In terms of reduced accomplishment, the mean difference between respondents with

learning experience of high school or technical secondary school (3.10±0.24) and respondents with college degree (2.57±0.12) is 0.518; the mean difference between respondents with bachelor degree (3.13±0.06) and respondents with college degree (2.57±0.12), master degree (2.80±0.09) and doctoral degree (2.42±0.36) is 0.535, 0.229 and 0.713 respectively, and the P value is less than 0.05. The results show that there are significant differences in reduced accomplishment between respondents with learning experience of high school or technical secondary school and respondents with college degree, and also between respondents with bachelor degree and respondents with college degree, master degree and doctoral degree and the level of reduced accomplishment of the former is significantly higher than that of the latter.

4.3.5 Variable differences on working years

Table 4-9 One-way ANOVA of working years' effect on variables

		Sum of squares	DOF	Mean square	F	Significance	Variance homogeneity
Perceived stress	Intra-group	32.688	4	8.172	11.680	0.000	Yes
	Inter-group	300.151	429	0.700			
	Total	332.839	433				
LMX	Intra-group	4.964	4	1.241	1.609	0.171	Yes
	Inter-group	330.884	429	0.771			
	Total	335.848	433				
Burnout	Intra-group	7.759	4	1.940	4.957	0.001	Yes
	Inter-group	167.893	429	0.391			
	Total	175.652	433				
Emotional exhaustion	Intra-group	7.178	4	1.794	2.377	0.051	Yes
	Inter-group	323.802	429	0.755			
	Total	330.980	433				
Depersonalization	Intra-group	3.792	4	0.948	1.671	0.156	Yes
	Inter-group	243.304	429	0.567			
	Total	247.096	433				
Reduced accomplishment	Intra-group	14.385	4	3.596	4.409	0.002	Yes
	Inter-group	349.918	429	0.816			
	Total	364.302	433				

In this study (See Table 4-9 and table 4-10), the “working years” of respondents is divided into less than one year, 1-2 years, 3-5 years, 6-10 years and more than 10 years. It can be seen that at the 95% confidence level, there is no significant difference in the terms of working years on the burnout and emotional exhaustion, but there are significant differences on the perceived stress, burnout and reduced accomplishment in terms of working years. Therefore, LSD method is used to study the respondents with different working years.

Table 4-10 LSD pairwise comparison of respondents with different working years

Dependent variable			Mean difference (I-J)	Sig.
Perceived stress	Less than one year	1-2 years	-.90393*	0.000
		3-5 years	-0.05274	0.832
		6-10 years	0.01524	0.866
		More than 10 years	.34502*	0.027
	1-2 years	Less than one year	.90393*	0.000
		3-5 years	.85119*	0.002
		6-10 years	.91917*	0.000
		More than 10 years	1.24895*	0.000
	3-5 years	Less than one year	0.05274	0.832
		1-2 years	-.85119*	0.002
		6-10 years	0.06798	0.786
		More than 10 years	0.39776	0.157
	6-10 years	Less than one year	-0.01524	0.866
		1-2 years	-.91917*	0.000
		3-5 years	-0.06798	0.786
		More than 10 years	.32978*	0.038
	More than 10 years	Less than one year	-.34502*	0.027
		1-2 years	-1.24895*	0.000
		3-5 years	-0.39776	0.157
		6-10 years	-.32978*	0.038
Burnout	Less than one year	1-2 years	-.32700*	0.004
		3-5 years	0.11189	0.548
		6-10 years	0.03835	0.569
		More than 10 years	.32692*	0.005
	1-2 years	Less than one year	.32700*	0.004
		3-5 years	.43889*	0.036
		6-10 years	.36535*	0.002
		More than 10 years	.65392*	0.000
	3-5 years	Less than one year	-0.11189	0.548
		1-2 years	-.43889*	0.036
		6-10 years	-0.07354	0.695
		More than 10 years	0.21503	0.307
	6-10 years	Less than one year	-0.03835	0.569
		1-2 years	-.36535*	0.002
		3-5 years	0.07354	0.695
		More than 10 years	.28857*	0.015
	More than 10 years	Less than one year	-.32692*	0.005
		1-2 years	-.65392*	0.000
		3-5 years	-0.21503	0.307
		6-10 years	-.28857*	0.015

Reduced accomplishment	Less than one year	1-2 years	-.42241*	0.010
		3-5 years	0.12389	0.645
		6-10 years	0.08807	0.365
		More than 10 years	.45804*	0.007
	1-2 years	Less than one year	.42241*	0.010
		3-5 years	0.54630	0.070
		6-10 years	.51048*	0.002
		More than 10 years	.88045*	0.000
	3-5 years	Less than one year	-0.12389	0.645
		1-2 years	-0.54630	0.070
		6-10 years	-0.03582	0.895
		More than 10 years	0.33415	0.271
	6-10 years	Less than one year	-0.08807	0.365
		1-2 years	-.51048*	0.002
		3-5 years	0.03582	0.895
		More than 10 years	.36997*	0.031
	More than 10 years	Less than one year	-.45804*	0.007
		1-2 years	-.88045*	0.000
		3-5 years	-0.33415	0.271
		6-10 years	-.36997*	0.031

Note: *p<0.05; **p<0.01; ***p<0.001

Table 4-10 shows the results of LSD pairwise comparison of respondents with different working years. It can be seen from the table that in terms of perceived stress, the mean difference between respondents with 1-2 years of working experience (4.30±0.06) and respondents with less than one year of working experience (3.40±0.06), 3-5 years of working experience (3.45±0.24), 6-10 years of working experience (3.38±0.08) and more than 10 years of working experience (3.05±0.15) is 0.903, 0.851, 0.919 and 1.249 respectively, and the P value is less than 0.05. The mean difference between respondents with 6-10 years of working experience (3.38±0.08) and respondents with more than 10 years of working experience (3.05±0.15) is 0.330 and the P value is less than 0.05.The results show that there are significant differences in perceived stress between respondents with less than one year of working experience and respondents with other working years, and also between respondents with 6-10 years of working experience and more than 10 years of working experience and the level of perceived stress of the former is significantly higher than that of the latter.

In terms of burnout, the mean difference between respondents with 1-2 years of working experience (3.35±0.09) and respondents with less than one year of working experience (3.02±0.04), 3-5 years of working experience (2.91±0.20), 6-10 years of working experience (2.98±0.06) and more than 10 years of working experience (2.70±0.08) is 0.327, 0.439, 0.365

and 0.654 respectively, and the P value is less than 0.05.

The mean difference between respondents with 6-10 years of working experience (2.98±0.06) and respondents with more than 10 years of working experience (2.70±0.08) is 0.289 and the P value is less than 0.05.The mean difference between respondents with less than one year of working experience (3.02±0.04)and respondents with more than 10 years of working experience (2.70±0.08) is 0.327 and the P value is less than 0.05.The results show that there are significant differences in burnout between respondents with 1-2 years of working experience and respondents with other working years, between respondents with 6-10 years of working experience and respondents with more than 10 years of working experience, and between respondents with less than one year of working experience and respondents with more than 10 year of working experience and the level of burnout of the former is significantly higher than that of the latter.

In terms of reduced accomplishment, the mean difference between respondents with 1-2 years of working experience (3.45±0.11) and respondents with less than one year of working experience (3.03±0.07), 6-10 years of working experience (2.94±0.08) and more than 10 years of working experience (2.57±0.69) is 0.422, 0.510 and 0.880 respectively, and the P value is less than 0.05. The mean difference between respondents with 6-10 years of working experience (2.94±0.08) and respondents with more than 10 years of working experience (2.57±0.69) is 0.370 and the P value is less than 0.05.The mean difference between respondents with less than one year of working experience (3.03±0.07)and respondents with more than 10 years of working experience (2.57±0.69) is 0.458 and the P value is less than 0.05.The results show that there are significant differences in reduced accomplishment between respondents with 1-2 years of working experience and respondents with less than one year of working experience, 6 years of working experience and more than 10 years of working experience, between respondents with 6-10 years of working experience and respondents with more than 10 years of working experience, and between respondents with less than one year of working experience and respondents with more than 10 year of working experience and the level of reduced accomplishment of the former is significantly higher than that of the latter.

