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Does Leadership Style Moderate the Relationship between Job Demands, Job Resources and Doctors' Job Performance? Evidence from Traditional Chinese Medicine Hospitals

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Doctor of Management

Supervisor:

PhD MA Shaozhuang, Associate Professor with Habilitation,  
ISCTE University Institute of Lisbon

March, 2024



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Marketing, Operations and General Management Department

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## Abstract

Over the past decade, the Chinese government has vigorously promoted the development of traditional Chinese medicine (TCM) hospitals. However, in comparison to the rapid and effective diagnostic methods of Western medicine, TCM hospitals primarily rely on manual diagnostic techniques. As a result, their performance lags behind that of their Western counterparts. This paper aims to investigate the association between work demands (workload and emotional demands), work resources (salary levels and promotion opportunities), and doctors' job performance in TCM hospitals through the lens of the Job Demands-Resources Model. Additionally, it examines the moderating effects of different leadership styles (transformational and transactional leadership) on doctors' job performance.

Using 958 valid questionnaires collected from 10 TCM hospitals in Guangdong Province, regression analysis revealed that (1) job resources (salary level and promotion opportunity) were positively associated with the work engagement of employees in TCM hospitals; (2) job demands (emotional demands and workload) were positively associated with burnout of employees in TCM hospitals; (3) work engagement played a mediating role between job resources (salary level and promotion opportunity) and job performance; (4) burnout played a mediating role between job demands (emotional demands and workload) and job performance; and (5) transformational leadership accentuated the relationship between job resources (salary level and promotion opportunity) and job performance.

The findings of this research contribute to a deeper understanding of the challenges encountered by TCM hospitals. These results hold significant implications for policymakers and hospital administrators in areas such as human resource development and management, leadership styles, and the emotional demands of doctors. Furthermore, this study extends the application of the Job Demands-Resources Model to the context of TCM hospitals in China, thereby enriching the existing literature in this field.

**Keywords:** Job Demands-Resources Model; job performance; traditional Chinese medicine hospitals; transformational leadership; transactional leadership

**JEL:** M54; J5

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## Resumo

Na última década, o governo chinês promoveu vigorosamente o desenvolvimento de hospitais de medicina tradicional chinesa (MTC). No entanto, em contraste com a medicina ocidental com métodos de diagnóstico rápidos e eficazes, os hospitais de MTC baseiam-se principalmente em técnicas de diagnóstico manuais. Consequentemente, o seu desempenho fica aquém do dos seus congêneres ocidentais. Com base no Modelo Exigências-Recursos do Trabalho (*Job Demands-Resources*), esta tese tem como objetivo investigar a associação entre as exigências do trabalho (volume de trabalho e exigências emocionais), os recursos do trabalho (níveis salariais e oportunidades de promoção) e o desempenho profissional dos médicos nos hospitais de MTC. Além disso, examina os efeitos moderadores dos diferentes estilos de liderança (liderança transformacional e transacional) no desempenho profissional dos médicos.

Utilizando 958 questionários válidos reconhecidos em 10 hospitais de MTC na província de Guangdong, a análise de regressão revelou que (1) os recursos do trabalho (níveis salariais e oportunidades de promoção) estavam positivamente associados ao compromisso com o trabalho (*work engagement*) dos trabalhadores dos hospitais de MTC; (2) as exigências do trabalho (exigências emocionais e volume de trabalho) estavam positivamente associadas ao esgotamento (*burnout*) dos trabalhadores dos hospitais de MTC; (3) o compromisso com o trabalho desempenhou um papel mediador entre os recursos do trabalho (níveis salariais e oportunidades de promoção) e o desempenho profissional; (4) o esgotamento desempenhou um papel mediador entre as exigências do trabalho (exigências emocionais e volume de trabalho) e o desempenho profissional; e (5) a liderança transformacional acentuou a relação entre os recursos do trabalho (níveis salariais e oportunidades de promoção) e o desempenho profissional.

Os resultados desta investigação contribuem para uma compreensão mais profunda dos desafios enfrentados pelos hospitais de MTC. Têm implicações significativas para os decisores políticos e os administradores hospitalares em áreas como o desenvolvimento e a gestão dos recursos humanos, os estilos de liderança e as exigências emocionais dos médicos. Além disso, esta investigação estende a aplicação do Modelo Exigências-Recursos do Trabalho ao contexto dos hospitais de MTC na China, enriquecendo assim a literatura neste domínio.



**Palavras-chave:** Modelo Exigências-Recursos do Trabalho; desempenho profissional; hospital de medicina tradicional chinesa; liderança transformacional; liderança transacional

**JEL:** M54; J5

## 摘要

尽管过去一个世纪中国政府大力倡导中医发展，但相对于西医快速有效的检测和诊断，中医院主要依赖人工诊断特性使其绩效一直无法与西医竞争。本论文拟立足于中医院情境，基于工作要求-资源模型，探讨中医院中的工作要求（工作负荷和情绪负荷）和工作资源（薪资水平和晋升机会）对医生工作绩效的影响机制与影响效果，以及不同领导风格（变革型领导与交易型领导）在其中的调节作用。

利用在广东省内的10家公立三甲中医院收回的958份有效问卷。回归分析发现：（1）工作资源（薪资水平、晋升机会）与中医院员工的工作投入正相关。（2）工作要求（情绪负荷、工作负荷）与中医院员工的工作倦怠正相关（3）工作投入在工作资源（薪资水平、晋升机会）与工作绩效的关系中起中介作用。（4）工作倦怠在工作要求（情绪负荷、工作负荷）与工作绩效的关系中起负向的中介作用。（5）变革型领导加强了工作资源（薪资水平、晋升机会）与工作绩效之间的正相关关系。

研究结果有助于更好地了解中医院管理上面临的挑战，对于政策制定者和医院管理者在人力资源发展和管理，领导风格和医生的情绪管理方面有重要启示。本研究也拓展了工作要求资源模型在中国中医院情景下的应用，丰富了这一领域的文献。

**关键词：**工作要求-资源模型；工作绩效；中医院；变革型领导；交易型领导

**JEL:** M54; J5

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At this moment, my doctoral thesis is about to be completed, and I am full of excitement and anxiety. I feel excited because the years of study and exploration have finally ushered in outcomes, the years of thinking and effort have yielded a return, and the years of hard work and waiting have finally paid off. However, my anxiety stems from the fact that although I have made a great effort and received the careful guidance of Professor Ma Shaozhuang and the strong support of my colleagues, I am well aware that the thesis is not flawless and that there is still room for improvement.

Looking back on the writing process of this thesis, I deeply recognize that writing a doctoral thesis is like moving forward in the mire, which always comes with a lot of difficulties and hardships, and of course, it brings joy when difficulties are overcome. My unremitting efforts are certainly essential to the completion of this thesis; however, without the foundation laid by previous research and without those scientific and rational findings, theories, and research methods, my research would have been groundless; without my supervisor's careful and timely guidance, I would have lost in my research direction; without the assistance from my professors, colleagues, and other individuals, it would be difficult for me to complete this journey alone.

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在南方医科大学这片美丽校园里度过的学习时光让我心身愉悦，每一次参加博士课程时，我都在向往着有机会前往葡萄牙里斯本大学学院，与全球化多元化专家学者们聆听他们的谆谆教诲，并与更多博士班同学和专业领域深入交流。我期待在这浩瀚的知识海洋中获得更多的收获与成长。

此刻，博士论文即将完成，我的内心充满着激动和不安。激动之处在于多年的学习和探索终于迎来了成果，多年的思考和付出终于有所回应，多年的辛劳和等待也终于有了回报。然而，不安之情却源自于虽然我付出了巨大的努力，得到了马绍壮教授的悉心指导和同学们的大力支持，但我深知论文一定还存在着纰漏，还有不足之处需要改进。

回顾这篇论文的写作历程，我深刻地感受到撰写博士论文犹如在泥潭中前行，时时感到艰难困苦，当然也时常体验到克服困难的喜悦。这篇论文的完成，个人的不懈努力固然至关重要，但若非前人的研究奠定了基础，若没有前人那些闪耀着科学与理性的学术观点、理论与研究方法，我将失去论文研究的根基；若没有导师的悉心指导和及时的点拨，我将迷失论文研究的方向；若没有老师、同学以及其他人的帮助，我也将难以独自支撑。

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## **List of Abbreviations**

BO = Burnout

ED = Emotional demands

JD-R = Job Demands-Resources

PE = Job performance

PR = Promotion opportunity

SA = Salary level

TCM = traditional Chinese medicine

TRC = Transactional leadership

TRF = Transformational leadership

WE = Work engagement

WL = Workload

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## **Chapter 1: Introduction**

In this chapter, we will put forward our research questions based on the practical and theoretical background of traditional Chinese medicine (TCM) hospitals. We will also present the novelty, research methods, research framework, and research roadmap of our research and briefly introduce the content of each chapter of this thesis.

### **1.1 Practical background**

#### **1.1.1 Development and opportunities of TCM hospitals in China**

Due to the strong support of China's national policies on the macro level, traditional Chinese medicine (TCM) has developed rapidly. TCM hospitals, with TCM as their core, have also undergone rapid development, becoming an indispensable component of the health care system.

Compared with general hospitals, TCM hospitals started relatively late, with 87.5% of them established after the Third Plenary Session of the Eleventh Central Committee of the Communist Party of China. On average, the establishment of TCM hospitals was 15 years later than that of general hospitals. According to the *2020 Chinese Hospitals' Influence Ranking*, TCM hospitals are still far lagging behind general hospitals. Some TCM hospitals still exhibit problems such as the lack of a complete management system and distinctive advantages. Therefore, it is urgent to use modern management methods to improve medical outcomes, social benefits, and patient satisfaction.

TCM hospitals are guided by the theory of TCM. It is a complete TCM theoretical system that is based on the holistic view, centered on the theories of zang-fu and meridians, and characterized by syndrome differentiation and treatment, emphasizes the organic combination of conditioning, method, prescription, and medicine, and adepts at combining methods such as acupuncture, tuina (massage), and dietotherapy. TCM hospitals are set up according to the traditional characteristics of TCM. The names of some disciplines are similar to those in Western medicine hospitals, but the methods used for diagnosis and treatment are based on TCM. The use of drugs follows the principle of combining TCM with Western medicine. The assessment of TCM diagnosis and treatment and the evaluation of scientific research achievements are based on the TCM theoretical system and the characteristics of TCM.



TCM hospitals and the TCM departments of general hospitals are the main forces in inheriting and developing China's national traditional medicine and are professional medical service providers (Yin, 2013). The health and social problems exposed by Chinese hospitals and the resulting medical problems in the past 30 years of development are, inevitably, also found in TCM hospitals. Similar to Western medicine hospitals, TCM hospitals face the dilemma of insufficient investment and relying on drugs to support the hospital; in addition, they also encounter obstacles and bottlenecks caused by their own characteristics. Therefore, compared with Western medicine hospitals, TCM hospitals face more challenges in their development, which will be addressed in detail in the following section.

### **1.1.2 Challenges faced by TCM hospitals**

#### **1.1.2.1 Low economic benefits of TCM hospitals and low salary and welfare of doctors**

In China, due to insufficient government financial investment, public hospitals need to obtain income through medical services to maintain their operation and development. As a result, the major hospitals in China are in a competitive relationship. According to the data of *China Health Statistical Yearbook 2020* released by the National Health Commission of China in November 2020, the number of TCM hospitals in China for the first time exceeded 5,000 in 2019; the total number of TCM outpatient departments and TCM clinics surpassed 60,000. In the highly competitive medical service market, TCM hospitals are often in a disadvantageous position compared with Western medicine hospitals in terms of operating income due to the following reasons.

First of all, from the perspective of the price, the price of medical services in TCM hospitals tends to be lower than that in Western medicine hospitals. The treatment methods of TCM are mainly acupuncture, tuina, and Chinese herbal medicine, among others. They have lower operation difficulty and lower equipment requirements and therefore, are charged lower prices. The treatment methods in Western medicine hospitals are mainly drug treatment and surgeries, which impose greater difficulty in operation and high requirements for equipment, and consequently, the charge is relatively high. At present, the service fee of medical institutions is mainly determined based on the frequency of use of devices and equipment, rather than personnel engagement. As a result, fees for diagnosis and treatment items that rely on advanced equipment (e.g., TCM orthopedics and anorectal treatment) are higher because of the more frequent equipment use. However, in TCM services of diagnosis and treatment, the professional knowledge and practical experience of doctors are of more value because traditional Chinese

herbal medicine treatment relies on the diagnosis by methods of “observing, listening to breathing, asking about symptoms, and taking the pulse” (Song et al., 2022). Since TCM treatment items only rely on traditional techniques (e.g., acupuncture and tuina), they have relatively low costs. This reflects the problem in the current medical service pricing system: it puts too much weight on equipment costs and too little on human resources. Due to this price difference in medical services, TCM hospitals have lower profitability and lower revenue than Western medicine hospitals, where more advanced and costly testing devices are utilized. Generally speaking, TCM diagnosis and treatment is characterized by its simplicity, convenience, low cost, and effectiveness. It brings practical benefits to the public but results in the low income of the hospital, making the salary of TCM doctors uncompetitive, threatening the survival and development of the hospital. At present, TCM hospitals have not been able to successfully address the dilemma of relying on “Western medicine to support TCM”.

Moreover, from the perspective of drugs, the drugs in TCM hospitals are mainly Chinese crude drugs and Chinese patent drugs, the price of which is usually lower than that of Western drugs. The price of Chinese crude drugs is affected by factors such as planting, gathering, and processing, and the price of Chinese patent drugs is affected by production costs and market supply and demand. In contrast, the drugs in Western medicine hospitals are mainly chemical drugs and biological drugs, which usually have high R&D and production costs, and thus their prices are relatively high. Such drug differences result in a lower total income of TCM hospitals than that of Western medicine hospitals.

Finally, with respect to medical insurance and financial support, in China's medical insurance system, the reimbursement ratio for Western medicine treatment is generally higher than that of TCM treatment, which constrains the economic benefits of TCM hospitals and the choice of patients; meanwhile, the government's financial support and subsidies for TCM hospitals may also be inferior to those for Western medicine hospitals.

The above-mentioned factors cause TCM hospitals to have lower incomes and the doctors' salaries in TCM hospitals to be less competitive.

#### **1.1.2.2 TCM talent cultivation dilemma, long cycle, and promotion difficulty**

From the perspective of the external environment of TCM hospitals, in China, Western medicine has received more education and scientific research support. Most medical schools, universities, and research institutes focus on the education and research of Western medicine. Comparatively, there is less investment in TCM education and scientific research, which leads to TCM talent cultivation and TCM technology development lagging behind. At present, a

problem in China's talent education system is that the talent is "global but not refined, and global but not complete". That is, the TCM doctors who can adapt to the development of modern science and technology cannot provide effective medical services, while those with effective diagnosis and treatment skills struggle to keep up with technological progress. That constitutes an obstacle to the development of the TCM industry with the times. When students choose a specific medical field for further study, they need to master a lot of seemingly unrelated knowledge that may not be useful in the short term. Since this knowledge has not been integrated into practice or the theoretical framework, a usual result is that "what is learned cannot be used and will be forgotten easily". Therefore, although the total number of TCM talents continues to grow, we still face a serious shortage of talent in certain fields, especially in innovation and interdisciplinary ability. This shows that more efforts are needed to improve the overall quality of TCM talents.

Due to the unique characteristics of TCM, the number of experts in related fields is limited, and the talent pool is in shortage (J. Lin et al., 2022). In addition, in the traditional way of education, talents have been cultivated by means of "mentorship and apprenticeship", which prolongs the talent growth process in the field of TCM. Currently, in China, the teaching mode and curriculum system for the new generation is characterized by its comprehensiveness and generalness from an early age; it is not until the university stage that students will be exposed to TCM-related disciplines. During the few years, many of them may not be able to fully realize the significance of an in-depth study of TCM and thus do not invest much time in the research, which makes the return on investment in education high, but the outcome is not satisfactory. In addition, as students' independent study ability and knowledge absorption are limited, they cannot reach the goal of becoming excellent TCM practitioners in a short time. Therefore, it is necessary to increase their years of education at the university, extend the graduation deadline, or even advance further education programs for master's and doctoral degrees. However, the phenomenon of "master's not being real master's, and doctors not having the real quality of doctors" is not uncommon, and it cannot be effectively solved by the above-mentioned measures. Moreover, the construction of a teaching workforce for developing TCM scholars has not received sufficient attention, and the existing management and evaluation system for TCM student education still needs to be improved.

For Western medicine, the focus is on medical institutions, but for TCM, more attention is paid to the ability and experience of the individual doctors. TCM is typically characterized by personalized diagnosis and treatment, in which the doctors' professional skills and the drug effect are the key factors impacting the final outcome. However, the current curriculum in

China's TCM universities has not paid attention to the research on classical Chinese pharmacology and the training on practical operation. In addition, the teaching content is a combination of TCM and Western medicine, which is not conducive to cultivating talents specialized in TCM who can truly make contributions to TCM.

At present, it is a common phenomenon in TCM education that "what is studied is neither true TCM nor true Western medicine", which is mainly due to the vague educational purpose and goals (Huang & Shen, 2017). In addition, the existing TCM education system is not complete, people do not fully understand and pay attention to TCM branding and its importance, and the investment in the promotion of TCM culture and personnel training in the field of standardization is insufficient.