4.4 Correlation analysis

The pairwise correlation between perceived stress, LMX, burnout and its three sub-dimensions (emotional exhaustion, depersonalization and reduced accomplishment) is studied.

The results are shown in Table 4-11.

Table 4-11 Correlation analysis of variables

	1	2	3	4	5	6
Perceived stress	1					
LMX	-.360**	1				
Burnout	.685**	-.416**	1			
Emotional exhaustion	.499**	-.298**	.729**	1		
Depersonalization	.448**	-.257**	.634**	.314**	1	
Reduced accomplishment	.547**	-.345**	.809**	.299**	.303**	1

Note: *p<0.05; **p<0.01; ***p<0.001

Table 4-11 shows that research variables are positively and significantly correlated. There is a positive correlation between perceived stress and burnout. Meanwhile, there is a significant positive correlation between perceived stress and emotional exhaustion, depersonalization and reduced accomplishment, which are three dimensions of burnout. These results privde preliminary supports for Hypothesis 1 that perceived stress is positively related to burnout and its three dimensions.

4.5 Regression analysis

Based on the correlation analysis, the research hypotheses are further tested using regression analysis, including the analysis of the impact of perceived stress on burnout, emotional exhaustion, depersonalization and reduced accomplishment.

4.5.1 Analysis of the impact of perceived stress on burnout

In order to conduct the regression analysis of perceived stress on burnout, the first step is to analyze the influence of control variables on burnout and establish model 1; the second step is to analyze the impact of perceived stress on burnout and construct model 2.

From the Table 4-12, we can find that the perceived stress has a significant positive impact on burnout (β=0.669, p<0.001). That is, the stronger perceived stress, the higher the degree of burnout. The high level of perceived stress easily leads to burnout. Therefore, hypothesis 1 “perceived stress is positively related to burnout”, is supported.

Table 4-12 Regression analysis of perceived stress on burnout

		Model 1β	Model 2β
Control variables	Gender	0.043	0.031
	Marital status	-0.067	-0.027
	Age	-0.400*	-0.105
	Education level	0.026	0.021
	Working years	0.298	0.063
Independent variable	Perceived stress		.669***
Goodness of fit of model	R^2	.048	.475
	adjusted R^2	.037	.468
	F value	4.329**	64.405***

Note: *p<0.05; **p<0.01; ***p<0.001

4.5.2 Analysis of the impact of perceived stress on emotional exhaustion

In order to conduct the regression analysis of perceived stress on emotional exhaustion, the first step is to analyze the influence of control variables on emotional exhaustion and establish model 3; the second step is to analyze the impact of perceived stress on emotional exhaustion and construct model 4.

From the Table 4-13, we can find that the perceived stress has a significant positive impact on emotional exhaustion (β=0.477, p<0.001). That is, the stronger the perceived stress, the higher the degree of emotional exhaustion. When the clinicians experience higher level of job stress, they are more likely to lose control of emotions and suffer from burnout. Therefore, hypothesis 1a “perceived stress is positively related to emotional exhaustion”, is supported.

Table 4-13 Regression analysis of perceived stress on emotional exhaustion

		Model 3 β	Model 4β
Control variables	Gender	0.007	-0.002
	Marital status	-0.071	-0.042
	Age	-0.386*	-0.175
	Education level	0.027	0.023
	Working years	0.300	0.133
Independent variable	Perceived stress		.477***
Goodness of fit of model	R^2	.042	.259
	adjusted R^2	.030	.248
	F value	3.721**	24.824***

Note: *p<0.05; **p<0.01; ***p<0.001

4.5.3 Analysis of the impact of perceived stress on depersonalization

In order to conduct the regression analysis of perceived stress on depersonalization, the

first step is to analyze the influence of control variables on depersonalization and establish model 5; the second step is to analyze the impact of perceived stress on depersonalization and construct model 6.

From the Table 4-14, we can find that the perceived stress has a significant positive impact on depersonalization (β=0.457, p<0.001). That is, the stronger the perceived stress, the higher the degree of depersonalization. When the clinicians experience higher level of job stress, they are more likely to take bad attitudes towards patients. Therefore, hypothesis 1b "perceived stess is positively related to depersonalization", is supported.

Table 4-14 Regression analysis of perceived stress on depersonalization

		Model 5 β	Model 6 β
Control variables	Gender	0.029	0.021
	Marital status	0.032	0.060
	Age	-0.190	0.012
	Education level	0.036	0.033
	Working years	0.166	0.006
Independent variable	Perceived stress		0.457***
Goodness of fit of model	R^2	.008	.207
	adjusted R^2	-.004	.196
	F value	0.674**	18.591***

Note: *p<0.05; **p<0.01; ***p<0.001

Table 4-15 Regression analysis of perceived stress on reduced accomplishment

		Model 7 β	Model 8 β
Control variables	Gender	0.054	0.044
	Marital status	-0.078	-0.045
	Age	-0.284*	-0.049
	Education level	0.004	0.000
	Working years	0.187	0.001
Independent variable	Perceived stress		0.532***
Goodness of fit of model	R^2	.038	.307
	adjusted R^2	.027	.298
	F value	3.373*	31.593***

Note: *p<0.05; **p<0.01; ***p<0.001

4.5.4 Analysis of the impact of perceived stress on reduced accomplishment

In order to conduct the regression analysis of perceived stress on reduced accomplishment,

the first step is to analyze the influence of control variables on reduced accomplishment and establish model 7; the second step is to analyze the impact of perceived stress on reduced accomplishment and construct model 8.

From the Table 4-15, we can find that the perceived stress has a significant positive impact on reduced accomplishment (β=0.532, $p<0.001$). That is, the stronger the perceived stress, the higher the degree of reduced accomplishment. When the clinicians experience higher level of job stress, they are more likely to have a perception of low personal accomplishment. Therefore, hypothesis 1c "perceived stress is positively related to reduced accomplishment", is supported.

4.6 Analysis of moderating effect of LMX

This study hypothesizes that the LMX plays a moderating role between perceived stress and burnout and its three dimensions. In order to analyze the moderating effect of LMX, the variables need to be centralized. Specifically, the first step is to analyze the influence of independent variable on dependent variables; secondly, conduct regression analysis of the impact of independent variable and moderating variable simultaneously on dependent variables; finally, conduct regression analysis of the independent variable, moderating variable and the interaction term independent variable and moderating variable (perceived stress x LMX) on dependent variables. If the coefficient of product term is significant and R^2 increases significantly, the hypothesis regarding the moderating effect of LMX is supported.

4.6.1 Moderating role of LMX on relationship between perceived stress and burnout

According to the analysis steps of moderating effect, the first step is to analyze the influence of control variables on burnout and build model 2; secondly, analyze the influence of perceived stress (β=0.600, $p<0.001$), LMX (β=-0.195, $p<0.001$) on burnout, and establish model 9. Thirdly, perform regression analysis of the impact of perceived stress, LMX and the interaction term perceived stress x LMX on the dependent variable, and construct model 10.

According to the analysis results shown in the Table 4-16, we found that after introducing the product term of independent variable and moderating variable, the effect of product term on burnout was negative and significant (β=-0.224, $p<0.001$), and meanwhile R^2 increased from 0.508 to 0.557. Therefore, LMX had a significant and negative moderating effect between perceived stress and burnout. That is, the stronger the LMX, the less the impact of perceived stress on burnout. Therefore, high quality LMX can reduce the likelihood and alleviate the

degree of burnout. It is necessary to pay attention to the quality of leader-member exchange. Hypothesis 2 “LMX will moderate the relationship between perceived stress and burnout such that the relationship is weaker for clinicians with higher quality of leader-member exchange (LMX)”, is supported.

Table 4-16 LMX's moderating effect on the relationship between perceived stress and burnout

		Model 2 β	Model 9 β	Model 10 β
Control variables	Gender	0.043	0.019	0.028
	Marital status	-0.067	-0.022	-0.027
	Age	-0.400	-0.103	-0.094
	Education level	0.026	0.029	0.051
	Working years	0.298	0.057	0.059
Independent variable	Perceived stress		0.600***	0.616***
Moderating variable	LMX		-0.195***	-0.194***
Moderating effect	Perceived stress×LMX			-0.224***
Goodness of fit of model	R^2	.048	.508	.557
	adjusted R^2	.037	.500	.549
	F value	4.329**	62.781***	66.846**

Note: *p<0.05; **p<0.01; ***p<0.001

As shown in the Figure 4-1, according to the analysis results of moderating effect, LMX has a negative moderating effect on the relationship between perceived stress and burnout (β=-0.224, p<0.001).

4.6.2 Moderating role of LMX on relationship between perceived stress and emotional exhaustion

According to previous analysis steps of moderating effect, the first step is to analyze the influence of control variables on emotional exhaustion and build model 4; secondly, analyze the influence of perceived stress (β=0.429, p<0.001), LMX (β=-0.136, p<0.01) on emotional exhaustion, and establish model 11; thirdly, conduct regression analysis of the impact of perceived stress, LMX and the interaction term perceived stress x LMX on the dependent variable, and construct model 12.

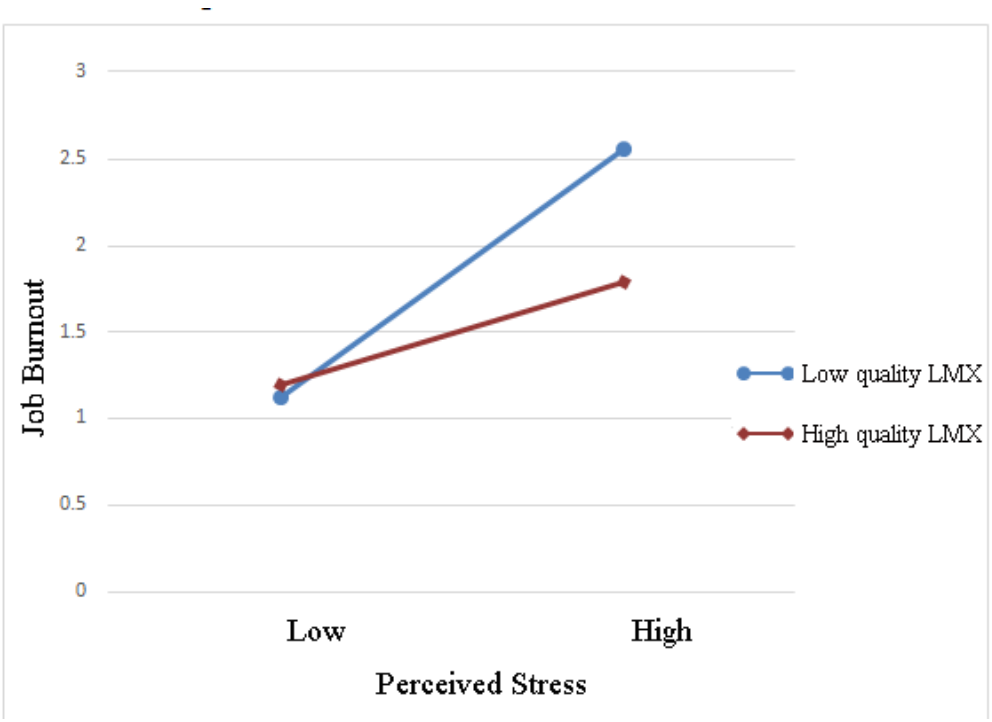

Figure 4-1 The moderating effect of LMX on the relationship between perceived stress and burnout

According to the analysis results shown in the Table 4-17, we found that after introducing the product term of independent variable and moderating variable, the effect of product term on emotional exhaustion was negative and significant (β=-0.157, $p<0.001$), and meanwhile R^2 increased from 0.275 to 0.299. Therefore, LMX had a significant and negative moderating effect between perceived stress and emotional exhaustion. That is, the stronger the LMX, the less the impact of perceived stress on emotional exhaustion. Therefore, high-quality LMX can reduce the likelihood and alleviate the degree of emotional exhaustion. The hypothesis 2a "LMX will moderate the relationship between perceived stress and emotional exhaustion such that the relationship is weaker for clinicians with higher quality of leader-member exchange (LMX)", is supported.

Table 4-17 LMX's moderating effect on the relationship between perceived stress and emotional exhaustion

		Model 4 β	Model 11 β	Model 12 β
Control variables	Gender	0.007	-0.010	-0.004
	Marital status	-0.071	-0.039	-0.043
	Age	-0.386**	-0.174	-0.168
	Education level	0.027	0.029	0.044
	Working years	0.300*	0.129	0.130
Independent variable	Perceived stress		0.429***	0.440***
Moderating variable	LMX		-0.136**	-0.136**
Moderating effect	Perceived stress×LMX			-0.157***
Goodness of fit of model	R^2	.042	.275	.299
	adjusted R^2	.030	.263	.286
	F value	3.721**	23.040***	22.647***

Note: *p<0.05; **p<0.01; ***p<0.001

As shown in the Figure 4-2, LMX has a negative moderating effect on the relationship between perceived stress and emotional exhaustion (β=-0.157, p<0.001).

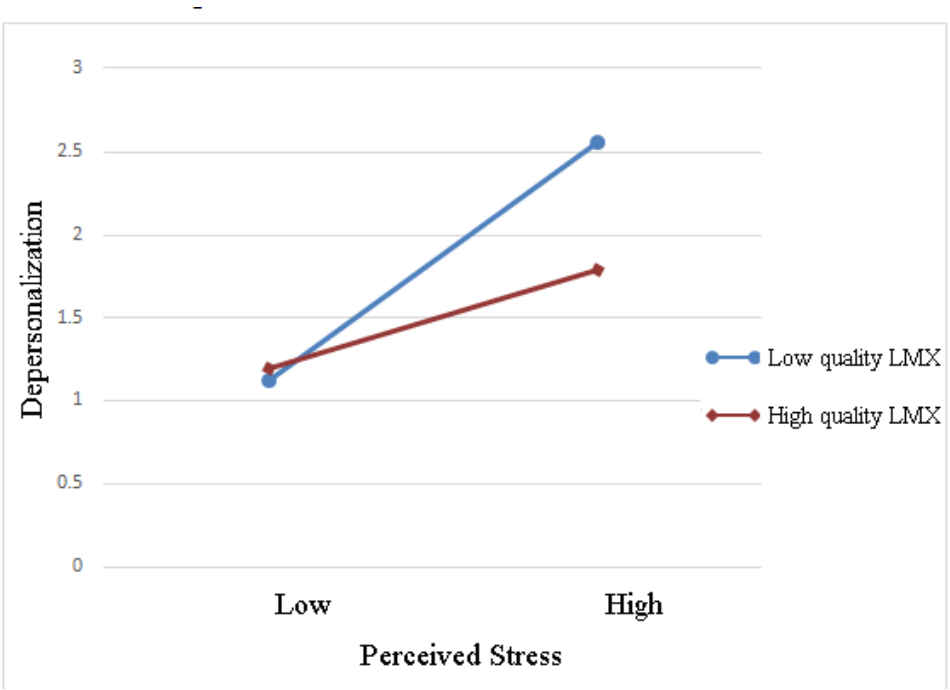

Figure 4-2 The moderating effect of LMX on the relationship between perceived stress and emotional exhaustion

4.6.3 Moderating role of LMX on relationship between perceived stress and depersonalization

According to previous analysis steps, the first step is to analyze the influence of control variables on depersonalization and build model 6; secondly, analyze the influence of perceived stress (β=0.418, p<0.001), LMX (β=-0.112, p<0.05) on depersonalization, and establish model 13; thirdly, conduct regression analysis of the impact of perceived stress, LMX and the interaction term perceived stress x LMX on the dependent variable, and construct model 14.