### **1.1.2.3 TCM's reliance on human skills leads to a higher workload among TCM doctors**

Different from Western medicine, where various devices and laboratory tests are used for diagnosis, TCM mainly relies on doctors' experience and skills. Globally, Western medicine is generally more popular and recognized because of its intuitive and rapid treatment. TCM emphasizes syndrome differentiation and treatment, that is, the treatment plan is personalized according to the patient's specific condition and physique. Compared with the standardized treatment of Western medicine, this personalized treatment consumes more time and emotional engagement from the doctors.

In terms of doctor training, the education and training system of TCM is not as comprehensive as that of Western medicine, and the scale is also smaller, resulting in a limited number of qualified TCM doctors. That constrains TCM's overall capability to provide medical services, and each available TCM doctor needs to serve a bigger number of patients. Moreover, with people's increasing interest in health and alternative medicine, the demand for TCM services is growing continuously, resulting in an increased workload among TCM doctors. During the diagnosis process of TCM, doctors usually need to spend sufficient time on face-to-face communication with the patient to fully understand the patient's condition. This personalized diagnosis method takes a long time, thus reducing the number of patients that doctors can receive every day. In addition, TCM treatment usually involves various methods, such as Chinese traditional medicine formula, acupuncture, and tuina, which require the doctors to have high professional skills and rich experience. The complexity of the treatment leads to an increased work difficulty and more time input for the doctors. Therefore, while a variety of medical equipment and laboratory testing can be used to assist diagnosis and treatment in Western medicine, TCM mainly relies on the doctor's judgment. The lack of effective assisting

tools makes TCM doctors more dependent on their professional ability and results in an increased workload.

#### **1.1.2.4 TCM doctors have a higher emotional demands due to the process of “observing, listening, asking, and taking the pulse” in TCM**

The TCM process of “observing, listening to breathing, asking about symptoms, and taking the pulse” is a personalized diagnostic method that requires doctors to judge according to the specific condition of the patient. This diagnostic method often requires doctors to have a high ability of observation and comprehensive analysis and an in-depth understanding of the overall well-being of the patient. Such a work style that highly relies on doctors' personal experience and ability may result in greater psychological pressure on doctors. During TCM diagnosis, doctors need to spend a lot of time communicating with patients to understand their medical history, life habits, and emotional state, among others. Long communication not only requires doctors' patience but may also impose a greater emotional burden on doctors, especially when patients undergo emotional fluctuations or are reluctant to communicate. As it usually takes a long time for TCM treatment to show effect, doctors may face the patients' questioning or doubts in the process of treatment. The uncertainty of the treatment effect may lead to anxiety and stress among doctors at work. Some patients tend to place high expectations on TCM, especially when Western medicine treatment is ineffective. Doctors need to balance between meeting patients' expectations and adhering to the medical reality, which may bring challenges to doctors' emotions. In some cases, TCM doctors may face doubts about the scientificity of TCM from society and the medical industry, which may affect their self-identity and professional satisfaction, thus further increasing their emotional demands.

## **1.2 Theoretical background**

Existing studies in the hospital context define doctor performance as the actions, behaviors, and outcomes doctors participate in or bring related to and conducive to achieving hospital goals, such as doctor's task performance and doctor-patient relationship. (Van Den Assem & Dulewicz, 2015). In the literature, few researchers analyzed the mechanism of doctor performance improvement with a focus on the context of TCM hospitals considering their unique characteristics. Most related studies in hospital management did not consider different types of hospitals; instead, they focused on the general hospital context to explore the influencing factors of doctor performance and the influencing process.

In those studies, the influencing factors and mechanism of doctor performance were mainly studied from two perspectives. The first perspective is the impact of hospital work environment factors on doctor performance, including job demands and job resources. For example, Deng et al. (2020) found that employee-oriented culture and patient-oriented culture in hospitals can affect doctors' performance by influencing their leader-member exchange. According to Loh et al. (2018), job demands can significantly increase doctors' emotional exhaustion, which will reduce job performance, while job resources such as organizational support and rewards can significantly buffer such a detrimental effect of job demands. Han et al. (2018) showed that hospital support resources are the main factors affecting doctors' job performance. Kim et al. (1996) and G. Cui et al. (2014) found that doctors' overall job demands were significantly positively associated with burnout, while doctors' job resources, such as job autonomy and social support, were significantly negatively associated with burnout, which would reduce job performance.

In addition, existing studies also paid attention to the impact of leadership style on doctors' performance. In the hospital, direct leadership is the most common leadership style among managers that doctors encounter. This leadership style will directly affect doctors' psychological processes, thus further affecting their performance. Transformational leadership and transactional leadership have received the most attention in the field of organizational management. They are common in research on hospital management (Jabnoun & Juma AL Rasasi, 2005), and have been confirmed to have a significant impact on doctors' job performance (Novitasari et al., 2020; Salanova et al., 2011), burnout (Bosak et al., 2021), and job satisfaction (Zhao et al., 2019).

However, there are still research gaps to be filled: a) Most of the existing studies address doctors' performance in general hospitals, and there is lack of research focusing on the performance of doctors in TCM hospitals; b) current research has mostly examined the direct effect of hospital work environment factors on doctors' performance, while the mediation effect in this relationship has not been fully explored; c) in the literature, the impact of hospital work environment factors and leadership style on doctors' performance has been explored, but there is a lack of research on the interaction between the two; d) it is still unclear what are the contextual conditions for hospital work environment factors influencing doctors' performance.

In order to fill the research gaps mentioned above, in this thesis, we build our research model based on the Job Demands-Resources Model. According to the Job Demands-Resources Model, individuals working in different organizations may face different work environments or working conditions, which can be generally categorized into two types, namely job demands

and job resources. Job demands have a negative impact on individuals' outcomes by triggering their burnout, while job resources have a positive impact on individuals' outcomes by stimulating their work engagement (Demerouti et al., 2001). In addition, subsequent studies have found that job demands can weaken work engagement, and job resources can buffer burnout; when job demands and job resources can hardly change, their impact can be adjusted through the moderation of leadership style (Tummers & Bakker, 2021). The Job Demands-Resources Model has been widely applied in the field of hospital management. For example, Zeng et al. (2022) found that doctors' job resources can significantly increase doctors' work engagement while reducing their turnover intention; Y. Chen et al. (2022a) showed that sufficient job resources and reasonable job demands are crucial factors for improving the professional commitment of general practitioner residents.

Based on the dual-process hypothesis of the Job Demands-Resources Model, this study will explore the impact of job demands and job resources on doctors' performance through the burnout process and the work engagement process and find out the mediating mechanism. Referring to the application of leadership style to the Job Demands-Resources Model, we will examine the interaction between two leadership styles (i.e., transformational and transactional leadership) and job demands and resources, identify the contextual conditions for working conditions affecting doctors' performance in TCM hospitals, so as to put forward a comprehensive set of mechanisms for improving doctors' performance in TCM hospitals.

However, practical results have shown that doctors' performance in TCM hospitals is not ideal, and there exist problems such as big variations in doctors' professional skills, difficulty in meeting the assessment criteria, and tense doctor-patient relationships. The reason may be that the human resource system involving the above-mentioned aspects has not been implemented in practice, or the system is not aligned with the real characteristics of the work environment. Only the work environment characteristics that doctors personally experience can have a significant impact on doctors' performance. For example, medical professionals often need to deal with problems such as excessive workload, various emotional burdens, and unclear work scope and responsibilities (Montgomery et al., 2006). These job demands may make doctors feel exhausted, leading to burnout, thus reducing their performance. Certainly, besides job demands, doctors are also faced with various job resources, such as autonomy provided by hospitals (Kim et al., 1996; G. Cui et al., 2014), which will effectively improve doctors' work engagement and improve their performance. Therefore, to truly solve the performance problem in TCM hospitals and improve the doctors' performance, it is necessary to thoroughly study the influence mechanism of key working conditions (including job demands and job resources) on

doctors' performance.

In addition to working conditions, doctors' direct leaders, as the persons who have the most profound impact on doctors' daily work and learning, are also seeking an appropriate leadership style to improve the performance of the subordinate doctors (Deng et al., 2020). Although TCM hospitals cannot change the external institutional environment, they can make adjustments in internal management, such as shaping department subcultures through department leaders to encourage doctors to make more efforts and improve their performance. Leaders can adopt appropriate leadership styles according to the working conditions to help doctors clear the obstacles in achieving performance goals and meet doctors' needs (House, 1971). Therefore, in exploring the influence mechanism of working conditions on doctors' performance in TCM hospitals, it is necessary to consider the leadership style adopted by the doctors' direct superiors and analyze whether this leadership style, in combination with the job demands and job resources, is promoting or constraining doctors' performance. Only in this way can we effectively guide the hospital to create a favorable work environment and enable the leaders to choose the appropriate leadership style, providing targeted suggestions for improving the doctors' performance in TCM hospitals.

### **1.3 Research questions**

In view of the status of doctors' performance in the management of TCM hospitals, the current dilemma is that it is still unclear how TCM hospitals and leaders can effectively improve the performance of doctors, and hence, it is unknown how to effectively guide the hospital management practice. With the gradual advancement of China's medical reform, TCM hospitals are disadvantageous in competition with Western medicine in many aspects, including talent (cultivation) promotion and doctors' income. With a focus on the context of TCM hospitals, and based on the Job Demands-Resources Model, this thesis attempts to explore the impact of job demands and job resources in TCM hospitals on doctors' job performance and the moderation effect of different leadership styles therein.

In their inheritance and development, TCM hospitals attach great importance to employee performance. However, the theoretical research is lagging behind the practical needs. In the field of TCM hospital management, there is a lack of empirical research on how to improve the performance of doctors. Existing studies mostly focus on the performance of doctors in general hospitals, clarifying its connotation, determining the measurement methods, and exploring the mechanism for improvement. Compared with general hospitals and Western medicine hospitals,



TCM hospitals possess unique characteristics and face the following four challenges: a) TCM hospitals generate lower revenue than other hospitals (Western medicine hospitals), resulting in lower wages and benefits for doctors; b) TCM hospitals encounter difficulty in cultivating talents due to a long educational cycle and fewer promotion opportunities; c) different from Western medicine, where equipment is used for diagnosis, TCM relies on human diagnosis, and the insufficient number of TCM talents results in a heavy workload; d) TCM's job characteristics (e.g., observing, listening to breathing, asking about symptoms, and taking the pulse) lead to high emotional demands.

Despite the above-mentioned uniqueness, few studies have explored the influencing factors of doctors' performance and the influencing process with a focus on TCM hospitals considering their unique characteristics. Furthermore, among the research on the performance of doctors in general hospitals, most of the existing studies have examined the direct effect of working conditions (e.g., job demands and job resources in hospitals) on doctors' job performance, while the specific influencing path has not received much attention.

In addition, it is difficult for TCM hospitals to change the external institutional environment, such as the small proportion of TCM in medical insurance and the low ratio of policy capital investment. TCM hospitals have no other solution but to adjust their internal management, such as shaping the department subculture through department leaders to motivate doctors to make efforts and improve performance. This seemingly passive job demand, if matched with effective leadership, is likely to have a positive impact on doctors' performance. However, most existing studies have examined the impact of either working conditions or leadership styles on doctors' performance; very few have considered both working conditions and leadership styles simultaneously, and the interaction between the two has not been paid attention. In other words, the contextual role of leadership styles in the process of working conditions affecting job performance is still unclear.

To tackle the above-mentioned challenges, it is necessary to address how to build an effective mechanism for improving doctors' performance in TCM hospitals. Only by addressing this issue can we effectively guide the management practices of TCM hospitals to improve doctors' performance, thereby fostering TCM hospitals to gain core competitive advantages.

To solve this problem, this thesis will conduct in-depth research in response to the following questions. Answering these research questions will help solve the dilemma in TCM hospital management and provide suggestions to effectively guide the management practice.

Research Question (RQ) 1: What is the influence path of job demands and job resources on doctors' job performance in TCM hospitals? Besides understanding the effect of job demands

and job resources, we will also explore the path of influence, that is, the mediating mechanism.

Research Question (RQ) 2: Does the leadership style experienced by doctors in TCM hospitals influence the effect of job demands and job resources on job performance? What is the direction of influence? Apart from the job demands and job resources created by TCM hospitals, department leaders are actively seeking different leadership styles to improve the performance of subordinate doctors.

## **1.4 Novelty of this research**

On the basis of reviewing and referring to the existing research, this study is expected to be innovative in the following three aspects:

First, innovative research perspective. This study is a cross-domain attempt and exploration, covering job resources, job demands, doctors' job performance, and leadership style. An integrated model of doctor's job demands-resources, job performance, and leadership style in TCM hospitals is established, showcasing the characteristic of comprehensiveness of the management discipline. The research design is relatively rigorous, showing clear logic.

Second, innovation in the research topic. Based on the Job Demands-Resources Model, this study explores the influence mechanism of working conditions and leadership style on the performance of doctors in TCM hospitals. In the literature, there is a lack of in-depth research on the impact of working conditions and leadership style on the job performance of doctors in TCM hospitals. Therefore, our research topic is novel and relevant. On the theoretical level, this study enriches the research on doctors' job performance in TCM hospitals; on the practical level, it provides reference and effective suggestions for guiding TCM hospitals to improve doctors' performance, promote hospital management, and maintain competitiveness.

Third, innovation in terms of theoretical model. This study empirically tested the Job Demands-Resources Model in the context of TCM hospitals and verified the moderating role of leadership style in the model, thus enriching the application scenarios and contexts of this theoretical model.

## **1.5 Research methods**

The research methods used in this thesis include normative research and empirical testing.

Based on the Job Demands-Resources Model, this study analyzed the impact of job demands and job resources on doctors' job performance in TCM hospitals through the dual

process of burnout and work engagement. Meanwhile, considering the leadership styles of doctors' direct superiors, i.e., transformational leadership and transactional leadership, as moderating variables, this study explored the interaction between related variables theoretically, a theoretical model was constructed, and the research hypotheses of this thesis were put forward. To test the hypotheses, we used well-established scales to measure the variables involved in the model and designed the questionnaire. The questionnaires were distributed in 10 TCM hospitals in Guangdong, China. We translated the questionnaire and removed invalid questionnaires following internationally-recognized guidelines, so as to ensure the validity and representativeness of the data. In data analysis, data processing tools such as SPSS and Mplus were used, and methods such as hierarchical linear regression, cross-level moderation, and cross-level mediation were adopted to ensure the scientificity of the research results (D. Zhao, 2020). Specifically, for each research model, prior to hypothesis testing, we tested the reliability of the data using SPSS, performed confirmatory factor analysis on the data using Mplus, carried out common method bias testing, and performed descriptive statistical analysis through SPSS. Finally, the hypotheses of the research model were tested.

## **1.6 Research framework and roadmap**

Based on the understanding of the theoretical frontier and the collection of first-hand survey data, this study scientifically used various research methods to carry out an in-depth analysis of the relationship between job demands and resources, leadership style, and job performance of doctors in TCM hospitals. The research roadmap of this study is shown in Figure 1.1. This thesis is composed of seven chapters, including as follows: introduction; literature review; theoretical background and research hypotheses; variable measurement and data collection; descriptive statistics and control variable testing; hypothesis testing and results; conclusions and prospects.

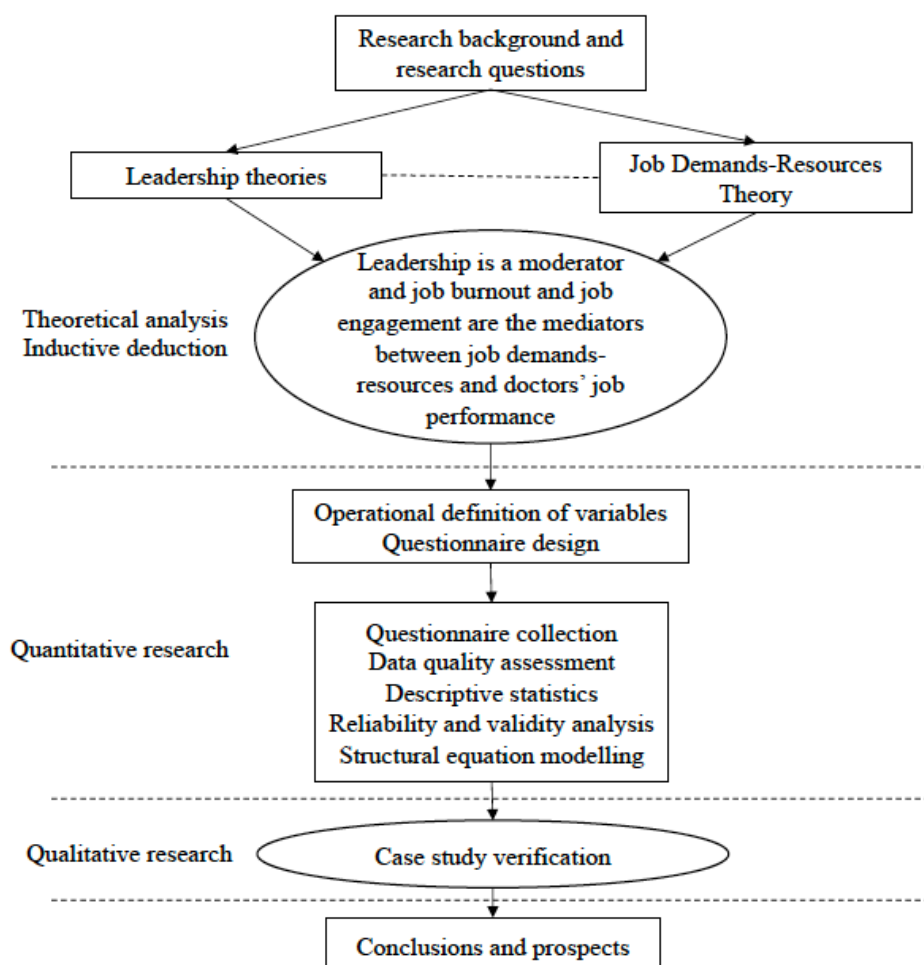


Figure 1.1 Research roadmap

## 1.7 Structure of this thesis

The main body of this thesis consists of five chapters. Chapter 2 reviews the literature related to the Job Demands-Resources Model and the main variables involved in this study, based on which the theoretical model and research hypotheses are put forward. Chapter 3 addresses the research methods of this thesis, presenting in detail the sample and the sampling procedure, the scales for measuring the variables, and the data analysis strategies used in the study. In Chapter 4, the data are analyzed by using methods such as descriptive analysis, variance test, and hypothesis testing, and the corresponding results are presented. Chapter 5 summarizes the data analysis results of Chapter 4, conducts discussions accordingly, and presents the theoretical contributions of this thesis. Chapter 6 concludes the findings, points out the limitations of this study, and puts forward future prospects.

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## **Chapter 2: Literature Review**

This chapter mainly reviews the literature related to the theoretical model used in this study, namely the Job Demands-Resources Model, and the main variables involved, including doctors' job performance, transformational leadership, and transactional leadership.

### **2.1 Job Demands-Resources Model**

#### **2.1.1 Introduction of the Job Demands-Resources Model**

The Job Demands-Resources Model (JD-R Model) is a theoretical framework of job characteristics proposed by Demerouti et al. (2001). It mainly focused on burnout initially and later included the result variables caused by burnout (e.g., depression, heart disease risk, and mental stress) and the result variables due to high engagement in work (e.g., performance improvement, creativity enhancement, and turnover intention) (Kwon & Kim, 2020). This model effectively links various key factors that affect job characteristics and job outcomes, providing a basic analytical framework and a basis for potential proposal of hypotheses for related research.

##### **2.1.1.1 Proposal of the model**

From the perspective of inheritance and evolution, the Job Demands-Resources Model was developed through criticism and reflection on the Job Demand-Control Model (JDCM).

One of the most influential frameworks for related research is called the “Job Demand-Control Model”, which believes that work stress is not caused by only a single factor – it may be due to either overly high task demand or low management authority. From this model, it can be inferred that if employees face higher task challenges while the management ability is reduced, they will feel greater job anxiety and develop a higher resistance to work; however, if an individual employee holds a strong sense of responsibility and self-control, such scenario can lead to a stronger sense of responsibility, greater motivation, and better performance. That is, the work environment of high job demand and high job control can drive employees to be actively engaged in work, while high job control can mitigate the negative impact of high job demand on employees' mental health (Karasek Jr, 1979).

Although there is relevant experimental evidence that supports the above-mentioned two hypotheses, it is still controversial regarding the consistency of the conclusions (Häusser et al., 2010). In response to that, many scholars pointed out that the problem was that the definitions of job demands and job resources in the model were too strict (Hakanen et al., 2006). In this theoretical framework, Karasek Jr (1979) limited the job demands to excessive workload and time pressure and only regarded the resources available to employees at work as job control, including the scope of technical discretion and autonomous decision-making.

This oversimplified way of definition makes complex job characteristics excessively abstract, and as a result, this model is unable to reflect the actual working environment and cannot accurately interpret or demonstrate its complexity. For example, some empirical research results have shown that, in addition to the factors specified in this model, other job characteristics, such as emotional demands, peer support, superior support, and performance evaluation, can also significantly affect employees' work stress levels (Bakker & Demerouti, 2007; Bormann & Diebig, 2021).

Building on the research pointing out the defects of the Job Demand-Control Model, based on relevant theoretical basis, Demerouti et al. (2001) constructed a new model, the Job Demands-Resources Model. They pointed out that although employees may face different working conditions and job characteristics in different companies, these characteristics can be generally divided into two categories: job demands and job resources. This hypothesis is that although each industry has its unique characteristics, regardless of what and how many these characteristics are, they all fall into two general categories (i.e., job demands and job resources). In this way, a general framework applicable to all industries is developed (Demerouti et al., 2001).

### **2.1.1.2 Key concepts**

In the Job Demands-Resources Model, job demands and job resources are the core elements. Initially, the basic research of this theory was conducted by Demerouti et al. (2001), who defined job demands as various physical, social, and organizational demands, and this type of task usually involves sustained physical and/or intellectual input, and naturally, it is accompanied by a certain degree of physical or psychological loss (such as exhaustion). However, they later revised the definition, according to which job demands cover physical, mental, social, and organizational demands at all levels, and such tasks often lead to sustained physical and/or mental (i.e., thinking and emotional) efforts or the use of skills, resulting in the occurrence of corresponding physical or psychological burdens (Demerouti & Bakker, 2011).

In other words, if a specific demand is beyond the scope of an individual's ability and cannot be alleviated in time and effectively, such a demand will turn into a perceived oppression in reality. In such a case, these job demands will lead to some negative consequences, such as depression, anxiety, or burnout. Generally speaking, job responsibility demands include excessive work pressure, role conflict, role ambiguity, job position changes, and emotional demands (Bakker & Demerouti, 2007).

Job resources refer to various conditions of individuals' physical and mental health, as well as social and organizational factors in the workplace. They have the following functions: 1) they are conducive to achieving work goals; 2) they can reduce the physical and psychological pressure caused by job demands; 3) they can promote individuals' progress and development (Demerouti et al., 2001). Hence, the importance of job resources not only stems from their ability to help employees accommodate to the demands of the working environment, but also from its significant impact on individuals. In general, employees can obtain four types of resources at work: 1) the first type comes from the organizational level, including salary and benefits, career promotion opportunities, and labor security, among others; 2) the second type of resources comes from interpersonal communication, such as leaders' support, peers' assistance, and team atmosphere; 3) the third type is related to the scope of job responsibilities, such as the clarity of job definition and the right to participate in decision-making; 4) the fourth type of resources include factors from the specific work content, such as technical diversification, task consistency, task importance, independent completion ability, and performance evaluation (Bakker & Demerouti, 2007).

### **2.1.1.3 Main content of the model**

Generally speaking, the core job elements are mainly based on three basic hypotheses. First, there are two different types of working environments, including job demands and job resources, which will lead to two types of mental activities that are mutually independent. The former leads to the energy depletion process (also known as the health impairment process), resulting in work exhaustion; the latter is a motivational process, which helps to improve work engagement. This theory, known as the "dual process", is widely applied in this model.

Secondly, increasing job resources can mitigate the negative impact of work stress on burnout. With higher job demands, if individuals perceive and have access to more resources, they are more likely to avoid exhaustion; in other words, these resources can significantly reduce the negative effect of energy depletion and play a protective role in individuals' mental health.



Finally, when individuals are faced with higher job demands, job resources can more effectively enhance the individuals' motivation and enthusiasm, thus further improving their engagement, and ultimately leading to the achievement of excellent organizational outcomes. That is, with the support of sufficient job resources, the positive effect of high job demands on work engagement can be strengthened. The paths indicated by these hypotheses are illustrated in Figure 2.1.

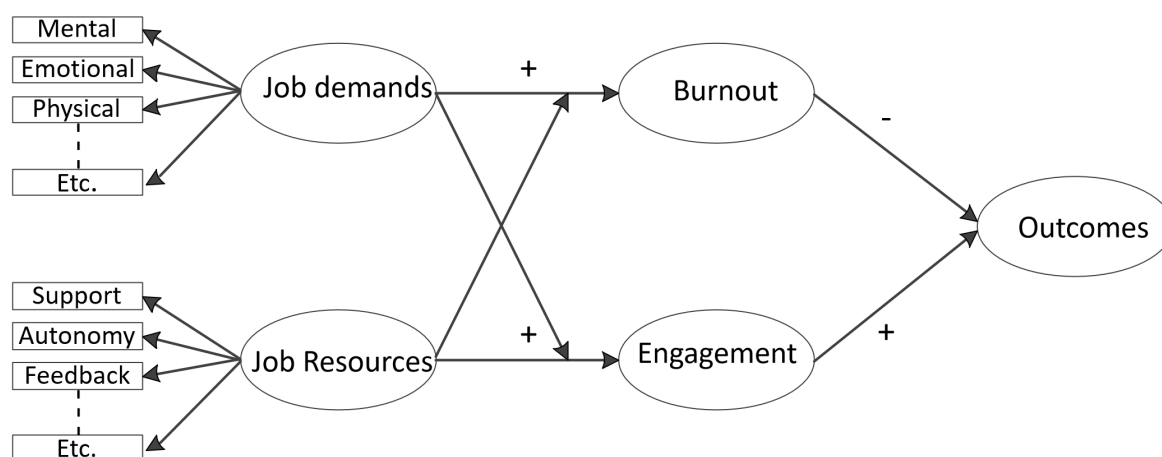


Figure 2.1 Job Demands-Resources Model

Source: Bakker et al. (2007)

Among the research on the Job Demands-Resources Model, in addition to the above-mentioned three hypotheses, the effects of job characteristics on mental and physical health have also been addressed. When individuals are undergoing energy depletion, high-intensity job tasks will lead to fatigue, which may further lead to higher work pressure – this is called a “loss spiral”. On the contrary, with the motivational mechanism, adequate working conditions can improve employees' work enthusiasm and further drive more resource input – this process is called the “gain spiral” (Bakker & Demerouti, 2007; Bauer et al., 2014).

## 2.1.2 Dual-process hypothesis of the Job Demands-Resources Model

The theoretical basis of this study is the dual-process hypothesis of the Job Demands-Resources Model. In this section, we will conduct an in-depth summary and analysis of the status-quo of research on the dual-process hypothesis.

### 2.1.2.1 Main content of the hypothesis

Based on the theoretical connotation of job demands and job resources, by using relevant theories, the proponents of the model put forward the dual-process hypothesis, which became widely known among scholars. They argue that job demands and job resources can trigger two

types of mutually independent mental and psychological activities: the first is the health impairment process; the second is essentially motivation-driven and can be called the motivational process.

The energy depletion process implies that when employees are forced to bear excessive workloads or are under high pressure for a long time, their physical and psychological resources will be exhausted, which may lead to fatigue and physical health problems (Bakker & Demerouti, 2007). This phenomenon is often referred to as the state of “energy exhaustion”, which may be caused by many factors, such as overwork, emotional demands, or role conflict. In actual research, scholars need to set the standard parameters, intermediate factors, and final outcome of the job according to the specific situation, but the most common process is that increased work intensity will lead to the development of work exhaustion, and through the mediation of work exhaustion, increased work intensity can further have negative effects on the company as whole or on individuals' health.

In their research, Schaufeli and Bakker (2004) used the compensatory control model (Hockey, 2011) to explain the kernel process of energy depletion. The model mainly focuses on how individuals maintain their stable performance under high work pressure. In the face of increasing job demands, people tend to first meet the company's demand for their performance to ensure that their performance is sustained and stable. That implies that individuals will respond proactively to problems encountered at work, and thus they must spend extra energy; moreover, the harder they work, the more their physical and psychological resources will be depleted.

From a short-term perspective, such a performance protection strategy can help individuals adapt to the surrounding environment so as to prevent the decline of individual performance. However, if this method needs to be maintained for a long time, this proactive reaction may exhaust individuals' physical and psychological energy, thus bringing negative effects to their physical health. In this case, individuals may take evasive behavior (such as reducing their attention to work-related fields, increasing task selection criteria, and adjusting job demands) and experience the adverse consequences of physical and mental fatigue (such as being careless in the decision-making process and feeling exhausted just by completing a small amount of work).

The motivational process implies that job resources have the ability to drive employees' behavioral motivation, which is conducive to improving their work engagement, reducing cynicism, and improving their work efficiency (Bakker & Demerouti, 2007). Just like the process of energy depletion, in actual research, the motivational process varies depending on

the actual scenario. Scholars can determine the resource indicators, intermediate factors, and the final outcome in the job according to the specific situation. However, the most common process is that job resources trigger the employee's work enthusiasm and then through this enthusiasm as a mediator, job resources can further have a positive effect on the overall organization or individuals' health.

#### **2.1.2.2 Empirical studies of the dual-process hypothesis**

Extensive research on the dual-process hypothesis of the Job Demands-Resources Model has been conducted and a large amount of empirical evidence has been obtained. From a review of relevant existing studies, it can be seen that the dual-process hypothesis is suitable for analyzing the impact of job characteristics on various job outcomes and has strong robustness across occupations, regions, and time.

First, regarding job outcomes, the dual-process hypothesis of the Job Demands-Resources Model is relevant to various key job outcomes. The main focus is the impact of job demands and job resources on employees' job performance, absenteeism, turnover intention, and health wellness, among others.

1) Job performance. For example, Bakker and Schaufeli et al. (2008) found that excessive job demands would lead to continuous psychological overload, which would cause exhaustion, thus reducing employees' performance in the long run; on the other hand, insufficient job resources would hinder the realization of practical goals, lead to cynicism, and reduce performance. Some scholars have classified performance into several categories when exploring the impact of the dual process. For instance, Bakker et al. (2004) examined workload, emotional demands, and work-family conflict as the core elements of job demands; the opportunity for professional development and peer support are the most important job resources for workers. Their study found that job demands could weaken employees' in-role performance by increasing emotional exhaustion, while job resources could enhance employees' in-role performance by reducing work alienation. Nuutinen et al. (2021), taking job control and possibilities for development at work as the main indicators of job demands, found that job resources could significantly improve the technical performance of employees by enhancing their work engagement.

2) Absenteeism and turnover intention. Bakker, Demerouti, and De Boer et al. (2003) regarded work pressure and organizational rectification as the main indicators of job demands, and work management and participation in decision-making as the main indicators of job resources. They found that job demands could positively affect work exhaustion, thereby

increasing employees' total number of days absent; meanwhile, job resources could reduce employees' absence frequency by positively affecting organizational commitment. Lewig et al. (2007) took time pressure and work-family conflict as the main indicators of job demands, and job control and peer support as the main indicators of job resources. They found that job demands could reduce employees' determination to continue by increasing their burnout, while job resources could enhance employees' determination to continue by enhancing their connectedness in work. Korunka et al. (2009) regarded performance feedback, social support, and leadership guidance as the main indicators of job resources and found that job resources had a negative impact on turnover intention by positively influencing work engagement. In the study of Chênevert et al. (2021), factors such as work stress, work-family conflict, and work overload were taken as the main parameters of job demands, while meaning at work, perceived organizational support, and patient recognition were used to measure job resources, to examine the Job Demands-Resources Model on physicians' turnover intention. The results showed that job demands could lead to employees' emotional exhaustion, resulting in health problems, which would further increase their turnover intention; meanwhile, job resources could buffer physicians' depersonalization and improve their professional commitment, which is conducive to reducing their intention to leave the profession. Lehmann et al. (2021) used time pressure and workload as the main indicators of job demands, and social support and job autonomy as the main indicators of job resources to examine the Job Demands-Resources Model on employees' turnover intention. The results showed that job demands could increase employees' turnover intention by increasing burnout, while job resources could reduce employees' turnover intention by improving their work engagement.

3) Health wellness. Schaufeli and Bakker (2004) took workload and emotional demands as the main indicators of job demands and found that job demands had a negative impact on employees' health through increased burnout. Korunka et al. (2009), taking the quantitative and qualitative workload as the main indicators of job demands, found that job demands could lead to employees' health problems through their positive relationship with burnout. In Chênevert et al. (2021), work stress, work-family conflict, and work overload were regarded as the main indicators of job demands, while meaning at work, perceived organizational support, and patient recognition were taken as the main indicators of job resources. The study found that job demands could increase doctors' health problems by causing their emotional exhaustion, while job resources could mitigate their depersonalization and promote their professional commitment.

Second, the bipartite theoretical framework of the Job Demands-Resources Model shows

strong applicability and robustness across industries and has been confirmed in various different business environments. The theory was initially proposed in the face of the needs of the paid workers (that is, the regular employees of the organization), and a large number of empirical studies have tested and evaluated this model among such workers. For example, Llorens et al. (2006) took the employees of state-owned and private enterprises as the research object, covering various occupations and fields, such as white-collar, blue-collar, education, and public occupations. The results showed that for the above-mentioned occupations, job demands negatively affected employees' organizational commitment by causing burnout, while job resources enhanced employees' organizational commitment by improving their work engagement. Korunka et al. (2009), with a heterogeneous occupational sample composed of both white-collar and blue-collar workers, used the multi-group analysis method to test the robustness of the Job Demands-Resources Model. The results supported the energy depletion process and the motivational process, that is, job demands have a positive relationship with work exhaustion, which further negatively affects health; job resources can effectively inhibit the turnover intention of employees, in which work exhaustion and work engagement play a full mediating role. Cao et al. (2020) took university professors as the sample and found that the job demand of job conflict could reduce professors' teaching motivation through emotional exhaustion.

Third, the dual-process hypothesis of the Job Demands-Resources Model has high robustness across regions and has been confirmed in many different countries and cultural backgrounds around the world. For example, Bakker et al. (2003) used Dutch employees as samples, Hakanen et al. (2006) used Finnish employees as samples, Llorens et al. (2006) used Spanish employees as samples, and Lewig et al. (2007) used Australian employees as samples to test the dual-process hypothesis of the Job Demands-Resources Model. The results indicate that the model is robust across regions and countries. Moreover, the model has also been widely confirmed in China. For example, Li et al. (2013) used Chinese employees as samples for model testing and found that job resources could significantly reduce employees' emotional exhaustion and enhance their safety compliance, thus ensuring employees' work safety. Hu et al. (2017) also took Chinese employees as a sample, and they found that when increased job demands or insufficient job resources would significantly increase employees' burnout, thus further leading to a decline in employee engagement.