Table 4-18 LMX's moderating effect on the relationship between perceived stress and depersonalization

		Model 6 β	Model 13 β	Model 14 β
Control variables	Gender	0.029	0.014	0.020
	Marital status	0.032	0.062	0.058
	Age	-0.190	0.013	0.019
	Education level	0.036	0.037	0.054
	Working years	0.166	0.002	0.004
Independent variable	Perceived stress		0.418***	0.429***
Moderating variable	LMX		-0.112**	-0.112**
Moderating effect	Perceived stress×LMX			-0.164***
Goodness of fit of model	R^2	.008	.218	.244
	adjusted R^2	-.004	.205	.230
	F value	0.674	16.969***	17.191***

Note: *p<0.05; **p<0.01; ***p<0.001

According to the analysis results shown in the Table 4-18, we found that after introducing the product term of independent variable and moderating variable, the effect of product term on depersonalization was negative and significant (β=-0.164, p<0.001), and meanwhile R^2 increased from 0.218 to 0.244. Therefore, LMX had a significant and negative moderating effect between perceived stress and depersonalization. That is, the stronger the LMX, the less the impact of perceived stress on depersonalization. Therefore, high-quality LMX can reduce the perceived stress and clinicians will improve their attitudes towards patients. The hypothesis 2b “LMX will moderate the relationship between perceived stress and depersonalization such that the relationship is weaker for clinicians with higher quality of leader-member exchange (LMX)”, is supported.

As shown in the Figure 4-3, LMX has a negative moderating effect on the relationship between perceived stress and depersonalization (β=-0.112, p<0.001).

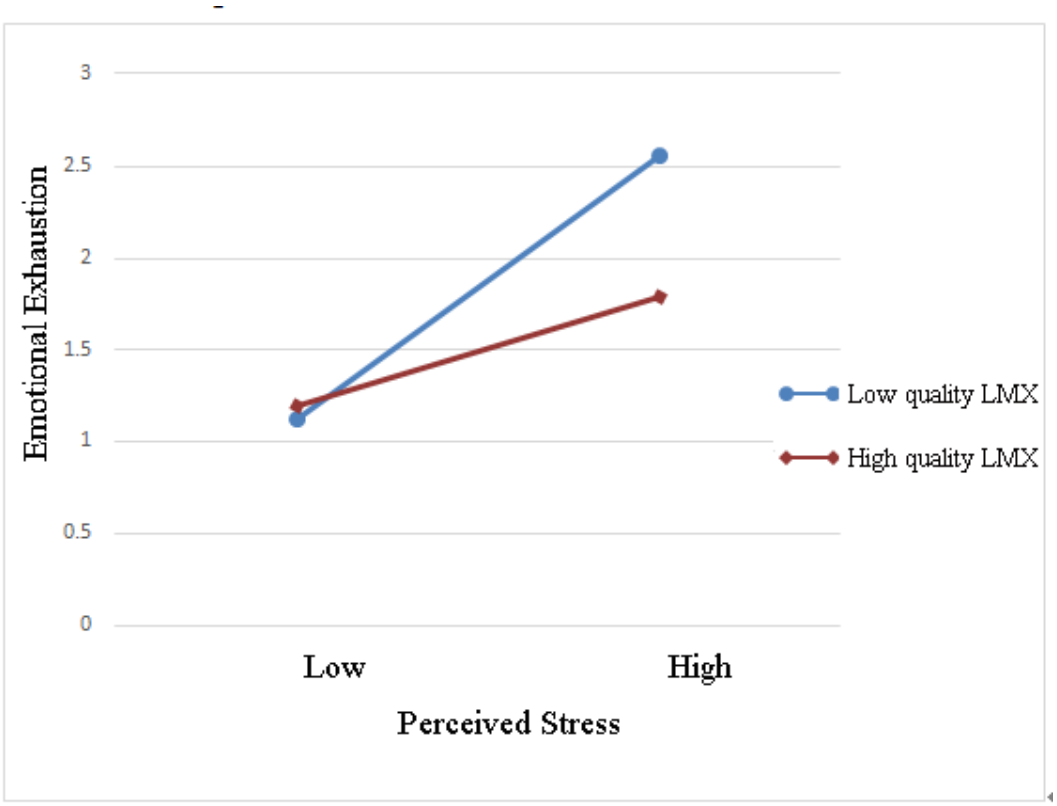

Figure 4-3 The moderating effect of LMX on the relationship between perceived stress and depersonalization

4.6.4 Moderating role of LMX on relationship between perceived stress and reduced accomplishment

Table 4-19 LMX's moderating effect on the relationship between perceived stress and reduced accomplishment

		Model 8 β	Model 15 β	Model 16 β
Control variables	Gender	0.054	0.034	0.041
	Marital status	-0.078	-0.041	-0.045
	Age	-0.284	-0.047	-0.041
	Education level	0.004	0.007	0.024
	Working years	0.187	-0.004	-0.003
Independent variable	Perceived stress		0.472***	0.484***
Moderating variable	LMX		-0.168***	-0.167***
Moderating effect	Perceived stress×LMX			-0.174***
Goodness of fit of model	R^2	.038	.332	.362
	adjusted R^2	.027	.321	.350
	F value	3.373**	30.222***	30.103***

Note: *p<0.05; **p<0.01; ***p<0.001

According to previous analysis steps of moderating effect, the first step is to analyze the influence of control variables on reduced accomplishment and build model 8; secondly, analyze the influence of perceived stress (β=0.331, p<0.001), LMX (β=-0.123, p>0.05) on reduced accomplishment, and establish model 15; thirdly, conduct regression analysis of the impact of perceived stress, LMX and the interaction term perceived stress and LMX on the dependent variable, and construct model 16 (see Table 4-19).

As shown in the Figure 4-4, LMX has a negative moderating effect on the relationship between perceived stress and reduced accomplishment (β=-0.174, p<0.001), which provides data support for the following research results.

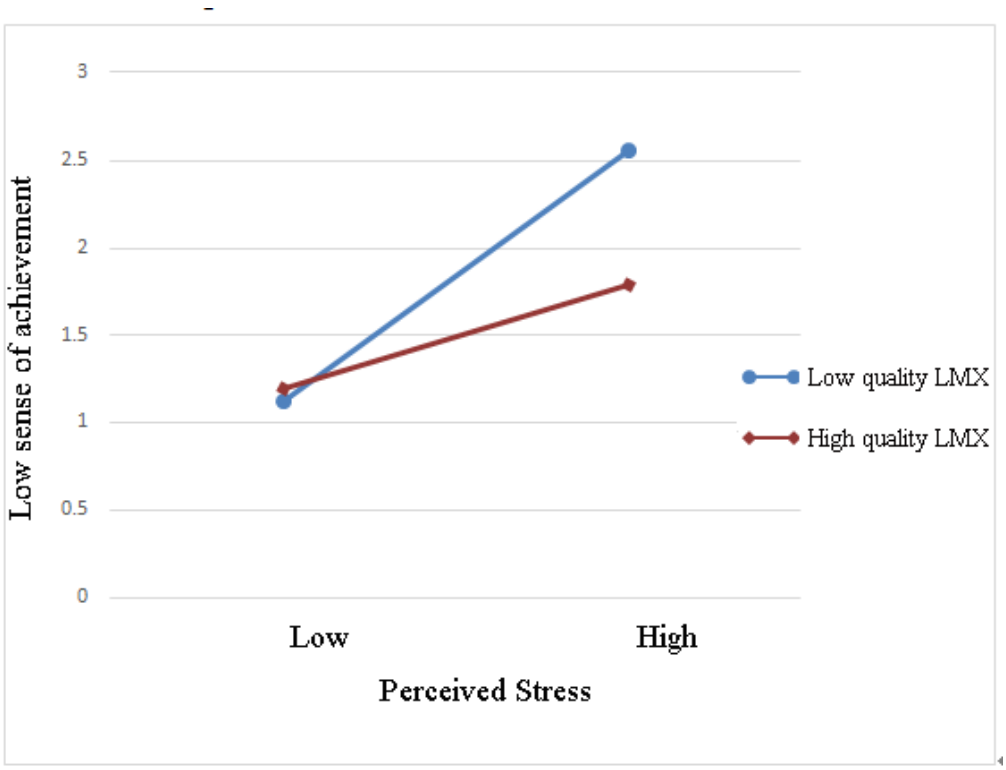

Figure 4-4 The moderating effect of LMX on the relationship between perceived stress and reduced accomplishment