Fourth, the dual-process hypothesis of the Job Demands-Resources Model shows strong cross-time robustness. That is to say, the two processes have been verified not only by various studies using cross-sectional data but also by research using longitudinal data. For example,

Hakanen et al. (2008) adopted a cross-lagged design based on two waves over a three-year period. They tested longitudinally the effectiveness of the energy depletion process and the motivational process and further explored how home resources and demands affected both processes over time. In this study, the measurement indicators of job demands include quantitative workload, job content, and physical working environment, while job resources are defined as technical ability, industry relations, and long-term and short-term outcomes. The results of the data analysis supported both processes. After eliminating the initial state, over time, job resources could positively influence employees' future work engagement, which in turn was a predictor of employees' future organizational commitment; on the other hand, job demands would directly increase employees' burnout, which in turn predicted future depression. It is worth noting that the negative effect of job resources on employees' future burnout was very weak. However, either in the past or at present, home demands and home resources did not have any impact on the energy depletion process or the motivational process over time (Kuai, 2017).

To sum up, the dual-process hypothesis of the Job Demands-Resources Model is applicable to a variety of job outcomes, and the effect does not vary much across different occupations, countries and regions, or times. The model shows strong robustness.

### **2.1.3 Application of the Job Demands-Resources Model to hospital management**

The Job Demands-Resources Model is widely applicable to different occupational scenarios, including hospitals. A large number of empirical studies on hospital management based on the Job Demands-Resources Model have been conducted to explore the impact of hospital work environment characteristics on employees.

Many researchers have tested the basic assumptions of the Job Demands-Resources Model in the hospital context, including the dual-process hypothesis and the hypothesis regarding the interaction between job resources and job demands. For example, Loh et al. (2018) found that job resources such as organizational support atmosphere and organizational rewards could significantly buffer the negative influence of job demands on the emotional exhaustion of hospital employees; at the same time, various job resources would interact with each other and promote each other to jointly hinder the negative effect of job demands. J. Li et al. (2014) found that a large number of job demands could directly affect nurses' emotional exhaustion, while insufficient job resources would directly influence nurses' perceived dehumanization. As emotional exhaustion and dehumanization are important dimensions of burnout, high job demands and low job resources will ultimately lead to an increase in nurses' burnout. Taking

clinicians as the research object, S. Wang et al. (2017) found that clinicians' job demands had a significant positive predictive effect on work-family conflict, while job resources had a significant negative predictive effect on work-family conflict. Yan et al. (2019) found that job demands such as role conflict and physical load will increase clinicians' turnover intention, while abundant job resources such as organizational ownership atmosphere, salary satisfaction, patient respect, and gradient talent structure will reduce clinicians' turnover intention. Y. Chen et al. (2022b) found that appropriate job resources (including opportunities for career development and salary) and reasonable job demands (including task arrangement and professional quality requirements) are essential factors for improving the professional commitment of general practitioners.

A few researchers have extended the application of the Job Demands-Resources Model. Some researchers regard job demands as a mediating variable in the effect of job resources. For example, Zeng et al. (2022) regarded the doctor-patient relationship as a job demand and leader-member exchange as a job resource for doctors. Through testing the model, it was found that the quality of leader-member exchange could significantly improve the quality of the doctor-patient relationship and doctors' work engagement, and the quality of doctor-patient relationship played a partial mediating role in the path between leader-member exchange and work engagement; the quality of leader-member exchange could reduce doctors' turnover intention by improving the quality of doctor-patient relationship. Other researchers included different types of resources to enrich the Job Demands-Resources Model. For example, Viotti et al. (2015) found that there was a high correlation between the verbal attacks suffered by nurses and nurse assistants and their burnout. Among the nurses, only the resources at the job content level in nurses had a moderation effect on the impact of verbal attacks on burnout. However, among nurse assistants, the result is the opposite: resources at the social and organizational levels all had a certain buffer effect on the impact of verbal attacks on employee burnout, but resources at the work content level had no buffer effect. The study highlighted the important role of different types of resources in buffering the harmful effect of verbal attacks on burnout among caregivers.

To sum up, the Job Demands-Resources Model has been widely applied in the hospital context. Its dual-process hypothesis and the hypothesis regarding the interaction between job demands and resources have been supported by a large number of empirical evidence. It is an important theoretical framework for exploring the impact of various aspects of hospital jobs on the psychological, behavioral, performance, and other outcomes of employees (including doctors).

## **2.2 Job demands, job resources, work engagement, and burnout**

Within the framework of the Job Demands-Resources Model, the specific content of job demands and job resources can be determined according to the actual work environment. Therefore, when using this model to explore issues related to hospital management in this thesis, we put forward representative job demands and resources experienced by employees according to the working environment of the hospital. From the analysis of the practical and theoretical background of traditional Chinese medicine (TCM) hospitals in Chapter 1, it can be seen that compared with general hospitals and Western medicine hospitals, TCM hospitals have their unique attributes and characteristics, thus facing a series of unique challenges.

In terms of job resources, the financial performance of TCM hospitals, such as income level, is often lower than that of Western medicine hospitals, which leads to lower salaries and welfare among TCM medical professionals. Secondly, the cultivation of TCM talents takes a longer time and is more complex, and the promotion opportunities are limited, making it difficult to attract and retain talents. Therefore, this study will focus on the salary level and the opportunity for promotion in job resources.

In terms of job demands, the diagnosis process of TCM mainly depends on the intuitive judgment and experience of medical professionals, such as the traditional diagnosis methods of observing, listening to breathing, asking about symptoms, and taking the pulse, rather than mechanical equipment as in western medicine. This type of diagnosis and treatment involves high-intensity emotional demands and loads. In addition, due to the scarcity of TCM professionals and the large investment of time in diagnosis and treatment (i.e., observing, listening, asking, and taking the pulse), the TCM medical professionals are faced with a large number of tasks and high work pressure, which will increase their workload and emotional demands respectively. Therefore, this study will focus on the workload and emotional demands in job demands.

To sum up, through reviewing the findings of existing research, we summarized two representative job resources (i.e., salary level and promotion opportunity) and two job demands (i.e., workload and emotional demands) in the context of TCM hospitals. These four job characteristics have received great attention in hospital management research. Therefore, this study will focus on two types of job resources, namely, salary level and promotion opportunity, and two types of job demands, namely, workload and emotional demands, to explore their influence mechanism on the job performance of doctors in TCM hospitals.



### **2.2.1 Job resources and work engagement**

Job resources refer to various physical, psychological, social, or organizational resources in the workplace. They have the following functions: first, they are conducive to achieving work goals; secondly, they can reduce the physical and psychological costs caused by job demands; finally, they can stimulate personal growth, knowledge learning, and ability development (Demerouti et al., 2001). According to this definition, job resources can not only help employees meet the requirements they face at work but also improve their work engagement. In addition, these resources also have great value for individuals. In the workplace, employees may obtain two main types of resources: resources from the organization (e.g., salary, career promotion opportunities, and security of the working environment) and resources from interpersonal relationships (e.g., leadership support, peer understanding, and team atmosphere) (Bakker & Demerouti, 2007).

In this study, job resources will be discussed from two dimensions: salary level and promotion opportunity. The salary level involves the absolute salary level, the fairness of salary, and other related factors (Coomber & Barriball, 2007). Medical professionals also need salary to support themselves and their family and life, so the absolute and relative fairness of salary level is one of the essential factors to incentive medical professionals to be engaged in work. The promotion opportunity refers to the possibility of doctors getting promoted in the hospital (Kim et al., 1996). As employees within the system (i.e., with permanent contracts), the main channel for doctors to obtain more professional opportunities and remuneration is getting promoted. For this reason, they pay special attention to the resource of promotion opportunity provided by hospitals.

Work engagement refers to a work-related positive, fulfilling, and lasting emotional and cognitive state. Work engagement is manifested by that employees tend to make efforts to be integrated into the work, they are willing to devote time and energy to complete the task, and at the same time, they can also perceive the value and challenge of the work. This spirit is mainly reflected in energetic action, selfless contribution, and high professional dedication (Schaufeli et al., 2002). Existing research has shown that job autonomy, salary level, social support, and the opportunity for career development can effectively predict work engagement, indicating that job resources can especially improve work engagement. That further proves that abundant workplace resources can effectively improve employees' willingness to devote themselves to their duties, such as high salaries and welfare in medical institutions, friendly and harmonious working environments, and smooth career promotion channels, which will prevent

medical professionals from realizing exhaustion at work. At the same time, appropriate social support and performance feedback can also stimulate individuals' dedication and work enthusiasm. In addition, the abundance of job resources is conducive to mitigating the conflict between work and family. Obviously, when there is a conflict between work and family, if you pay more attention to one of them, you will end up ignoring the other, which will lead to an unbalanced result. Everyone plays multiple roles. If this problem is not well addressed, it will lead to role conflict. However, jobs with higher demands and more workload will make people feel more exhausted physically and psychologically, and thus, their enthusiasm for work will be reduced; if the work is monotonous, they will be tired of their work. However, if there is a good working environment, good interpersonal relationships, and a high salary level, work engagement will be much improved.

#### **2.2.1.1 Salary level and work engagement**

At present, very few professions in China can surpass the doctor profession in terms of growth cost, work intensity, social value, and industry responsibility, but doctors' income does not match that. According to the data of the *Report on the Current Human Resources Situation in Hospitals in China 2022*, doctors' average clinical income was 94,000 RMB, 70% of the doctors expressed that their pre-tax income was less than 100,000 RMB, and only 14% of the department (deputy) directors had an annual income of more than 200,000 RMB. Y. Chen et al. (2022) found that good job resources (such as opportunities for career development and salary levels) were essential to enhance the professional commitment of general practitioner residents. Moreover, S. Wang et al. (2017) conducted a survey on clinicians, and the results showed that their job demands could positively and effectively predict work-family conflict, while job resources had a significant negative predictive effect on work-family conflict. The salary level is a representative job resource in the hospital context and can buffer the work-family conflict of medical professionals and improve the job satisfaction and professional commitment of doctors. According to the social exchange theory, human behavior can be regarded as the result of a social exchange relationship (Homans, 1958). If the salary and welfare provided by the hospital can satisfy the medical professionals, these employees will believe that their efforts have received the expected return, thus developing a positive psychological expectation, which enables them to devote themselves to the work (Gulyani & Sharma, 2018). In other words, when employees are satisfied with their salaries, they will appreciate the resource investment and attention received from the hospital and will be more motivated to improve their work efficiency and engagement, so as to repay the hospital's investment in their development. In

fact, some studies have confirmed that in other industries, employees' salary satisfaction can well predict their work engagement level (Eriksson & Villeval, 2008). Therefore, in this thesis, we have reason to believe that in the industry of TCM hospitals, doctors also pay attention to their salaries, and the employees' salary level can also reflect their subsequent work engagement. Hence, we put forward the following hypothesis:

Hypothesis 1-a (H1-a): *Salary level is positively associated with work engagement.*

#### **2.2.1.2 Promotion opportunity and work engagement**

Compared with general hospitals and Western medicine hospitals, TCM hospitals have different characteristics and face distinct challenges. First of all, due to the unique characteristics of the discipline of TCM, its professional practitioners are relatively scarce compared with other sectors, and the talent pool is insufficient (J. Lin et al., 2022). In addition, many TCM doctors are faced with difficulty in getting promoted, limited opportunities for upskilling, and restricted channels for career development, which greatly affect their enthusiasm and stability and may cause the turnover of a large number of outstanding talents. Therefore, scholars started to advocate paying attention to the career development of individuals within the current organization (McElroy & Weng, 2016). That is because the career development of employees in the organization not only can improve their loyalty to the organization, but also can hinder individuals' turnover behavior in the organization, thus encouraging employees to produce more positive behaviors that are conducive to the development of the organization. Weng and McElroy (2012) and Yan et al. (2019) found that the sense of ownership, salary satisfaction, patient respect, gradient talent structure, and high-quality career promotion paths in the organization, as well as a variety of other job resources, are conducive to reducing clinicians' turnover intention. The Job Demands-Resources Model further put forward that valuable resources provided by organizations to employees, such as social support, professional training, opportunities for career development, and salaries & benefits, could enhance employees' work motivation (A. Guo & Yang, 2020). Based on existing theories, we posit that employees' career development can enhance their work enthusiasm, which is manifested by work engagement in practice. Therefore, this thesis puts forward the following hypothesis:

Hypothesis 1-b (H1-b): *Promotion opportunity is positively associated with work engagement.*

#### **2.2.2 Job demands and burnout**

Job demands refer to the demands on physical, psychological, social, and organizational levels

that often lead to sustained physical or psychological (cognitive and emotional) efforts or the use of skills, resulting in corresponding physical or psychological costs (i.e., workload or emotional demands) (Demerouti & Bakker, 2011). For the doctor population, job demands have been widely regarded as an important explanatory variable that can predict the negative outcome of jobs. The reason is that a job will not only impose physical, psychological, social, organizational, and other demands on employees (Mauno et al., 2007), but also bring great pressure to employees physically and psychologically, thus constituting an “energy depletion path”, that is, job demands have a negative impact on employees’ positive emotions (Liang, 2020).

In this study, job demands will be discussed from two dimensions: workload and emotional demands. Workload includes aspects such as time pressure and staffing, referring to the quantity of work to be completed within a certain time, rather than the quality of the task (McVicar, 2016). In hospitals, in addition to the sustained high number of admissions, the work of writing medical records, ward rounds, and duty shifts makes medical professionals have to work the day shift right after an overnight shift, resulting in the common problem of excessive workload. The second job demand is emotional demands, which reflect the emotional condition that must be handled. Medical professionals often face many emotional problems due to their frequent contact with patients and their families and their encounters with complex medical conditions, and therefore, their emotional demands have been mentioned extensively. At present, workload and emotional demands are the two most concerned job demands. Many professions, including medical professionals, are faced with prominent problems in these two aspects.

Burnout is a state of psychological and physical exhaustion related to work. It is usually caused by long-term work pressure or excessive work intensity, while individuals’ resources and energy are not effectively restored. Burnout not only affects individuals’ mental health and well-being, but may also lead to decreased work efficiency, increased absenteeism, reduced job satisfaction, and even individuals’ health problems. Therefore, organizations and individuals need to take measures to prevent and alleviate burnout, such as improving the working environment, providing opportunities for career development, and encouraging the balance between work and life. China is in a period of social transformation, and a series of complex factors have resulted in the overall decline of social trust, which has also impacted the medical industry. Current problems such as the tense relationship between doctors and patients, the lack of effective communication, and frequent medical disputes bring greater burdens to doctors and nurses, a special professional group. Psychological cost will lead to emotional exhaustion among doctors (Bakker et al., 2003), which makes them fall into negative emotions such as

depression, anxiety, and burnout; physical cost leads to potential labor injury, positively predicts health problems of doctors, and may even increase the probability of doctors' turnover due to health conditions (Bakker, Demerouti, & Taris et al., 2003). Therefore, excessive job demands produce both psychological and physical pressure on employees, which further leads to burnout.

#### **2.2.2.1 Workload and burnout**

At present, doctors in all types of hospitals are overloaded with work under great pressure. Deng Liqiang, Director of the Legal Affairs Department of the Chinese Medical Doctor Association, expressed that although the competition in the medical industry is fierce and causes great pressure on individuals, self-improvement can still be achieved through individuals' diligence and efforts. However, when faced with public misunderstanding and patients' accusations that they cannot predict or control, they will bear even more psychological burden. With the rise of job positions, the workload of medical professionals will also increase accordingly. In order to effectively deal with the high demand for medical treatment, the measure of simply relying on enhancing the efficiency and efficacy of diagnosis and treatment and reducing the off-days of medical professionals is no longer applicable because the workload of medical professionals in large medical institutions has already exceeded its capacity. According to the *White Paper on the Status of Medical Practitioners in China* issued by the Chinese Medical Doctor Association in 2021, 52.72% of doctors work 40-60 hours a week on average, and 32.69% of doctors work more than 60 hours a week. Due to the high number of hospital admissions and the daily tasks such as writing medical records, ward rounds, and duty shifts, it is very common that medical professionals work overtime until late at night or even the early morning and still have to continue to work the next day. In order to solve patients' problems and provide effective treatment, the energy of medical professionals is often consumed by a large number of face-to-face communication, which includes the handling of patients' emotional responses and social problems (e.g., anxiety, disappointment, and depression). In such cases, it is not easy to find solutions. Staying in such a high-pressure environment for the long term affects medical professionals' rest time and sleep quality, which leads to exhaustion. In a long run, the accumulated pressure will affect their psychological and physical health and may even lead to job resistance and burnout. Therefore, this thesis puts forward the following hypothesis:

Hypothesis 2-a (H2-a): *Workload is positively associated with burnout.*

#### **2.2.2.2 Emotional demands and burnout**

When individuals' emotional costs increase, they will be highly alert to possible dangers in

society and adopt a self-defense behavior pattern (Cacioppo et al., 2016), which will accelerate the depletion of available resources. If the depleted cognitive and energy resources cannot be replenished in time, it may cause negative emotions such as anxiety, tension, and dissatisfaction, which further lead to a gradual decline of energy. Individuals' energy depletion caused by work and interpersonal relationships is mainly manifested in emotional exhaustion (Cole et al., 2012), which reflects burnout. Affective Events Theory holds that employees' behavior and job performance do not depend on their attitude and personality, but on their emotions at every moment of work. These emotions and moods will affect the formation of long-term attitudes (Weiss & Cropanzano, 1996). Such emotions tend to cause exhaustion among employees and lead to employees' emotion-centered negative coping mode, resulting in work-dissociating behaviors such as exclusion and withdrawal, low organizational commitment, low job satisfaction, and high turnover intention. Therefore, long-term, sustained, and unreleased emotional pressure leads to burnout of employees. Hence, we put forward the following hypothesis:

Hypothesis 2-b (H2-b): *Emotional demands are positively associated with burnout.*

## **2.3 Research on doctors' job performance**

In the increasingly competitive medical service market, TCM hospitals must seek strategies to improve doctors' job performance in order to enhance their vitality and vigor, which is the key challenge faced by TCM hospitals in their development. At present, there is a significant research gap on the job performance of doctors in the management of TCM hospitals. In particular, it is still unclear how to effectively improve the job performance of doctors in TCM hospitals, resulting in the lack of effective guidance for hospital management practice. With the gradual deepening of China's medical reform, TCM hospitals are facing many unfavorable factors in competition with Western medicine hospitals, such as talent cultivation and doctor's income. The purpose of this study is to explore the impact of job demands and job resources on doctors' job performance and the moderation effect of different leadership styles therein by using the Job Demands-Resources Model in the specific context of TCM hospitals, with the aim of providing a theoretical reference for guiding the management practice of TCM hospitals.

### **2.3.1 Connotation and measurement of job performance**

Job performance is often used in the research of management, organizational behavior, and social psychology. It refers to the actions, behaviors, and results related to or conducive to

achieving organizational goals that employees participate in or bring about. Job performance is related to the outcomes both at the employee and organizational levels (Viswesvaran & Ones, 2000).

In order to measure job performance, Borman and Motowidlo (1993) conceptualized job performance as a single dimension, while Borman and Motowidlo (1997) divided job performance into two dimensions, namely, task performance and contextual performance. Task performance refers to the support behavior that can enhance the technical action efficiency of the company, which can be manifested by actively engaging in the company's key business activities or providing the company with the necessary materials and services. However, contextual performance focuses on how to make the enterprise more dynamic by means of human factors such as emotional communication and personality traits. For example, encouraging individuals to voluntarily assume unofficial responsibilities and helping others successfully achieve their goals are both within the scope of contextual performance.

In addition to task performance and contextual performance, some scholars also included innovation performance in the evaluation of job performance. The so-called innovation performance refers to the unique, practical, and feasible products, processes, strategies, or ideas provided by individual employees that can bring benefits to the company (Oldham & Cummings, 1996). Facing the pressure of globalized competition and the constantly changing environment, enterprises need to encourage employees to go beyond their regular job performance range so as to stimulate new ways of thinking to meet the company's needs for changes. Therefore, individuals' innovation performance is a key factor in maintaining the operation of the company (Oldham & Cummings, 1996).

### **2.3.2 Connotation and measurement of doctors' job performance**

Referring to the research in the field of organizational management, the existing studies in the hospital context define doctors' job performance as the actions, behaviors, and results related to or conducive to achieving the hospital's goals that doctors participate in or bring. Drawing on this connotation, this study focuses on the comprehensive job performance of doctors rather than a single type of performance, with the aim of contributing to improving doctors' overall performance.

For the measurement of doctors' job performance, both Chinese and international scholars have developed and verified the corresponding scales. Among international literature, Narayanan et al. (2011) evaluated two performance feedback tools, namely, the Colleague Feedback Evaluation Tool (CFET) and Doctors' Interpersonal Skills Questionnaire (DISQ) fed

back by patients, based on a survey of more than 200 doctors working in hospitals in the United Kingdom. The CFET focuses on evaluating the comprehensive ability of doctors, while the DISQ reflects the interpersonal skills of doctors. Research has shown that performance feedback tools such as CFET and DISQ can be used as the first level screening for regular performance evaluation of a large number of doctors, as long as they are based on the core aspects of good clinical practices. Van Den Assem and Dulewicz (2015) constructed a seven-item doctor performance scale from the perspective of patients, including providing sufficient time, asking about symptoms, listening, explaining, hesitating, cautious and caring treatment, and taking problems seriously. Carr et al. (2018) used the Job Description Analysis Tool (JDAT), which contains 10 items and is mainly used to evaluate the performance of junior doctors in clinical management and communication.

In Chinese literature, scholars have mainly used the scales developed for organizational management to test its reliability and validity in the hospital context and analyze its applicability. J. Yang et al. (2017a) used the task performance subscale of the job performance scale developed by Borman and Motowidlo (1997) in their survey of the hospital personnel sample, and the results indicated good reliability and validity. Z. Shen et al. (2018) adopted the job performance scale developed by Y. Han et al. (2007) to measure the performance of general practitioners. This scale covers four dimensions: contextual performance, task performance, innovation performance, and learning performance.

### **2.3.3 Job demands-resources and job performance**

Job performance is one of the most critical job outcomes. How to improve the job performance of employees has been the key concern of the management of all types of organizations (including hospitals). The Job Demands-Resources Model effectively integrates various influencing factors in job demands, from job characteristics to job outcomes, providing an excellent analytical framework for related research. For that reason, it has been widely applied in research on job performance (Bakker et al., 2004; Rhee et al., 2017).

Existing research mainly explores how various job resources and job demands affect employees' job performance through dual processes. On the one hand, the Job Demands-Resources Model believes that job resources can stimulate employees' intrinsic motivation, thereby enhancing employees' work engagement, while job demands will reduce employees' work engagement. Generally speaking, intrinsic motivation consists of a cognitive part and an emotional part, among which self-determination and ability perception constitute the core cognitive elements (Gagné & Deci, 2005). Based on that, when employees are driven by their



ability and sense of achievement, they will pay more attention to their tasks, so as to strive to improve their skills and pursue a sense of success, which is conducive to enhancing their initiative and enthusiasm in the execution of tasks and will also stimulate them to explore and think about ways and means to achieve their goals more effectively, which will eventually enable them to better fulfill their responsibilities, obtain better performance feedback, and gain career satisfaction (Hou & Lu, 2018). In line with the above logic, many current studies have found that job resources can stimulate intrinsic motivation, thereby promoting employees' work engagement and improving employees' job performance, while job demands will hinder employees' work engagement and job performance due to reduced intrinsic motivation (Bakker et al., 2004; Rhee et al., 2017; Zablah et al., 2012).

On the other hand, the Job Demands-Resources Model believes that job demands can lead to burnout, while job resources can effectively alleviate burnout. Individuals with burnout experience long-term exhaustion and are emotionally and cognitively disconnected from work activities (Bakker & Costa, 2014). This chronic exhaustion and negative job attitude will have a negative impact on individuals' job performance. Specifically, first, due to the exhaustion and anxiety caused by the serious depletion of energy resources, it is difficult for workers to show excellent performance, and those who feel exhausted and anxious are more likely to make mistakes (Bakker & Van Emmerik et al., 2008). In this case, if these errors need to be corrected, the work pressure will further increase. Second, the exhaustion of energy will also make employees enter a negative feedback loop. They are unwilling to seek help from others or proactively improve their conditions, which will then affect their productivity. Finally, burnout will make individuals develop a negative or even resistant attitude toward work. The feeling of exhaustion stimulates employees' cynical attitude toward work, forcing them to attempt to cope with pressure by maintaining emotionally disconnected from work (Maslach et al., 2001). Previous studies have confirmed that job resistance caused by burnout will make employees want to be dissociated from work, thus leading to negative performance outcomes (Van den Broeck & De Cuyper et al., 2010; Van den Broeck & Vansteenkiste et al., 2010). Third, work stress may weaken an individual's control over the workplace environment, and this lack of control may have a negative effect on an individual's work efficiency. Research has shown that the occurrence of exhaustion will significantly reduce workers' self-confidence in dealing with work (Bakker et al., 2003); exhausted employees are more likely to show an inferiority complex, and self-abasement will lead to higher job demands (Bakker & Costa, 2014). All these may make exhausted workers show lower performance. Generally speaking, due to physical and psychological exhaustion, energy depletion, and the sense of disconnection from work,

exhausted workers often choose to face work tasks in a negative manner. They are not willing to assume challenging responsibilities and may sometimes be scared away by difficulties, eventually resulting in adverse job outcomes. In line with the above logic, many existing studies have found that job demands can reduce employees' job performance by causing burnout, while job resources can help improve employees' job performance by reducing burnout (Bakker et al., 2004; Rhee et al., 2017; Zablah et al., 2012).

### **2.3.4 Influencing factors of doctors' job performance**

Through an extensive and comprehensive literature review, Pandey (2019) identified and classified the factors influencing job performance and developed a comprehensive model integrating job demands, job resources, and job stressors. The findings also apply to doctors' job performance, and a few researchers have partially confirmed the three categories of influencing factors proposed by Pandey (2019) in the hospital context.

(1) Job demands affect job performance. Job demands are divided into physical demands, cognitive demands, and affective demands. Physical demands refer to the demands of physical labor for work. When the physical labor required for work is greater than the maximum physical cost that individuals can bear, it will lead to exhaustion and reduced job satisfaction, thus affecting job performance. For example, Zhu et al. (2019) found that doctors' perceived ease of use and perceived usefulness would affect their job performance.

(2) Job resources affect job performance. Job resources are divided into resources at the individual, job, organizational, and social levels. Individual resources refer to individuals' physical, affective, and cognitive abilities, such as physical health and EQ (EQ has a positive impact on job performance). Job-level resources include the support and assistance of the work team and the support and assistance of the leader. Organizational resources include factors such as organizational justice and organizational support. Social resources refer to resources such as social support and social civilization.

(3) Job stressors affect job performance. Traditionally, job stressors include stressors at individual, job, and family levels. individual stress refers to the negative cognitive and psychological barriers to work due to personality. Stress at work mainly refers to the degree of fit between individuals and the work environment and the role stress, among others. Family stress mainly comes from the impact of family-work conflict on individuals. J. Han et al. (2018) found that doctors' job performance was affected by factors such as the type of department, sleep quality, organizational assistance, imbalance between pay and return, and occupational

fatigue.

In summary, the comprehensive model integrating job demands, job resources, and job stressors developed by Pandey (2019) is highly similar to the Job Demands-Resources Model, where job stressors can be integrated with the energy depletion process in the Job Demands-Resources Model. That is, high job demands and low job resources can lead to employees' energy depletion, resulting in work stress. Building on the review of Pandey (2019), this study will explore the influencing factors of doctors' job performance using the Job Demands-Resources Model while taking into account the leadership style.

### **2.3.5 Work engagement, burnout, and job performance**

#### **2.3.5.1 Mediating role of work engagement**

Work engagement refers to the positive and satisfying psychological experience associated with professional activities, which is mainly composed of attributes such as energy, selfless dedication, and concentration (Schaufeli et al., 2002). In recent years, research has focused on the relationship between work engagement and job performance. Scholars have claimed that compared to burnout, work engagement can better predict employees' job performance, (Shin, 2003). Existing research has shown that when employees invest their physical labor, thinking ability, and affection into their work responsibilities, they pay higher attention to their roles, build a stronger affective connection with the role, and will spend more energy and time to complete the tasks assigned by the role, which will be conducive to the improvement of performance (Rich et al., 2010). Moreover, employees with higher work engagement tend to have a better understanding of their work and stronger organizational identification and can grow a deeper understanding of the value of their work and the company's goals. Thus, they are likely to show positive social engagement behavior in their daily work (Hall et al., 2013).

Similarly, Crant (2000) believes that employees who are highly enthusiastic and willing to dedicate themselves to work tend to show positive behaviors, such as providing support and assistance to colleagues or putting forward valuable suggestions to the organization. Kahn (1990) states that a high level of work engagement will enable individuals to put all their energy into the task to give full play to their talents and skills, thereby improving their performance; work engagement is significantly positively associated with job performance. Through a study on employees in the United States, Halbesleben et al. (2009) found that work engagement is the only variable to explain the variation in employees' job performance, and the degree of work engagement has a significant positive impact on job performance. Specifically, the path of work

engagement influencing job performance is as follows: On the one hand, with higher work engagement, the employees' emotional and psychological state will be more positive, and they will handle their work with higher enthusiasm, more attention, and more dedication, which enables them to complete the work more efficiently, thereby improving their task performance (Richardsen et al., 2006). In addition, with higher work engagement, the employees will be in an excited and positive psychological state, and such an optimistic and happy mood makes them hold a more inclusive and open attitude in dealing with the relationship with colleagues, further influencing the colleagues around them by passing on this attitude, which is conducive to developing a working atmosphere with an optimistic view of difficulties and harmonious interaction with colleagues, thereby improving the job performance among the employees (Kataria et al., 2013). Therefore, work engagement can affect job performance through two paths. On the one hand, work engagement can affect job performance by influencing personal attention and dedication: the higher the work engagement, the more personal attention and dedication, which can effectively prevent distractions, thus improving work efficiency. On the other hand, the higher the employees' work engagement, the more enthusiastic and excited the mood of employees, and the more likely they will deal with the difficulties and problems encountered at work with a positive and peaceful attitude and also interact with their colleagues with a more inclusive attitude, so as to influence their colleagues by conveying positive and optimistic energy, thereby improving work-related performance. In summary, there is a positive relationship between work engagement and job performance.

According to the Conservation of Resources Theory (Hobfoll, 1989), employees tend to acquire psychological assets that they regard as valuable, such as dignity and trust. These resources can stimulate them to maintain motivation and improve performance in the face of challenges at work. When they have rich workplace resources such as generous salaries and an excellent career development environment, employees will perceive that their earlier efforts have been recognized by the organization, which will stimulate their enthusiasm for work, drive them to master diversified work skills, enhance their recognition of self-values, and make them dedicate themselves to work. In this process, they can also perceive emotional support, such as patients' respect, understanding, and trust, which is an essential psychological capital for medical professionals and can motivate them to devote themselves to the practice of medical services with a more positive attitude, thus further achieving outstanding job outcomes. On this basis, this study posits that due to various supports (e.g., salaries and promotion opportunities), doctors can be fully dedicated to their work, and their level of work engagement is enhanced, which further helps to improve doctors' job performance. Therefore, we put forward the

following hypothesis:

Hypothesis 3-a (H3-a): *Work engagement mediates the relationship between salary level and job performance.*

Hypothesis 3-b (H3-b): *Work engagement mediates the relationship between promotion opportunity and job performance.*

### **2.3.5.2 Mediating role of burnout**

Burnout is regarded as the phenomenon in which individuals' work engagement and motivation decrease, usually caused by long-term high-intensity work pressure or the continuous depletion of job resources (Bakker & Costa, 2014; Taris, 2006). Individuals with burnout experience long-term exhaustion and are affectively and cognitively disconnected from work activities (Baker & Costa, 2014), which will lead to persistent fatigue and cause negative work attitudes, thus resulting in negative outcomes among individuals. The burnout caused by excessive fatigue will make it difficult for medical professionals to maintain their focus as they need to spend more effort to deal with the task, and will also make them feel depressed or resistant to work, resulting in lower job performance. Specifically, the primary reason is that the work exhaustion caused by excessive energy depletion makes it difficult for medical professionals to show excellent performance.

A study has found that doctors who feel exhausted and worried in their daily work are more likely to make mistakes (Bakker & Schaufeli et al., 2008), and the correction of such mistakes may further increase their already excessive burden. When doctors feel exhausted, their mental state will enter a negative and self-destructive loss spiral, which makes them choose to escape when they need assistance and unlikely to proactively improve their conditions, thus reducing their work efficiency and efficacy (Singh et al., 1994). The problems caused by work exhaustion not only affect individuals' health and psychological status but also hinder them from achieving excellent performance. In addition, it will also make people grow negative emotions or resistance toward work. Previous studies have confirmed that job resistance caused by burnout will make employees want to disconnect from work, further leading to negative performance (Van den Broeck & Vansteenkiste et al., 2010). When individuals' work stress increases, their control over work will also decline, which in turn will affect their job performance (Fried et al., 1998). There is evidence showing that exhaustion and lack of motivation will reduce the self-confidence of medical professionals in dealing with work-related matters (Bakker, Demerouti, & Taris et al., 2003). In addition, exhausted medical professionals are more likely to doubt their ability and value, and such self-denial behavior may further result in higher standards for their

work (Bakker & Costa, 2014). All these factors may lead to a low level of job performance among exhausted workers. In general, exhausted doctors are more likely to deal with their work in a negative manner due to emotional and energy exhaustion and a sense of disconnection from work (Xu & Lin, 2021). They may avoid accepting challenging tasks and even be scared away by difficulties, which will eventually lead to a decline in their work quality. The meta-analysis of Taris (2006) also shows that burnout is negatively associated with job performance. Similarly, Bakker and Schaufeli et al. (2008) found a negative relationship between exhaustion and actual performance. In summary, research has shown that there is a negative relationship between burnout and job performance.

According to the Conservation of Resources Theory, everyone has the tendency to conserve, protect, and acquire resources (Hobfoll, 1989), and the loss and increase of resources will lead to different behavioral tendencies, especially when facing a lack of resources, which is a common professional challenge (Crawford et al., 2010). When medical professionals face high job demands (e.g., workload and emotional demands), low job resources (e.g., low salary), or the loss of resources, the state of resource depletion and instability often stimulate individuals to develop negative emotions such as tension, depression, pain, and pessimism (Hobfoll, 2001). The increased uncertainty and instability of the working environment seriously deplete individuals' psychological resources, making employees' personal resources continuously threatened and lost (Yao et al., 2020), which will greatly reduce doctors' work enthusiasm and emotional status, hinder doctors' work vitality, and thus reduce their job performance.