4.7 Chapter summary

Based on collected data, this chapter conducts descriptive statistics, analysis of impact of control variables on each variable, correlation analysis, regression analysis and moderating effect analysis to test the research hypothesis. As expected, we find that perceived stress has a significant positive impact on burnout (β=0.669, p<0.001), perceived stress has a significant positive effect on emotional exhaustion (β=0.477, p<0.001), perceived stress has a significant

positive effect on depersonalization ($\beta=0.457$, $p<0.001$), and perceived stress has a significant positive effect on reduced accomplishment ($\beta=0.532$, $p<0.001$). Lastly, LMX moderate the relationship between perceived stress and burnout and its three dimensions such that the relationship is weaker for clinicians with higher quality of leader-member exchange (LMX).

Chapter 5: Research Findings and Discussions

Based on the results of hypothesis testings, this chapter discusses the following three aspects: (1) the general situation of key variables; (2) variance analysis results; (3) results of hypothesis testings.

5.1 General situation of research variables

The research variables in this study include perceived stress, burnout (including emotional exhaustion, depersonalization and reduced accomplishment) and LMX. The mean of perceived stress was 3.44, the standard deviation was 0.88; the mean of LMX was 2.84, the standard deviation was 0.88; the mean of burnout was 3, the standard deviation was 0.64; the mean of emotional exhaustion was 3.1, the standard deviation was 0.87; the mean of depersonalization was 2.92, the standard deviation was 0.76; and the mean of reduced accomplishment was 2.99 and the standard deviation was 0.92.

The results reveal that perceived stress, burnout and emotional exhaustion were relatively high while the LXM is low. In other words, the respondents from the sampled hospitals in this study reported high level of stress, burout and emotional exchaustion while low level of LMX quality. Such findings may alarm attentions on the well-being of Chinese clinicians. However, this study also suggests that there are significant differences among different demograpic groups which are discussed next.

5.2 Variance analysis results

5.2.1 Maritas status

In this study significant differences were reported on perceived stress, burnout, emotional exhaustion and reduced accomplishment in term of marital status. Among the three categories of marital status, that is, categorised into unmarried, married without children and married with children, the unmarried group reported significantly higher levels of perceived stress, burnout, emotional exhaustion and reduced accomplishment than that of married without children. Such results are interesting and intriguing as normally we would expect the single population has a

much more relaxed and less stress work and life. The interpretation of such findings is the following.

Firstly, respondents with different marital status face different sources of pressure. For example, the single group in general may have heavier workload in hospital and are not experienced to hanldle press. While the married group without children may have supports from the spouse to better handle work press. In addition, respondents with different marital status will allocate different efforts and energy while dealing with different kinds of affairs, therefore they respond with different level of burnout, emotional exhaustion and sense of achievement. More importantly, the unmarried clinicians are generally young, most of them are post-90s who have a better living environment and rarely face pressure. Therefore, they are more sensitive to stress. As a result, the unmarried respondents experience a higher level of perceived stress, burnout, emotional exhaustion and reduced accomplishment than married and childless respondents. Therefore, the hospitals and society need to pay more attention to the negative situation of unmarried clinicians. We can also find that unmarried young people have a higher chance of job-hopping. In response, efforts should be made to help young clinicians relieve negative emotions so as to mitigate the negative impact.

5.2.2 Age groups

In terms of different age groups, this study also reported statistically significant difference on perceived stress, burnout, emotional exhaustion and reducedaccomplishment. In generall, younger age groups (e.g. 18-27 and 28-37 years old) reported significantly higher levels of perceived stress, burnout, emotional exhaustion and reduced accomplishment than older age group, particularly 38-47 age group.

The reason may be that after many years of severe tests and experience in the high-intensity work, older clinicians can properly adjust psychological status and effectively cope with the job stress and high pressure. On the contrary, the younger clinicians have less work experience, so their cognition and evaluation of stress are different from those of experienced clinicians. Therefore, different psychological endurance ability leads to different degree of perceived stress, burnout, reduced accomplishment and emotional exhaustion. The enlightenment from the variance analysis is that we should control the degree of emotional exhaustion of clincian aged 18-37 and take appropriate measures to conduct emotional management.

5.2.3 Education level

In terms of education levels, there are statistically significant differences on perceived stress, burnout, depersonalization and reduced accomplishment. Specifically, a) bachelor degree holders reported significantly higher level of perceived stress than that of college, master degree; b) bachelor degree holders and master degree holders reported significantly higher level of burount than that of college degree holders; c) respondents with high school or technical secondary school reported higher level of reduced accomplishment than those with college education; in addition, respondents with bachelor degree reported higher level of reduced accomplishment than respondents with college degree, master degree and doctoral degree. Overall, the bachelor degree holders reported severe negative perceptions.

The primary reason might be in the sampled hospitals, the bachelor degree holders work in the frontline and shoulder key responsibilities of their organizations, thus experiencing higher level of stress and burout. The other possible reasons may be that different educational levels result in different level of skills and competencies to deal with their work. Whether they regard stress as a negative thing or a driving force largely determines the level of burnout, sense of accomplishment and even the service attitude towards patients. According to results of differences analysis, we need to give more incentives to clinicians with education experience of high school or secondary technical school, bachelor degree and master degree so as to reduce their burnout and reduced accomplishment caused by the loss of resources.

5.2.4 Tenure/Working years

In terms of working years, there are significant differences reported on perceived stress, burnout and reduced accomplishment. Specifically, a) respondents with less than one year of working experience reported significantly higher level of stress than those with more than one year work experience; b) respondents with 6-10 years of working experience reported higher level of perceived stress, burnout and reduced accomplishement than those with more than 10 years of working experience: c) respondents with 1-2 years of working experience reported higher level of burnout than respondents with other working years; d) respondents with less than one year of working experience reported higher level of burnout than respondents with more than 10 year of working experience; e) respondents with 1-2 years of working experience reported higher level of reduced accomplishment than respondents with less than one year of working experience; f) respondents with 6-10 years of working experience reported higher level of reduced accomplishment than respondents with more than 10 years of working experience.

Overall, the results suggest that new recruits (e.g. less than one-year work experience) and young clinicians (e.g 1-2 years work experience) experienced high stress and burnout while who with more than 10 years reported the lowest level of stress and burount. This is possible because respondents with different working years have widely different work experience and different level of skills where the younger group have less experience and skills to fulfill their job, thus experience higher stress and burout. However, it is also possible that the young clinicans were assigned to take more workload while the senior clinicians take advantage of their young colleagues' extra work. In this sense, there might exist "bullying" phenomenon of "eating young". Therefore, in addition to providing more trainig (e.g. orientation) to help the newly recruits and young clinicians to cope with their work, the hospitals need to review organization culture (e.g. hierarchical culture) and encourage team work and coaching so that the senior will support and help the young colleagues rather than "bully" them.

5.3 Results of hypothesis testing

Based on the theories of perceived stress, leader-member exchange, burnout and its three dimensions, this study explores the relationship between perceived stress, burnout and its three dimensions and LMX. The results show LMX has a negative moderating effect on the main effect.