The Job Demands-Resources Model explains the relationship between job characteristics and individuals' work attitudes, behavior, and outcomes through the dual processes: the health impairment process and the motivational process. After the model was put forward, many studies have tested these two processes with a focus on burnout. Previous studies have shown that job demands often lead to problems such as depression and low sense of personal accomplishment among workers. When employees are faced with excessive work pressure, negative emotional burden, and responsibility ambiguity, they may suffer from work exhaustion, which may weaken their satisfaction with, recognition of, and trust in the company, reduce their performance, and sometimes may lead to health problems, thus greatly affecting the overall work efficiency (Schaufeli, 2017). Therefore, if the tasks are too demanding or the resources are limited, it will lead to the process of resource and energy depletion, that is, it will reduce the employees' job performance by stimulating their exhaustion at work (Demerouti et al., 2001). On this basis, this study regards such a phenomenon as a path of resource depletion, which can be understood as that work exhaustion is generated due to excessive work pressure

(e.g., excessive workload, emotional burden, and responsibility ambiguity) or lack of necessary support (e.g., work autonomy, salaries, and promotion opportunities), which further hinders the possibility of improving their work efficiency. Therefore, we put forward the following hypothesis:

Hypothesis 4-a (H4-a): *Burnout mediates the relationship between workload and job performance.*

Hypothesis 4-b (H4-b): *Burnout mediates the relationship between emotional demands and job performance.*

## **2.4 Research on leadership styles**

### **2.4.1 Transformational leadership**

#### **2.4.1.1 Connotation of transformational leadership**

Burns defined the concept of "transformational leadership" for the first time in his classic work *Leadership* (Burns, 2012). He explained that this type of leadership style can stimulate and inspire subordinates' potential and enthusiasm, enabling them to devote themselves to their work, and the interaction between the leader and subordinates can promote the improvement of the needs and motivation of both sides. Such leadership enables employees to meet their higher-level needs (such as self-actualization according to Maslow's theory), thereby increasing their sense of responsibility and dedication. In addition, he stressed that these leaders would utilize their resources and talents to promote the development of the company so as to achieve or even exceed the expected results. Based on that, Bass published his book *Leadership and Performance Beyond Expectations* in 1985, where he further discussed transformational leadership by expanding and supplementing its connotation. He pointed out that these leaders should first describe an attractive vision of the company, and then actively promote it; then, they would pass on the shared goals and values to their subordinates and continuously nurture their knowledge and skills; finally, they would make employees acknowledge the importance of their work and gain a sense of mission, to improve their sense of responsibility and make them willing to prioritize the company's interests over their personal interests.

Most researchers have followed the view of Burns and Bass. They further enriched and optimized the definition of transformational leadership and have made significant progress. For example, Fields and Herold (1997) proposed that transformational leaders can establish the long-term vision of the organization and show unique personal charisma. It enables employees

to grow a strong sense of belonging and loyalty, the impact of which even goes beyond the traditional labor contract relationship as it also includes affective factors to the interpersonal relationship. Van Knippenberg and Sitkin (2013) pointed out that transformational leaders should first respect employees, give them enough trust and a certain degree of freedom in work, make their source of motivation shift from personal interests to the common interests of the team, and finally use appropriate reward systems to stimulate the enthusiasm of employees and drive their continuous innovation and progress in their career. Hoch et al. (2018) stated that as a positive leadership concept, transformational leaders could bring positive influence to their followers. They can improve their followers' self-esteem, confidence, and trust by accurately understanding and strengthening their needs, guide them to review their values through effective dialogue, and encourage them to give full play to their initiative and creativity to enhance their professional ability.

In summary, transformational leadership can motivate employees to contribute to the organization by stimulating their high-level needs, cultivating and improving their change mindset, setting an example for them, and caring for them.

#### **2.4.1.2 Dimensions of transformational leadership**

Bass (1985) further developed and improved the transformational leadership concept advocated by Burns and made an in-depth analysis of its dimensions. He divided this leadership into three dimensions: intellectual stimulation, charismatic and inspiring leadership, and individualized consideration (Pang, 2018). However, subsequent studies showed that the charismatic and inspiring leadership contains two forms of manifestations with different meanings. The earlier three dimensions were further divided into four: idealized influence, inspirational motivation, individual consideration, and intellectual motivation (Bass & Avolio, 1994). This four-dimension model of transformational leadership attracted many scholars' attention as soon as it was put forward and has been widely applied in theoretical research. Among the four dimensions, idealized influence refers to that leaders can inspire employees to trust, worship, and follow themselves their own behaviors (Pang, 2018). This influence is manifested by that leaders become the model of subordinates' behavior and have gained their recognition, respect, and trust. Leaders with high-level ideals, moral standards, values, beliefs, sense of mission, and personal charisma are deeply admired and trusted by subordinates. Employees recognize and support the vision and planning advocated by leaders and place high expectations on their achievements. Inspirational motivation refers to that leaders build a vision for organizational development, communicate it with employees, and make them identify with the organizational



vision and realize the meaning of their work, so as to stimulate their work enthusiasm. Individual consideration refers to that depending on the characteristics of individual employees, leaders pay attention to the aspects that are helpful to the employees' work and career and provide them with support and guidance, so as to improve their professional ability. Intellectual motivation is to motivate employees to innovate, take on challenges, develop new ways of thinking, express new opinions, consider work-related problems from a new perspective, and actively use new methods and news ways to solve problems, so as to enhance their problem-solving ability (Pang, 2018). Bass and Avolio (1996) developed the Multifactor Leadership Questionnaire (MLQ) to measure the four dimensions of transformational leadership, and it has become the most representative tool for measuring transformational leadership.

This study will adopt the four key indicators proposed by Bass and Avolio (1994): inspirational motivation, idealized influence, individual consideration, and intellectual motivation. It is the most influential way for the dimension division of transformational leadership and has been proved to be well applicable by a number of empirical studies (Si & Wei, 2012; Tian et al., 2022).

#### **2.4.1.3 Transformational leadership in the context of hospitals**

In order to improve the management efficiency and outcome of medical institutions, scholars applied the concept of transformational leadership in the field of organizational management and its related factors to the context of medical institutions, regarding leadership as a behavior with four dimensions: idealized influence, inspirational motivation, individual consideration, and intellectual motivation. This leadership can be implemented not only by high-level hospital directors but also by grass-roots leaders responsible for daily operation and management (Gowen III et al., 2009; Jabnoun & Juma AL Rasasi, 2005b). On this basis, researchers have conducted studies to explore the impact of transformational leadership on hospitals.

Specifically, the existing research on transformational leadership in the hospital context mainly focuses on its impact on the outcomes at three levels. The first level is the impact of transformational leadership on the organization, that is, the hospital. For example, Jabnoun and Juma AL Rasasi (2005b) found that patients in the UAE were generally satisfied with the service quality provided by the hospital, and all dimensions of transformational leadership could significantly improve the service quality of the hospital. Gowen III et al. (2009) found that transformational leadership could significantly improve the quality management of the hospital, where the knowledge response ability of the hospital played a mediating role. The study of Y. Wang et al. (2022) showed that there was a positive relationship between the

transformational leadership of department managers, structural empowerment, and medical cooperation in hospitals; the transformational leadership of department managers could improve the doctor-nurse cooperation in hospitals by promoting the organization's structural empowerment.

The second level is the impact of transformational leadership on the team or department in the hospital. For example, X. Zhou et al. (2022) found that in public hospitals, transformational leadership had a positive impact on team effectiveness, in which organizational learning played a positive mediation, and organizational identification played a positive moderating role in the effect of transformational leadership on organizational learning. The research findings confirmed that the team effectiveness of public hospitals could be enhanced by promoting transformational leadership and organizational learning while taking into account organizational identification. Feng and Su (2021) found that in nursing, there was a significant positive relationship between transformational leadership behavior and team performance, between transformational leadership behavior and team cohesion, and between team cohesion and team performance; mediation path analysis showed that team cohesion played a partial mediating role in the relationship between head nurses' transformational leadership behavior and team performance. The research findings confirmed that in military hospital nursing teams, vigorously cultivating the transformational leadership of nursing managers and taking various measures to enhance team cohesion can effectively improve the nursing team's performance.

The third is the impact of transformational leadership on individual employees (including doctors) in hospitals, which is the aspect that has received the most attention from researchers and has obtained the most extensive research outcomes. For example, Salanova et al. (2011) found that transformational leadership could improve nurses' extra-role performance, in which nurses' self-efficacy and work engagement played a mediating role. The findings of Wang et al. (2012) found that the transformational leadership of nurse managers and the job satisfaction of clinical registered nurses were at the medium level and that there was a significant positive relationship between these two. Novitasari et al. (2020) conducted research in the context of the COVID-19 pandemic and found that transformational leadership had no significant effect on employees' job performance but could enhance employees' ability to respond to changes, which, as a mediator, could, in turn, influence the relationship between transformational leadership and employees' job performance. That is to say, transformational leadership had an impact on the job performance of employees in the medical industry under specific circumstances. Bosak et al. (2021) adopted a cross-lag design in their research and found that transformational leadership was negatively related to hospital employees' emotional exhaustion

and the depersonalization dimension of burnout, in which the attractiveness of organizational mission (e.g., mission value) to employees played a mediating role; that is, transformational leadership could reduce employees' emotional exhaustion and burnout by increasing the attractiveness of organizational mission (mission value) to employees. In addition, there are many studies on the impact of transformational leadership on the outcomes of individual employees in hospitals. For example, nursing leaders are more likely to show transformational leadership in the workplace, and nurses exposed to this leadership style tend to have medium to high levels of job satisfaction (Chen & Baron, 2006); nurses whose supervisors adopt transformational leadership are less likely to develop job dissatisfaction compared to nurses whose supervisors adopt other leadership styles (Bono et al., 2007); nurse leaders with transformational leadership tend to create a supportive working atmosphere (Lin et al., 2015).

## **2.4.2 Transactional leadership**

### **2.4.2.1 Connotation of transactional leadership**

The Transactional Leadership Theory, put forward by Burns in 1978, emphasizes that such a relationship between superiors and subordinates is a process based on the exchange of interests: the superiors will clarify the scope of their subordinates' responsibilities and inform them of the returns when their duties are fulfilled; at the same time, the superiors will also provide necessary assistance to people in need of support for them to achieve this goal. This concept includes two parts: a) reward and punishment (that is, whether an individual is rewarded or punished is determined based on the individual's performance); b) appropriate sanctions in accordance with the actual situation of the error. All these reflect the characteristics of "transactional" management and its strictness. Bass (1985) further defined transactional leadership in his book *Leadership and Performance Beyond Expectations*. He elaborated on his understanding of this leadership style, that is, it is an effective management method mainly targeting the current institutional environment and social background and pays more attention to the principle of results orientation and time efficiency. Therefore, leaders with a transactional style will pay more attention to process control in order to achieve optimal results and prevent potential risks.

Subsequent researchers further explored the connotation of transactional leadership on the basis of Burns' and Bass's research. Many scholars agree that the Leader-Member Exchange Theory (LMX) and the Path-Goal Theory are the key bases for the formation of the Transactional Leadership Theory. Its core meaning lies in a "mutually beneficial and win-win relationship", whose establishment depends on the "benefit sharing" behavior between the two

parties. Specifically, Sergiovanni (1990) defined this concept as referring to the exchange of goods in the interaction between the superior and his/her subordinates. Similarly, Leithwood (1994) emphasized that it is a strategy to motivate employees to make efforts by leveraging all available assets of the organization, especially economic incentives. Yammarino and Dubinsky (1994) pointed out that transactional leaders tend to focus on the behavioral communication and feedback mechanism between themselves and their teams.

In summary, transactional leadership is a contractual “exchange” action based on economic principles, which pays more attention to assigning work to employees and continuously monitoring and guiding them to achieve the preset goals. This method includes setting clear goals and reward mechanisms to incentivize employees while closely observing their performance and outcomes, and deciding whether to reward or punish them according to the actual circumstances.

#### **2.4.2.2 Dimensions of transactional leadership**

In 1985, Bass put forward in his book *Leadership and Performance Beyond Expectations* that transactional leadership mainly includes two dimensions: contingent reward and management by exception. In the book, he elaborated on how these two dimensions affect the decision-making process and results in the organization. Among them, contingent reward refers to the process in which employees perform specific duties and receive corresponding rewards based on the agreement they have reached. Once the preset outcomes or thresholds are achieved, they will be given appropriate rewards as incentives or be moderately punished as a warning. This leadership style emphasizes a clear and responsibility-oriented behavior mode to enable team members to understand their roles and the corresponding result feedback mechanism.

For leaders, management by exception is a way to monitor employees and prevent them from making mistakes. This leadership mode takes immediate corrective measures against possible problems or mistakes in employees' work to ensure that they can effectively perform all tasks. From this perspective, this transactional leadership strategy can be regarded as a useful management tool.

Based on the theoretical model proposed by Bass, Avolio and Bass (1998) suggested that the dimension of management by exception in transactional leadership should have both positive and negative aspects. The negative aspect of management by exception is more reflected in leadership's inaction, which refers to their failure to pay attention to employees' work processes and usually only caring about the employees' work outcomes. The leader will intervene only when employees make mistakes or violate the regulations.

For our survey in this thesis, through integrating various existing findings and referring to studies such as Bass and Avolio (1996) and Avolio and Bass (1998), we divide transactional leadership into two dimensions: contingent reward and management by exception. Among them, management by exception includes two aspects: positive management by exception and negative management by exception. Such a dimension division method has been proven to show good applicability by a number of empirical studies (Hinkin & Schriesheim, 2008; Jelača et al., 2016).

#### **2.4.2.3 Transactional leadership in the context of hospitals**

Similar to transformational leadership, researchers dedicated to hospital management also used the connotation and dimensions of transactional leadership in organizational management for reference and defined transactional leadership in the hospital context as leadership behavior that involves contingent reward and management by exception, so as to explore its impact in the hospitals.

Compared with transformational leadership, there are fewer studies on transactional leadership in the hospital context, and most of them address both transactional leadership and transformational leadership simultaneously, comparing and analyzing the two leadership styles' different effects on hospitals, departments, and individual employees. For example, Jabnoun and Juma AL Rasasi (2005) found that UAE patients were generally satisfied with the quality of the services provided by hospitals; all dimensions of transformational leadership could significantly improve the service quality of hospitals, and the contingent reward dimension of transactional leadership could also significantly enhance hospitals' service quality; however, the management by exception dimension of transactional leadership was negatively associated with service quality. Y. Cui et al. (2018) showed that head nurses' transformational leadership behavior was significantly positively associated with nurses' organizational commitment and job satisfaction, while transactional leadership behavior was significantly positively associated with organizational commitment and job satisfaction; organizational commitment played a partial mediating role between head nurses' transformational leadership behavior and nurses' job satisfaction, but played a full mediating role between head nurses' transactional leadership behavior and nurses' job satisfaction. According to the findings of Z. Zhao et al. (2019), nurses' perceptions of the head nurses' transformational leadership and transactional leadership were both positively associated with job satisfaction, and both leadership styles had an impact on nurses' job satisfaction; however, the influence of transformational leadership was greater than that of transactional leadership. Only a few researchers focused on exploring the impact of

transactional leadership in the hospital context rather than comparing transactional leadership and transformational leadership. For example, Deng et al. (2020) found that hospitals' employee-oriented culture could significantly improve the quality of the exchange between doctors and their leaders, and transactional leadership could significantly accentuate this positive impact.

### **2.4.3 Transformational leadership and transactional leadership**

#### **2.4.3.1 Relationship between the two leadership styles**

In his book *Leadership*, Burns (2012) elaborated on the relationship between transformational leadership and transactional leadership. He stressed that these two constitute the relative extreme points of a continuum, being the opposite of each other. According to him, the main difference between transformational leadership and transactional leadership lies in the different interaction modes between superiors and subordinates, that is, the way how resources are dealt with. Comparatively, transformational leadership is more inclined to be oriented to inspiring the foresight of employees and mainly focuses on meeting the deep needs of employees; however, transactional leadership pays more attention to short-term interpersonal communication and resource sharing.

Different from Burns' view, Bass (1985) proposed in his book *Leadership and Performance Beyond Expectations* that transformational leadership and transactional leadership are not antagonistic to each other. Although these two leadership styles have their own unique definitions, in fact, they can be used interchangeably to some extent, that is, a leader can be transformational or transactional simultaneously. Bass et al.'s (2003) simulation experiment showed that transformational leadership could successfully handle team affairs, and the contingent reward dimension of transactional leadership is also conducive to the improvement of team performance. Therefore, Bass believes that both leadership styles can positively affect team performance. It does not mean that there is a conflict or contradiction between the two. In addition to team performance, researchers have found that transactional leadership and transformational leadership can also enhance employees' organizational commitment and organizational performance (Alrowwad et al., 2020; Cho et al., 2019). Although both leadership styles can bring positive effects and have their advantages, they may have varied effects in different aspects. The research of Judge and Piccolo (2004) revealed that although some aspects of transformational leadership have slightly better effects on the team than transactional

leadership, the two leadership styles do not conflict with each other. In fact, when using hybrid leadership strategies in team management, the work efficiency can be improved more significantly. Through in-depth discussion, MacKenzie et al. (2001) found that transactional leadership constitutes the foundation of the progress of transformational leadership, and the effectiveness of transformational leadership is based on transactional leadership.

#### **2.4.3.2 Differences between the two leadership styles**

Transformational leadership and transactional leadership are different in definition, connotation, and constituent elements. In terms of its essence, transformational leadership relies on improving the satisfaction of employees' higher-level needs, namely the spiritual needs, and stimulates employees to actively engage in work by means of vision guidance, leadership attraction, personal attention, and motivation. In this case, employees will proactively seek to achieve the goal of the task and regard it as the embodiment of their own values.

However, transactional leadership is from the perspective of resource exchange and focuses on the interaction and connection of resources in the short term. It involves setting goals, determining task paths, and rewarding the successful achievement of goals, which can incentivize employees to make efforts.

Most of the research focuses on transformational leadership. Comparatively, there is less research on transactional leadership. In addition, most of the existing studies that compare the two leadership styles only conducted a simple comparison of their definitions; in research practice, most of them centered on main effect analysis. We believe that on the definition level, there are obvious differences between the two; however, it is precisely because of the difference in this sense that these two leadership styles have different effects on the related outcome factors. As Bass (1985) mentioned in his book *Leadership and Performance Beyond Expectations*, transformational leadership mainly relies on stimulating employees' intrinsic motivation, such as development, sense of responsibility, and enthusiasm, to drive them to devote themselves to work; however, the transactional leadership focuses more on the use of material incentives to mobilize the enthusiasm of employees. Therefore, there are essential differences between the two. Transformational leadership is mainly manifested in understanding the needs of employees, having attractive traits, and focusing on long-term planning to motivate employees to work. Such leaders show tolerance and trust toward their employees and believe that each employee can create unique value for the company. They draw a long-term vision and involve everyone in it, resulting in a proactive engagement that is driven by a sense of honor and responsibility. In contrast, transactional leadership attaches great importance to the performance of employees

and the behavior of implementing agreed-upon behaviors. The rewards are determined based on the work outcome of employees and may involve material or spiritual rewards, which usually need to be determined in advance through negotiation. This cooperation constitutes the basis of the relationship between transactional leaders and employees. Many studies have shown that transformational leadership can significantly improve job performance indicators; however, in fact, transactional leadership can also help improve the operational efficiency of the company by providing organizations with clear boundaries, norms, procedures, and controls, and high-quality transactional leadership can effectively improve the job performance of employees while obtaining their support and recognition (X. Li & Lin, 2013).

#### 2.4.4 Transformational leadership, transactional leadership, and the Job Demands-Resources Model

According to the Job Demands-Resources Model, job resources and job demands affect individuals' outcomes (e.g., job performance and job satisfaction) by influencing individuals' job motivation and burnout. In fact, leadership style is also a key factor affecting individuals' motivation and burnout. For example, based on a meta-analysis of existing studies, Judge and Piccolo (2004) concluded that transformational leadership positively affected employees' job satisfaction and job motivation. Therefore, more and more researchers combine leadership style with the Job Demands-Resources Model to explore the impact of leadership style and work environment characteristics on employees' outcomes.

Such studies can be divided into three categories (see Figure 2.2 for details).

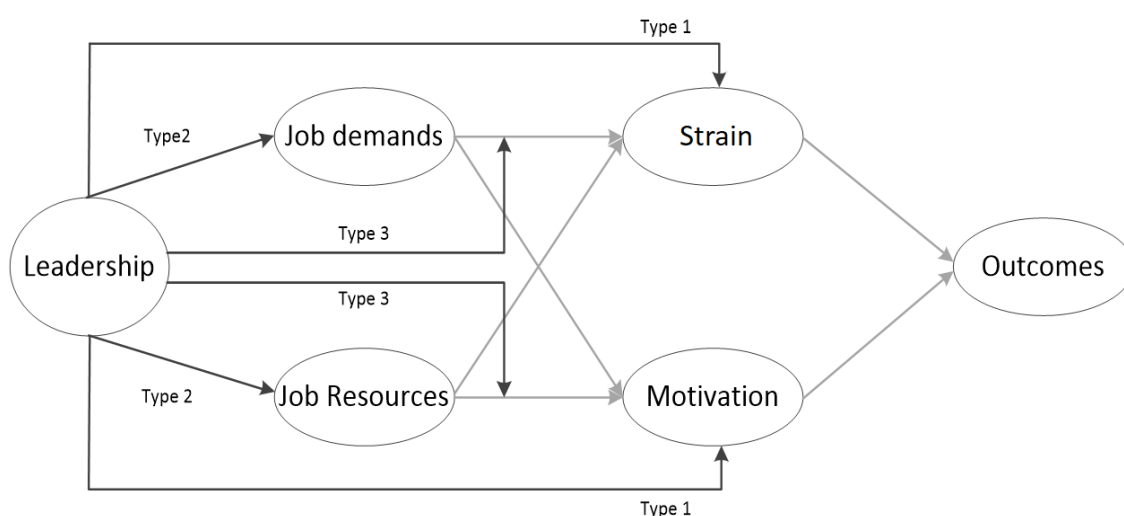




Figure 2.2 Summary of studies on leadership and the JD-R model

Source: Tummers and Bakker (2021)

Most studies fall into the first category. They regard leadership style as a job demand or a job resource and incorporate it into the Job Demands-Resources Model to explore the dual processes stimulated by it. For example, MacGregor and Cunningham (2018) believed that the function of job resources, including job security, opportunities for career development, supervisor support, and peer support, is to achieve work goals and mitigate the impact of job demands. Therefore, leadership support is regarded as a job resource. Some researchers believe that leadership is a higher-level job resource, such as job security or job autonomy, which is different from resources at the personal level. For example, X.-P. Chen et al. (2018) regarded leadership support as a resource at the team level, and Mazzetti et al. (2019) considered transformational leadership as a resource at the organizational level. Very few studies have conceptualized leadership as a job demand. Such studies usually analyze negative leadership concepts, such as abusive supervision Perko et al. (2017) or authoritarian leadership (Nielsen & Smeets, 2018).

The second category of studies does not regard leadership style as either a job demand or a job resource, but as an antecedent of job demands or job resources. For example, Fernández-Muñiz et al. (2017) suggested that job demands and resources are constrained by leaders' decisions and policies because leaders have the power to define job demands and resources, that is, the leadership determines job demands and resources. Some other studies focus on the impact of leadership on the shaping of work environment characteristics (e.g., job autonomy), which further affects the job demands and job resources experienced by employees. Such studies usually use autonomy-supporting leadership concepts, such as servant leadership J. Yang et al. (2017), engaging leadership (Mäkikangas et al., 2017), or empowering leadership (Thun & Bakker, 2018). The general conclusion of these studies is that leaders can help employees plan their own work, give employees full autonomy, increase the job resources of employees, and change the types of job demands employees face, thus leading to higher job motivation and performance. In addition, leaders can reduce job demands. For example, Fernet et al. (2015) showed that transformational leadership reduced cognitive, emotional, and physical job demands, thereby reducing psychological stress. However, leadership may also increase job demands. Molino et al. (2019) suggested that destructive leadership can increase workload, which in turn increases workaholism and exhaustion.

The third type of research has received the least attention and is a new direction for future research combining leadership style and the Job Demands-Resources Model (Tummers &

Bakker, 2021). Such studies regard leadership style as a moderator or contextual condition in the effect of job demands or job resources. When the demands or resources in the work environment can hardly change, it is meaningful to investigate such a moderation effect. For example, Breevaart and Bakker (2018) found that transformational leadership moderated the impact of obstructive and challenging job demands on employees' work engagement; in the context of highly transformational leadership, challenging job demands could improve work engagement, while the negative impact of obstructive job demands on work engagement would be mitigated.

#### **2.4.5 Transformational leadership, transactional leadership, and job performance**

Existing studies mainly regard transformational leadership and transactional leadership as antecedents of employees' job performance and explore the mechanism of their direct effects. Based on the findings of existing research, we posit that transformational leadership and transactional leadership mainly affect individual performance through two paths: task orientation and relationship orientation (Behrendt et al., 2017).

Specifically, task orientation means that managers focus on specific steps to achieve certain goals and achieve common goals by centering on the task itself. It involves the following three key points: (1) Deeply understanding the meaning of work, which can drive the corresponding adjustment of employees' behavior by passing relevant work information to them and improving the accuracy of their evaluation of tasks; (2) Stimulating the enthusiasm of employees to engage in work, which means encouraging employees to maintain a positive attitude at work, align their personal identity with their job responsibilities, and complete the process from setting goals to taking personal accountability for them by continuously communicating with employees to make them think about all possible results and schemes and compare the feasibility and practicability of these schemes in detail; (3) Strengthening the work execution of employees, which requires the establishment of an effective communication mechanism between managers and team members to guide employees to seriously think about how to implement the plan and achieve the preset goals more effectively and ensure the efficient operation of target tasks. These three key points are detailed as follows.

(1) Deeply understanding the meaning of work. To achieve this goal, it is necessary to scientifically and accurately analyze and evaluate the current situation in order to develop a strategic plan that matches the task (Achtziger et al., 2008). According to the Job Characteristics Theory, the importance and responsibility of work and the related knowledge and skills are the key factors to stimulate individuals' active engagement in work and are also directly related to

individuals' job performance (Hackman & Oldham, 1976). Managers in the organization can help employees better understand their roles and work contents by predicting the future outcomes of plans, identifying the root causes of problems, passing necessary information to employees, and providing them with the necessary support, so as to ensure the achievement of outstanding individual performance. For example, Piccolo and Colquitt (2006) pointed out in their research that transformational leadership can take measures such as finding new perspectives and adopting innovative working methods to improve the cognitive challenge of employees, making them view and think about work tasks from diversified perspectives. Similarly, leaders can also guide employees into comprehensive and profound thinking and respond to their questions quickly and effectively, so as to improve their understanding of job characteristics, thus further enhancing their performance. In addition, some studies have shown that transformational leadership can increase employees' subjective well-being by deepening their understanding of the meaning of work (Arnold et al., 2007).

(2) Stimulating employees' enthusiasm to engage in work. After employees understand the job characteristics, leaders need to transform the shared expectations of the team or organization into individuals' work motivation and goal guarantee, so as to stimulate employees' active engagement in work (Achtziger et al., 2008). As the representative and resource manager of the company, by aligning personal objectives with organizational objectives, leaders can motivate employees to actively think about possible task objectives and their impact and weigh the advantages and disadvantages of different objectives, thereby further driving employees' adjustment of work path and improving their effort and engagement.

(3) Strengthening the work execution of employees. Managers need to ensure that employees fully understand the rules to be followed and the objectives of their work and always maintain a high level of enthusiasm for work; in addition, it is necessary to translate the company's main mission into employees' practical actions, so as to bring practical benefits.

Transformational leaders convey more positive emotions and working states to employees through their personal charisma, so as to create a working environment full of positive and cooperative atmosphere, thus having a positive impact on employees' emotions (Bono et al., 2007). Under this leadership, the active engagement of employees is integrated into a harmonious team atmosphere; certain freedom at work is given to employees, who jointly undertake the responsibility of tasks, to encourage them to face greater challenges and enable them to fully devote themselves to their work, so as to achieve the performance targets set by the company. Transactional leaders will clearly define expectations for employees, set specific goals for them, break down difficult goals into smaller achievable milestones, and incentivize

employees to complete tasks more effectively by giving them rewards (Y. Li et al., 2018); at the same time, they will also provide constructive feedback to employees and recognize their contributions in a timely manner. Such behaviors are conducive to improving employees' self-efficacy.

According to the Social Exchange Theory, when leaders give employees resources and freedom, they should give back the corresponding job performance. Therefore, through personalized care and diversified support, transformational leaders can make employees perceive mutual benefits, so as to enhance their work efficiency. However, transactional leadership uses a flexible reward and punishment mechanism and negative management by exception to enhance employee compliance. For example, empirical research in the field of safety management has found that transformational leadership had a stable and significant positive relationship with active safety engagement and strict compliance with rules; similarly, active transactional leadership can also effectively promote individuals' behavior of complying with safety regulations (Breevaart et al., 2014). In general, task-oriented transformational leadership and transactional leadership can improve employees' awareness of task accountability to ensure that the task planning is reasonable and effective; they encourage employees to transform the vision of the company into their personal sense of responsibility and maintain a highly positive attitude to implement these strategies and achieve performance targets. However, we must note that when the right time comes, choosing the right way can effectively drive efficiency growth, and vice versa.

Based on the research findings mentioned above, this thesis aims to explore the impact of job demands and job resources of doctors in hospitals on their job performance through burnout and work engagement, namely, the dual processes of the Job Demands-Resources Model, and further explore the specific effect of these factors on job performance, while considering the leadership styles of doctors' direct superiors, namely transformational leadership and transactional leadership, as moderators. The specific research framework is shown in Figure 2.3.

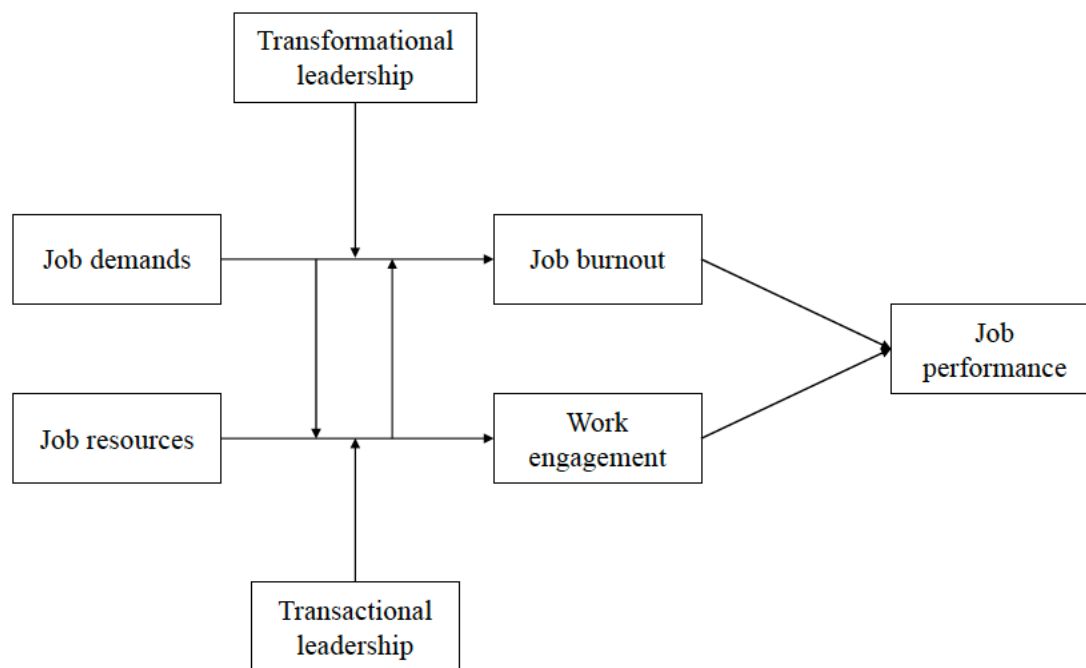


Figure 2.3 Research model

#### 2.4.6 Moderating role of transformational leadership

Transformational leadership was first proposed by Burns and was supplemented and revised by Bass. It refers to leaders showing behaviors such as building a vision for the future, stimulating employees' intelligence, providing personalized care, and helping followers develop advantages (X. Lin & Xu, 2021). Based on the integration of self-developed concepts and the Transformational Leadership Theory, Kark and Shamir (2002) proposed a dual-level transformational leadership (TFL) model, which addresses the influencing mechanism of transformational leadership assuming that it shows variations at different levels. X.-H. F. Wang and Howell (2010) believe that transformational leadership includes two types of leadership behavior, namely group-focused and individual-focused leadership behavior, and developed measurement tools accordingly. This thesis will focus on individual-focused transformational leadership behavior, which refers to setting differentiated work goals and adopting differentiated counseling methods according to the characteristics of employees, so as to give full play to their potential and enhance their ability, self-efficacy, and self-esteem. Individual-focused transformational leadership is mainly manifested in the transmission of high expectations, the nurturing of subordinates, encouragement with wisdom, and recognition of individuals. This constitutes an important job resource for employees. According to the motivational process, job resources have the potential to stimulate employees' work motivation,

which can lead to higher work engagement, lower cynicism, and better job performance (Bakker & Demerouti, 2007). Therefore, doctors will be more willing to invest time and energy in their work when there are job resources such as a high salary level or a high career promotion opportunity. In addition, among the charismatic characteristics of transformational leadership, the good relationship between superiors and subordinates will make doctors' work-related interaction more harmonious. In this case, doctors will feel more respected, recognized, and trusted by their superiors, which constitutes an important psychological resource for doctors. Under the condition of the same salary level and the same promotion opportunity, transformational leadership can provide doctors with additional psychological resources, meet their needs for higher-level identification and self-realization, and improve and strengthen their innovation ability to increase their work independence, to enable them to obtain more advantages at work, enhance their work engagement, and make doctors more devoted to medical activities, ultimately improving their job performance. Therefore, transformational leadership has a positive role in moderating the relationship between employees' job resources and work engagement.