We can find that the hypotheses H1 are all supported. Perceived stress has a positive impact on burnout, that is, the higher the perceived stress, the stronger the degree of burnout. Specifically, the impact of perceive stress on three dimensions is as follows: perceived stress has a positive impact on emotional exhaustion, the higher the perceived pressure, the stronger the emotional exhaustion; perceived stress has a positive impact on depersonalization, the higher the perceived pressure, the stronger the depersonalization; perceived stress has a positive impact on reduced accomplishment, the higher the perceived pressure, the lower the degree of reduced accomplishment. This study shows that LMX has a moderating effect between perceived stress and burnout, and also plays a negative moderating role between perceived stress and three dimensions of burnout. Specifically, the stronger the degree of LMX, the weaker the influence of perceived stress on burnout and its three sub-dimensions, including emotional exhaustion, depersonalization and reduced accomplishment. Therefore, hypothesis H1, H2 and their sub-hypotheses are all supported. The results of the study will be further discussed.

5.3.1 Relationship between perceived stress and burnout

This study explored the relationship between perceived stress and burnout among clinicians. It was found that perceived stress positively affected burnout and its three dimensions. Specificially, H1 (Perceived stress is positively related to burnout), H1a (Perceived stress is positively related to emotional exhaustion), H1b (Perceived stress is positively related to depersonalization) and H1c (Perceived stress is positively related to reduced accomplishment) were supported in this study. That is, the higher the perceived stress, the stronger the degree of burnout, emotional exhaustion, depersonalization and reduced accomplishment.

At present, the previous studies have shown that perceived stress has impact on people's health (Lv et al., 2010), which can affect individual's physical condition to a certain extent. Therefore, we will examine whether perceived stress can affect employees' mental state at work. In previous studies, it is found that perceived stress can affect subjective well-being (Jiang et al., 2011) and employees' intention to leave their jobs (Sun et al, 2012). Therefore, based on previous research results, we can make bold assumptions that perceived stress can also affect burnout of clincian, one of the antecedent variables of turnover intention. At the same time, in order to carefully analyze the negative psychological state of clincian, the burnout is subdivided into three sub-dimensions. The results of this study show that stress, as an external force, can cause tension and uncontrollability among clincian, which is manifested in the sense of strains and loss of mental resources, bad attitudes towards patients, low work engagement, as well as the debasement of self-worth and the work value. Therefore, for the clincian, in order to alleviate their burnout, it is necessary to take measures to release their perceived stress first, which is not only conducive to the psychological health of the clincian, but also the patients' evaluation of the hospital as a whole.

According to the job requirement-resource model and coping theory, job resources plays a positive role in reducing burnout. Clinicians tend to reduce or even not invest resources to maintain the current situation, but the reality is often that the gains are direct proportional to the investment. When clinicians experience strong perceived stress, the lack of psychological resources will lead to burnout, which is manifested in emotional exhaustion. In this case, clinicians tend to release their negative emotions to patients, which results in low work performance and reducedpersonal accomplishment. The results are consistent with previous studies on perceived stress and burnout (Li et al., 2017). Perceived stress not only has an impact on occupational emotions, but also on subjective well-being (Jiang et al., 2011). When it comes to healthcare sector, whether the perceived stress also has an equal impact on burnout is one of

the main issues discussed in this study. Clincian's burnout has always been the focus of attention among heathcare industry. This is because that the burnout not only negatively affects the physical and mental health of clinicians, but also affects the doctor-patient relationship. Therefore, more attention should be paid to it. There are abundant studies on the sources of perceived stress. But in terms of the consequences of perceived stress, few studies focus on whether the perceived stress of clincian will lead to their burnout. Doctor is a special occupation and therefore the study of burnout can not only alleviate their burnout, but also ensure the quality medical services. According to previous studies, we found that clinicians under long-term high pressure are more likely suffer from health problems (Lv et al., 2010).

The perceived pressure of clinicians easily leads to physical discomfort, memory loss, tension and uncontrollability, which is generally manifested in emotional exhaustion. Emotional exhaustion will bring many problems, which not only has negative effects on the clincian, but also on the environment and others around them. Besides, clinicians under pressure always have a sense of strain and physical health problems (Xu et al., 2013), resulting in negative emotions that cause work-family conflict, low level of job well-being (Liu et al., 2017), and bad attitudes towards service recipients, also known as depersonalization. Meanwhile, perceived stress also has an impact on turnover intention (Sun et al., 2012), so we can conclude that when clinicians are under pressure, they may passively think that their job and self-worth are worthless and meaningless, so they have the intention to leave their jobs. The turnover intention results from the reducedaccomplishment and losing confidence in oneself and work. This study aims at exploring whether perceived stress can cause burnout among clincian. The results show that the perceived stress can lead to burnout and the negative emotions, ultimately resulting in bad attitudes towards patients and alienating behaviors and even damage of hospital reputation. Perceived stress may also lead clinicians to debase the value of themselves and their work. Previous studies heavily focused on the causes of stress, but there were few studies on the negative effects of perceived stress on clincian. Therefore, the study on the impact of perceived stress on burnout and its three dimensions has certain reference value.

5.3.2 Moderating effect of LMX on relationship between stress and burount

This study explores the relationship between perceived stress, LMX and burnout (including its three dimensions). The results show that LMX can reduce the negative impact of perceived stress on burnout. Specifically, Hypothesis 2 (LMX will moderate the relationship between perceived stress and burnout such that the relationship is weaker for clinicians with

higher quality of leader-member exchange (LMX), was supported. So are Hypothesis 2a, 2b, 2c, which state LMX will moderate the relationship between perceived stress and emotional exhaustion, depersonalization and reduced accomplishment such that the relationship is weaker for clinicians with higher quality of leader-member exchange (LMX).

Previous studies have shown that the LMX plays a moderating role between perceived stress and burnout of teachers (Huang et al., 2009). However, doctor is a special occupation that is always exposed to high pressure and high intensity work. As a result, clinicians are more likely to experience burnout caused by perceived stress. In this case, the leader-member exchange can be used to improve the mentality of clincian. According to the incentive and contribution theory, the leaders can use their exclusive resources as incentives to motivate subordinates to make contributions. Through high-quality LMX, the psychological resources of clincian can be compensated to a certain extent, thus alleviating the impact of perceived stress on burnout and emotional exhaustion. In addition, the evaluation of perceived stress at work and self-worth is the result of a variety of combined factors such as work itself, employee's values and external environment.

The moderating role of LMX on relationship between perceived stress and burout, including its three dimesions can be justified with social exchange theory and conservation of resources theory. The theory of social exchange holds that one person has a good knowledge of how he or she gains or gives in an interaction or friendship with another person. Although he/she do not purposely calculate these rewards and costs, they will give an overall assessment of whether the relationship makes them get more (rewards more than costs) or lose more (costs more than rewards). The theory of social exchange makes an analysis of the rewards and costs in the social interactions and holds that an individual is rewarded while paying out (Sun et al, 2016).

Drawing on social exchange theory, it is understandable that when clinicans develop and have high quality LMX with their supervisors, they will be rewarded with more resources and supports from their supervisors. A good leader-member exchange relationship can play a positive role in the work engagement and achievement motive of employees. Therefore, LMX has a significant moderating effect on depersonalization and reduced accomplishment. As a result, LMX help to buffer the negative impact of perceived stress on burnout and its three dimensions. The perceived stress of clinicians resulting from internal and external environment and various stressors will lead to burnout. LMX can reduce the negative effects of bad management style on employees' behaviors such as employee reticent behavior (Yan, 2012).

The conservation of resource theory (COR theory) holds that individuals have the instinct to acquire and maintain their own resources. When they sense they have lost or will lose some resources, or have slim hope to gain new resources. For the clincian, the stress-induced tension and loss of emotional resources will have a negative impact. Howver, high quality LMX is an important resource for clinicans to leverage. Therefore, when there is high quality LMX between leaders and subordinates, LMX will alleviate the negative effects of perceived stress on burnout because the leaders can provide scarce and excellent resources to their trusted subordinates to compensate for the loss of their psychological resources. At the same time, emotional exhaustion, the core dimension of burnout, is also the result of the depletion of physical and psychological resources. Research shows that LMX can significantly reduce the negative effect of perceived stress on emotional exhaustion. This is because the depletion of emotional resources at work can be compensated by other means. For example, when leaders have a high-quality exchange relationship with subordinates, the in-group members will have resources and advantages that others do not have, which can reduce the degree of emotional exhaustion.

The study also found that LMX plays a negative moderating role between perceived stress and other two dimensions of burnout, namely depersonalization and reduced accomplishment. This result is consistent with our hypothesis. Depersonalization refers to the indifferent and alienated attitudes of service staff towards the service recipients. The job of clinicians is essentially categorized into service industry. The clinicians under high-pressure environment are more likely to suffer from negative emotions and attitudes. As a result, they are highly depersonalized in process of treating patients. Leader-member exchange, as a form of exchange relationship between leaders and subordinates, can provide emotional resources for employees and help to beter manage the loss of resource and stress. When the clincian is depersonalized due to high pressure, the high quality LMX can minimize some negative effects, thereby alleviating the influence of perceived pressure on depersonalization. Besides, the perceived stress of clinicians will result in reduced accomplishment.

In response, the leaders and employees can jointly resolve the problem through leader-member exchange. On the one hand, leaders can help subordinates to analyze the causes of stress and provide corresponding solutions. On the other hand, employees can have a self-reflection asking themselves questions about what is the mission of the current job and why there is reduced accomplishment and what kind of help they hope to get from leaders. Through this analysis of problems and self reflection, clincian can keep up their spirits and get back on

track at work, so as to achieve a sense of accomplishment in their work and reduce the impact of perceived stress on reduced accomplishment.

5.4 Chapter summary

This chapter summarizes and discusses the overall research finding with relevant theories. It first discusses the differences on each variable in terms of control variables, followed by discussion on the hypothesis testings.

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Chapter 6: Research Conclusions and Implications

6.1 Main conclusions

Guided by Job Demands-Resources (JD-R) model and social exchange theory, this study examined the relationship between perceived stress, burnout and leader-member exchange (LMX), and explored the moderating role of LMX in managing the job burnout caused by perceived stress among clincians in China. With a sample of 434 valid responses collected from three hospitals in Guangzhou China, this study employed IBM SPSS 19.0 and AMOS 21.0 software and conducted a series of analyses, including variance analysis, correlation analysis, regression analysis to test the research hypotheses.

The main conclusions include the following. First of all, the level of perceived stress, burnout and emotional exhaustion of clincian surveyed in this study are higher while the quality of LMX is low. Second, there are significant differences on perceived stress and burnout among different demographic groups of respondents. For example, the young and junior clinicians reported higher level of stess and burnout than those old and senior clinicans. Third, the perceived stress of clincian has a positive impact on burnout and its three dimensions, and LMX plays a negative moderating role in the above main effects.

To some extent, the findings enrich the relevant research on the moderating role of LMX on relationship between perceived stress and burnout with underresearched sample of Chinese clinicians. The findings also have implications for better managing stress and burnout among clinicians, as it is discussed next.

6.2 Managerial implications

According to the results of descriptive statistical analysis, the level of perceived stress, burnout and emotional exhaustion of clincian is relatively high, and the pressure of clincian has always been high compared with other occupations, so it has become the research focus of this study. Because doctor is special occupation whose service recipients are patients, the doctor-patient relationship has caused heightened attention (Ma, Xu, Trigo & Ramalho, 2017). If the clinicians suffer burnout, the doctor-patient relationship may be negatively affected. Therefore,

it is of great importance to study whether the perceived stress of clincian has an impact on burnout, and whether LMX as a moderating variable can weaken the effect of perceived stress on burnout. On the basis of the previous empirical research, we offer the following suggestions for the medical administrative departments and hospital managers:

6.2.1 Implication for policymakers

For policymakers, it is necessary to strengthen the policy support for the clincian. We should renew our concept and establish a more scientific human resource management method, which is the first step to help clincian to reduce burnout. Firstly, the government needs to make health planning, establish and improve the resource allocation mechanism, and alleviate the pressure of hospitals and clincian. Secondly, efforts should be made to rationalize the position setting of clincian and give full play to the role of social forces in it. Thirdly, we should establish a reasonable hierarchical system for clincian, stabilize the medical team and help them expand their career development space. Besides, the relevant medical laws and regulations should be improved to ensure the physical and mental health of medical personnel and provide a harmonious medical environment.

In addition, we need to improve the medical system and insurance mechanism. Firstly, we should increase investment in medical organizations and promote the reform of medical system. Currently hospitals in China are responsible for their own profits and losses, and thus are under great pressure. At the same time, they need to ensure the quality of service. In fact, many medical expenses are ultimately paid by patients, and therefore the doctor-patient relationship becomes strained. Therefore, it is necessary to increase medical investment so as to alleviate the economic pressure of hospitals and increase the welfare benefits of clincian so that they can better and more comfortably provide medical services.

The government needs to improve the relevant legislation and establish a comprehensive medical development system. This purpose is mainly to determine the legitimate rights and interests of doctors and patients. With the enhancement of people's legal awareness, people pay more and more attention to their health. However, at present, the medical laws and regulations are not perfect and thus it is necessary to add some exemption clauses in medical activities, and meanwhile severely punish illegal activities.

Finally, we should strengthen the legal awareness of doctors and patients as a way to solve the problem from the ideological root. At present, medical accidents occur frequently. We need to strengthen the publicity of relevant laws so that patients and their families can have a clear

understanding of the doctor-patient relationship. At the same time, it is necessary for clincian to learn to safeguard their rights and interests through legal means.

6.2.2 Implications for Hospital Managers

The hospital managers should take measures to reduce the burnout of clincian from the following several aspects:

1) Analyze the sources of pressure and take measures to manage burount

The research results show that the perceived stress of clincian will lead to burnout and more serious consequences such as bad service attitudes and abasement of self-worth and work value. Therefore, in order to ensure the physical and mental health of clincian and establish a better working environment for them, it is proposed to analyze the sources of pressure of clincian and take measures to control and reduce the pressure. Especially from the results of the variance analysis, we can find that the marital status, education level and working years are associated with different levels of stress and burnout. For exmaple, we need to pay more attention to the pressure and burnout faced by young clinicians and medical employees with short and long length of service. From the perspective of external environment, hospitals should establish a good working environment for clinicians, including public opinion environment and hospital internal environment, so that they can work in a good, harmonious and comfortable environment; from the perspective of clincian, hospitals should provide perfect training and psychological counseling from them. Hospitals should not only pay attention to the physical and mental health of patients, but also to that of clincian.

2) Work out ways to relieve stress and alleviate the perceived stress of clinicians

It is necessary to formulate policies that support clincian, such as shortening the clincian's duty time to ensure rest; formulating employee assistance plans to help them do well in logistical support; and establishing a long-term and stable health care model for clincian.

The research results show that perceived stress can significantly affect the burnout of clincian, so we need to control the source of work stress. The results of hypothesis test show that LMX plays a moderating role in the relationship between perceived stress and burnout. Therefore, leaders need to establish good relationships with their subordinates in order to relieve the mental stress faced by clincian. Firstly, in non-working days, it is advised that hospitals should organize some recreational activities and gatherings to enhance the feelings among clincian and relax their body and mind. Secondly, hospitals can build fitness and recreational

places to create a more comfortable atmosphere for clincian to work and live better, which can help them to reduce their pressure and the degree of burnout. Thirdly, strengthen psychological counseling and improve the ability of clincian to deal with stress. Besides organizing recreational activities, hospitals need to organize clincian to learn mental health knowledge regularly so as to provide psychological counseling and help the clincian learn the effective ways of communicating with patients and the methods of self-regulation and relief, thus improving work efficiency and quality; Fourthly, clincian experiencing high pressure should actively seek help and unburden themselves by pouring hearts out to someone else, thereby reducing their tension and uncontrollability. Finally, clincian should enhance legal awareness and understand the basic legal knowledge in order to standardize medical practices and protect themselves and patients.

For hospital and hospital managers, it is necessary to strengthen the construction of hospital information system. Doctors have to face many patients and process a lot of information every day. If the information is not effectively delivered in time or takes a lot of time to communicate, it will certainly pose a bigger burden on the doctor's work. Therefore, hospitals need to vigorously promote information technology and ensure the convenient use of doctors' information tools.

6.2.3 Implication for clinicians

The research results of high-quality LMX indicate that LMX can significantly alleviate the impact of stress on burnout and reduce tension and uncontrollability caused by loss of emotional resources of clinicians. Besides the communication skills with patients, clincian should establish good leader-member exchange relationship with supervisors because quality LMX is effective resoures. This result enlightens us that we have ways to alleviate the adverse consequences caused by perceived stress of clincian. By establishing a high-quality LMX, leaders and employees can form a circle of insiders. When pressure arises, clincian can communicate effectively with their immediate superiors. On the one hand, such communication can directly relieve employees' pressure and burnout. On the other hand, when leaders understand the actual situation of employees, they will take some measures to help them relieve pressure, and provide resources to support them. Both of these methods can help clincian to reduce the degree of burnout, thus effectively avoiding negative intentions and behaviors. This enlightens us that the establishment of a high-quality LMX is beneficial to leaders, clincian and organizations.

Besides, doctors also need to be good at self-regulation. First, they need to have a proper diet, reduce physical stress and avoid the burden on the body. Secondly, they need to ensure adequate sleep so that they have abundant energy in their work. Third, they should exercise properly and listen to music to relax themselves. Finally, they should vent their grievances and troubles at work to family members or friends so that the pressure can also be reduced.

6.3 Research limitations

There are also some research limitations in this study as follows:

(1) In this study, the surveyed samples are general clincian without considering their specific positions and subdivided specialties. In the medical field, clinicians in different medical departments experience different degrees and types of pressure. Therefore, when studying the relationship between perceived stress and burnout of clincian, this factor has not been taken into account, so there are design defects to some extent.

(2) The scales used in this study are all widely-used and heavily-studied scales at home and abroad. Although the Chinese scholars have confirmed they have good reliability and validity, the differences in cultural background and environment may cause misunderstandings among Chinese respondents, thus resulting in the deviations between the collected data and the actual situation of the respondents.

(3) In this study, the questionnaire is independently completed by each respondent, which may easily lead to common method variance, thus reducing the validity of the sample.

6.4 Research prospect

Based on the specificity of medical profession and the study of the relationship between perceived stress, burnout and LMX, this study thinks that the future research can be carried out and extended from the following aspects:

(1) Analyze the differences of perceived stress of clincian in different medical departments, so as to study the impact of different kinds of job stress on the burnout. At the same time, we can further explore the in-depth impact mechanism of perceived stress on burnout and enrich the research design.

(2) Design a China-specific scale to study the relationship between perceived stress and burnout among Chinese clinicians, and test the reliability and validity of the scale, so as to

accurately measure the actual situation of respondents and obtain data with less deviation.

(3) Match the research data of leaders with that of subordinates in order to reduce the common method variance and ensure the reliability of data.

(4) Study the dynamic changes of perceived stress with the passage of time, and study the interactions between variables according to the changes, so as to put forward more meticulous suggestions for reducing perceived stress and burnout of clincian.

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Appendix 1: Questionnaire

Questionnaire on job burnout of clinicians

Dear Sir/Madam,

I am a doctoral student from the Southern Medical University. Thank you very much for your participation in the questionnaire survey on the relationship between perceived stress, job burnout and LMX. This survey is conducted anonymously and the data collected will be used for the purpose of research only. There is no standard answer to all the questions. Please rest reassured to answer all questions according to your actual experience and true feelings. Thank you very much for your support and cooperation!

Part 1: Basic information of samples

1. Gender: ☐Male ☐ Female

2. Marital status: ☐Unmarried ☐Married without children☐Married with children

3.Age: ☐Below 27☐28-37☐38-47☐Above 47

4.Educational Level: ☐High school or technical secondary school☐College

☐Bachelor☐Master☐Doctor

5.Working years: ☐Less than 1 year ☐1-2 years☐3-5 years ☐6-10 years☐Over 10 years

Part 2: Perceived stress scale

Please tick the number using the scale of 1 to 5 to express your approval degree according to your actual conditions. The higher the score, the more consistent the statement is with your actual situation.

No.	Item	Extremely disagree	Disagree	Neither disagree nor agree	Argee	Extremely agree
1	Feel disturbed and upset about something unexpected	1	2	3	4	5
2	Feel unable to control important things in life	1	2	3	4	5
3	Feel nervous and stressed	1	2	3	4	5
4	Successful in dealing with annoying things in life	1	2	3	4	5
5	Able to effectively handle important changes in life	1	2	3	4	5
6	Feel confident in handling your problems	1	2	3	4	5
7	Feel that things are developing according to your wishes	1	2	3	4	5
8	You find that you cannot accomplish what you have to do	1	2	3	4	5
9	Being able to deal with the unpleasant things in life	1	2	3	4	5
10	Feeling able to control things in your life	1	2	3	4	5
11	Feeling angry about something that is out of your control	1	2	3	4	5
12	Find yourself always keeping something you have to do on mind	1	2	3	4	5
13	Feeling able to control how you use your time	1	2	3	4	5
14	Find that problems have piled up and remain unsolved	1	2	3	4	5

Part 3: LMX Scale

Please tick the number using the scale of 1 to 5 to express your approval degree according to your actual conditions. The higher the score, the more consistent the statement is with your actual situation.

No.	Item	Extremely disagree	Disagree	Neither disagree nor agree	Argee	Extremely agree
1	How do you feel about your working relationship with your supervisor?	1	2	3	4	5
2	Supervisors use their powers to help you solve your difficulties with tasks	1	2	3	4	5
3	You think your supervisor understands your potential	1	2	3	4	5
4	You think your supervisor knows your problems and needs at work.	1	2	3	4	5
5	You know your supervisor is satisfied with your work performance.	1	2	3	4	5
6	Your supervisor will sacrifice his own interests to help you get out of your work difficulties.	1	2	3	4	5
7	You have full confidence in your supervisor, and even if he or she is absent, you will believe in and support his or her decisions.	1	2	3	4	5

Part 4: Job burnout scale

Please tick the number using the scale of 1 to 5 to express your approval degree according to your actual conditions. The higher the score, the more consistent the statement is with your actual situation.

No.	Item	Extremely disagree	Disagree	Neither disagree nor agree	Argee	Extremely agree
Emotional exhaustion						
1	Work makes me exhausted physically and mentally.	1	2	3	4	5
2	I feel exhausted after work.	1	2	3	4	5
3	I have to drag myself to work in the morning and have trouble getting started, which makes me very tired.	1	2	3	4	5
4	Working all day is really stressful for me.	1	2	3	4	5
5	Work gives me a sense of nearing a breakdown.	1	2	3	4	5
Depersonalization						
6	Since I took this job, I have become less and less interested in it.	1	2	3	4	5
7	I am not as enthusiastic about my work as I used to be.	1	2	3	4	5
8	I doubt if the work I have done is meaningful.	1	2	3	4	5
9	I am increasingly not care about the contribution of my work.	1	2	3	4	5
Reduced accomplishment						
10	I can effectively solve problems in my work.	1	2	3	4	5
11	I think I am making a positive contribution to the health undertakings.	1	2	3	4	5
12	I think I am good at my job.	1	2	3	4	5
13	I am very happy when I finished some of the work.	1	2	3	4	5
14	I have done a lot of valuable work.	1	2	3	4	5
15	I am confident that I can accomplish all kinds of work effectively.	1	2	3	4	5

End of the questionnaire. Thank you for your support and participation.

Appendix 2: Descriptive statistical analysis

Table Descriptive statistical analysis

	Nr.of samples	Minimum value	Maximum value	Mean value	Standard deviation
Perceived stress	434	1.50	4.93	3.4437	0.87675
LMX	434	1.14	4.71	2.8361	0.88070
Burnout	434	1.47	4.47	3.0080	0.63692
Emotional exhaustion	434	1.00	5.00	3.0995	0.87429
Depersonalization	434	1.25	4.75	2.9182	0.75542
Reduced accomplishment	434	1.17	5.00	2.9916	0.91725