By setting clear goals and a common vision, transformational leaders stimulate employees to pursue a high-level demand for excellence, strengthen employees' desire for career promotion and salary improvement, and make them more devoted to work in order to achieve individual and team goals, thus improving their job performance (Shao et al., 2022; X. Lin & Xu, 2021). Moreover, transformational leaders make employees more motivated to be devoted to work by encouraging them to show autonomy and creativity (Z. Wang et al., 2015) and by increasing the opportunities for them to be recognized and be considered to get promoted or receive salary raise. At the same time, transformational leaders pay attention to the career development of employees, provide support for employees in training and development, increase the possibility for them to get promoted and gain salary increases, and make them more motivated to work, thus improving their job performance (Gao & Wu, 2016). In addition, by creating a positive team culture and advocating open communication, transformational leaders also make employees more willing to make joint effort, which helps to create a more favorable atmosphere for career promotion and salary improvement. The research of W. Zhang and Wang (2017) showed that transformational leadership could significantly accentuate the positive impact of challenging pressure on work engagement. In addition, some research findings have shown that job resources, including job autonomy, salary level, social support, and opportunities for career development, can all effectively predict work engagement, indicating that job resources play a special role in improving work engagement, which in turn often leads to the

improvement of job performance. In other words, high salaries and welfare, a friendly and harmonious working environment, and smooth career promotion channels in medical institutions can all make medical professionals ignore their work exhaustion, while good social support and appropriate performance feedback will also stimulate individuals' dedication and work enthusiasm, thus driving the overall improvement of organizational performance. This series of influencing mechanisms together illustrates how transformational leadership stimulates employees' higher level of work engagement through job resources (e.g., salary level and promotion opportunity), thus indirectly affecting employees' job performance. Therefore, transformational leadership has a positive moderating role in the mediation effect of employees' work engagement between job resources and job performance. Based on the discussion above, the following hypotheses are put forward:

Hypothesis 5-a (H5-a): *Transformational leadership accentuates the positive relationship between salary level and work engagement.*

Hypothesis 5-b (H5-b): *Transformational leadership accentuates the positive relationship between promotion opportunity and work engagement.*

Hypothesis 5-c (H5-c): *Transformational leadership accentuates the mediation effect of work engagement between salary level and job performance.*

Hypothesis 5-d (H5-d): *Transformational leadership accentuates the mediation effect of work engagement between promotion opportunity and job performance.*

Transformational leadership refers to the use of one's leadership ability to effectively communicate his/her vision to employees and empower them, so as to improve their work enthusiasm and motivation and give full play to their potential. This leadership style emphasizes promoting organizational changes by stimulating employees' self-motivation and creativity (Bass, 1985). In order to reduce the workload of employees, transformational leaders tend to skillfully allocate tasks and resources to ensure that employees can cope with work stress more effectively, so as to improve the overall work efficiency. Furthermore, transformational leadership is also conducive to improving employees' understanding of the meaning of work, making them highly enthusiastic and motivated in work. As employees are more motivated and meaning-driven under the guidance of transformational leadership, they may be less likely to be exhausted, thus reducing the possibility of burnout. At the same time, in addition to stimulating employees' work enthusiasm, transformational leadership also shows the unique personal charisma of high emotional intelligence, making employees develop a strong sense of belonging and loyalty, which goes beyond the traditional relationship defined by labor contract and includes more affective factors in interpersonal relationships, resulting in employees'

willingness to contribute to the organization (Fields & Herold, 1997). Transformational leaders can understand and effectively manage employees' emotions, affect the emotional atmosphere of the entire organization, hinder the transmission of negative emotions, provide emotional values to employees, and encourage them to pursue higher goals. These measures jointly help to build a positive working environment, which can mitigate the workload and emotional demands caused by job demands and provide employees with a more challenging and meaningful work experience, thus hindering employees' burnout. Therefore, transformational leadership can moderate the relationship between job demands and burnout.

The research of Deng and Fan (2014) showed that transformational leadership could foster the formation of a positive and diverse atmosphere, so as to improve employees' work engagement and reduce their burnout across levels. By stimulating professional responsibility, setting an example, and caring for employees, transformational leaders motivate employees to be willing to contribute to the organization, which helps medical professionals to be more proactive in coping with job demands as they regard their work as a commitment to the patients' life and health, thereby reducing their work stress and emotional demands. In addition, transformational leadership tends to set clear work goals to ensure that medical professionals understand the meaning and purpose of their work. Clear goals empower employees to be more capable of coping with heavy workloads as they recognize that it is a necessary step to achieve higher medical goals. Furthermore, transformational leaders are good at influencing employees psychologically and emotionally by providing emotional support and open communication channels. It enables medical professionals to seek support in a timely manner when facing emotional demands, thus preventing the accumulation of negative emotions, which helps to reduce the risk of burnout. Transformational leaders may also strive to create a collaborative and positive team culture and emphasize joint efforts. In such a culture, medical professionals are more inclined to support each other and share work pressure, thus reducing the overall perceived workload, which is conducive to hindering burnout and reducing the negative impact of burnout on job performance. Finally, transformational leaders focus on the professional development of medical professionals and provide them with opportunities for training and development. By improving professional skills, medical professionals are more confident in dealing with the job demands such as workload and emotional demands. At the same time, they will develop a stronger sense of self-achievement and be more satisfied with their career development, which helps to hinder burnout and emotional exhaustion, thereby improving organizational performance. This series of effects together constitute the influence mechanism of how transformational leadership moderates the effect of job demands (e.g., workload and



emotional demands) on burnout and job performance in hospitals: it is conducive to reducing burnout of medical professionals, thus improving their job satisfaction and job performance. Therefore, transformational leadership has a positive role in moderating the mediation effect of burnout between job demands and job performance. Based on the above discussion, the following hypotheses are put forward:

Hypothesis 6-a (H6-a): *Transformational leadership mitigates the positive relationship between workload and burnout.*

Hypothesis 6-b (H6-b): *Transformational leadership mitigates the positive relationship between emotional demands and burnout.*

Hypothesis 6-c (H6-c): *Transformational leadership mitigates the mediation effect of burnout between workload and job performance.*

Hypothesis 6-d (H6-d): *Transformational leadership mitigates the mediation effect of burnout between emotional demands and job performance.*

#### **2.4.7 Moderating role of transactional leadership**

According to the Transactional Leadership Theory, the leader and the subordinates cooperate to pursue common goals and independently reach an agreement based on the principles of profit maximization and loss minimization. This collaboration is achieved through the interaction between the leader and the subordinates. According to Kellerman (2004), the influence of leaders stems from the fact that they can provide resources to meet the needs of employees. Leveraging that, leaders can guide employees to act in a way aligned with the company's goals. In order to obtain remuneration and resources, employees will complete their work according to the demands of the leader. Therefore, in this process, leaders and employees have interdependent relationships and regard each other as a means to achieve their own goals. In a study on leadership behavior using the Social Exchange Theory, Hollander (1993) showed that subordinates' obedience to leaders was based on the leader's guidance for work, recognition, vision description, and other behaviors toward employees. Therefore, transactional leadership has a positive role in moderating the relationship between employees' job resources and work engagement.

Transactional leadership is a leadership mode based on social exchange relationships proposed by Burns. He believes that there is a reciprocal relationship between leaders and subordinates based on value exchanges on the political, economic, and psychological levels, that is, there is a contractual exchange process. Through further research, Burns suggested that transactional leadership mainly includes two aspects: contingent reward and management by

exception. The former is a task-oriented and performance-based reward and punishment mechanism. The latter refers to making corrections and giving feedback regarding errors and deviant behaviors from employees in the process of work and consists of two dimensions: one is positive management by exception, which means that managers proactively monitor employees' deviant behaviors; the second is negative management by exception, which refers to that managers passively guide their subordinates' deviant behavior. Burns divided transactional leadership into two dimensions: contingent reward and contingent punishment. Contingent reward refers to that in the process of exchange, leaders recognize the behavior of subordinates through rewards; contingency punishment refers to the behavior of punishing or correcting subordinates who fail to complete the specified work. According to previous studies, contingent punishment is essentially in line with Bass' management by exception. However, regardless of incentives or sanctions, they all depend on external intervention rather than individual initiatives. As for the correlation between transactional leadership and job performance, current studies have confirmed that this kind of contingent reward can predict positive job performance, which has also been supported in some special cases. However, some studies have shown that it may have negative effects or there is no correlation. Therefore, scholars have varied views regarding the relationship between transactional leadership and job outcomes, and it remains unknown how transactional leadership affects work outcomes and related factors, which needs more exploration. The goal orientation and reward and punishment mechanism of transactional leadership can help to raise and stimulate employees' attention and commitment to tasks, driving them to be more devoted to work. The research of W. Zhang & Wang, 2017)) showed that transactional leadership could significantly strengthen the positive impact of challenging pressure on work engagement. In this case, employees may be more active in seeking and utilizing various job resources provided by the organization to better complete tasks. Since the clearly defined expectations and the reward system provide employees with clear task goals and clear incentives for achieving these goals, it can enable employees to make more effective use of organizational resources to improve work efficiency and job performance (Nurlina, 2022; X. Lin et al., 2022). Within the framework of the Transactional Leadership Theory, leaders influence employees' behavior through goal orientation, reward and punishment mechanisms, and clearly defined expectations (e.g., salary level and promotion opportunity), emphasizing the completion of specific tasks and the achievement of predefined goals. Transactional leadership highlights the completion of tasks and job performance and motivates employees through rewards and punishments. Therefore, transactional leadership has a positive role in moderating the mediation effect of employees'

work engagement between job resources and job performance. Based on the above discussion, the following hypotheses are put forward:

Hypothesis 7-a (H7-a): *Transactional leadership accentuates the positive relationship between salary level and work engagement.*

Hypothesis 7-b (H7-b): *Transactional leadership accentuates the positive relationship between promotion opportunity and work engagement.*

Hypothesis 7-c (H7-c): *Transactional leadership accentuates the mediation effect of work engagement between salary level and job performance.*

Hypothesis 7-d (H7-d): *Transactional leadership accentuates the mediation effect of work engagement between promotion opportunity and job performance.*

Transactional leadership is very effective in clarifying tasks and improving performance, but under long-term and high-intensity job demands, employees may need more incentives to maintain work motivation. Under transactional leadership, with the increase of job demands, especially in the face of high demands and complex work, individuals may feel physically and psychologically exhausted, which will lead to a decline in work enthusiasm with a heavy workload and emotional demands. That is because transactional leadership emphasizes task completion and breaks down the work into clear goals and reward systems. In a high-intensity work environment, employees may feel increasingly stressed, and performing a relatively monotonous task may lead to burnout. Therefore, transactional leadership has a positive role in moderating the relationship between employees' job demands and burnout.

According to the literature on leadership and organizational behavior, the Transactional Leadership Theory emphasizes that leaders influence employees' behavior through goal orientation, reward and punishment mechanisms, and clear expectations. This leadership style focuses on the completion of tasks and achievement of job performance and motivates employees through reward and punishment mechanisms. From another perspective, the goal orientation and reward and punishment mechanism of transactional leadership may result in higher work stress among employees, leading to exhaustion and burnout in the process of pursuing the predefined goals. Moreover, the communication of leaders' clear expectations and rewards for task completion may lead to employees' over-engagement in work. In this case, employees may feel psychologically and physically exhausted due to task demands, thus developing a tendency of burnout. Therefore, transactional leadership has a positive role in moderating the mediation effect of burnout between job demands and job performance. Based on the above discussion, the following hypotheses are put forward:

Hypothesis 8-a (H8-a): *Transactional leadership accentuates the positive relationship*

*between workload and burnout.*

Hypothesis 8-b (H8-b): *Transactional leadership accentuates the positive relationship between emotional demands and burnout.*

Hypothesis 8-c (H8-c): *Transactional leadership accentuates the mediation effect of burnout between workload and job performance.*

Hypothesis 8-d (H8-d): *Transactional leadership accentuates the mediation effect of burnout between emotional demands and job performance.*

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## Chapter 3: Research Methods

This chapter presents the research methods used in this study, including the research sample, the sampling procedure, the scales, and analysis strategies.

### 3.1 Sample and sampling procedure

The sampling of this study was conducted from November, 2021 to April, 2022. The samples are from 10 public Grade A tertiary Traditional Chinese Medicine (TCM) hospitals in Guangdong province, China. Using professional networks, executives of ten TCM hospitals were contacted in a random manner to be invited to participate in this study. With their consent, the administrative department of each hospital collaborated with the researcher to conduct random sampling. We visited each hospital, and the questionnaire was reviewed and approved by the hospital's competent departments, usually including legal affairs department, organization department, and discipline inspection commission, which formed a joint working group together with the administrative office of the hospital. After appropriate communication, the administrative department of each hospital randomly distributed the invitation letter and the informed consent within the hospital. All participants agreed to voluntarily participate in the study and were informed that the data collected would be kept strictly confidential and used for scientific research purposes only, would never be used for commercial purposes, and would not involve any comment on any individual employee. The communication and preparation prior to the survey facilitated the hospital departments to coordinate the schedule of daily diagnosis and treatment and participation in the survey and was conducive to gaining the respondents' full cooperation in survey sampling.

The questionnaire was sampled by random sampling, and answers to all items were mandatory. A total of 1200 questionnaires were distributed. After removing those with missing data or obviously filled without attention, a total of 958 valid questionnaires were obtained. Among them, 306 respondents were men (31.9%), with an average age of 36.179 years old ( $SD = 7.665$  years); they had worked in the unit for an average of 7.651 years ( $SD = 5.681$  years); 19.0% held a college degree or below, 66.4% held an undergraduate degree, 14.0% held a master's degree, 0.07% held a doctoral degree or above; 49.6% had a junior professional title, 32.5% had an intermediate title, 13.9% had a deputy senior title, and 4.1% had a senior title.

### 3.2 Variable measurement

**Salary level.** The remuneration scale developed by Lequeurre et al. (2013) was used to measure the salary level. The scale contains four items (e.g., *“Our hospital pays good salaries.”*). Employees were asked to score the items on a 6-point scale according to their actual work situation (from 1 = “totally disagree” to 6 = “totally agree”). A higher the score indicates that the employee has a higher salary level (Cronbach's  $\alpha = 0.928$ ).

**Promotion opportunity.** We adopted the scale for promotional chances in Kim et al. (1996) to measure the promotion opportunity. The scale contains five items (e.g., *“Promotions are regular with our hospital.”*). Employees were asked to score the items on a 6-point scale according to their actual work conditions (from 1 = “totally disagree” to 6 = “totally agree”). A higher the score indicates that the employee has a greater promotion opportunity (Cronbach's  $\alpha = 0.873$ ).

**Workload.** We adopted the scale from Karasek Jr (1979), which includes three items, such as *“I have to work extra hard in order to complete something”*. The employee was asked to rate the items on a 6-point scale (from 1 = “totally disagree” to 6 = “totally agree”) according to the actual situation in his/her work. A higher score indicates that the employee has greater workload (Cronbach's  $\alpha = 0.835$ ).

**Emotional demands.** The emotional demands were measured using the emotional load subscale in Lequeurre et al. (2013). The subscale contains five items (e.g., *“My work demands a lot from me emotionally.”*). The employee was asked to score the items on a 6-point scale (from 1 = “totally disagree” to 6 = “totally agree”) according to the real situation in his/her work. A higher score indicates that the employee has greater emotional demands at work (Cronbach's  $\alpha = 0.725$ ).

**Burnout.** The five items that are the most related to burnout in the Maslach Burnout Inventory (Maslach & Jackson, 1981) were used to measure burnout (e.g., *“I feel burned out from my work”*). Employees were asked to score the items on a 6-point scale (from 1 = “totally disagree” to 6 = “totally agree”) according to their actual work situation. A higher score indicates that the employee has greater burnout (Cronbach's  $\alpha = 0.937$ ).

**Work engagement.** The short version of the Utrecht Work Engagement Scale (UWES-9) (Schaufeli et al., 2006) was used to measure work engagement. The scale contains nine items (e.g., *“At my job, I feel strong and vigorous.”*). Employees were asked to score the items on a 6-point scale according to their real work conditions (from 1 = “totally disagree” to 6 = “totally agree”). A higher score indicates that the employee has greater work engagement (Cronbach's

$\alpha = 0.953$ ).

**Transformational leadership.** We used the Global Transformational Leadership Scale developed by Carless et al. (2000) to measure transformational leadership. The scale contains seven items (e.g., “*My leader communicates a clear and positive vision of the future.*”). Employees were asked to score the items on a 6-point scale according to their own work experience (from 1 = “totally disagree” to 6 = “totally agree”). The higher the score, the stronger the employee perceives transformational leadership (Cronbach’s  $\alpha = 0.966$ ).

**Transactional leadership.** We used the transactional leadership scale developed by Avolio et al. (1999) to measure transactional leadership. The scale contains 12 items (e.g., “*When employees achieve their goals, leaders will express satisfaction.*”). Employees were asked to score the items on a 6-point scale according to their own work experience (from 1 = “totally disagree” to 6 = “totally agree”). The higher the score, the stronger the employees perceive transactional leadership (Cronbach’s  $\alpha = 0.905$ ).

**Job performance.** We adopted the task performance scale in Y. Han et al. (2007) to measure job performance. The scale contains 15 items (e.g., “*I complete my work in the way I expect.*”). Employees were asked to score the items according to their work experience (from 1 = “totally disagree” to 6 = “totally agree”). The higher the score, the better the employee’s job performance (Cronbach’s  $\alpha = 0.792$ ).

### 3.3 Tests of reliability, validity, and common method bias

The results of confirmatory factor analysis showed that except for the scales of emotional demands, transactional leadership, and job performance, the structural validity, whose structural validity was not ideal, all other measurement scales showed good structural validity. Hence, we revised the items of the three measurement scales: emotional demands, transactional leadership, and job performance. Specifically, the measurement items for emotional demands were reduced from five to three (Bartlett  $X^2 = 518.089$ , KMO = 0.669, explained variance ratio = 64.630%). As to the measurement items for transactional leadership, we only used the four items related to contingent reward factors in the original questionnaire (Bartlett  $X^2 = 2547.480$ , KMO = 0.816, explained variance ratio = 77.914%). For the measurement of job performance, we only used the five items related to task performance in the original questionnaire (Bartlett  $X^2 = 1655.026$ , KMO = 0.758, explained variance ratio = 56.440%). After deleting and modifying the items, all measurement scales achieved good reliability, among which the job performance measurement scale had the lowest value (Cronbach’s  $\alpha = 0.725$ ), and the transformational



leadership scale had the highest value (Cronbach's  $\alpha = 0.966$ ). The results of the discriminant validity test indicated good discriminant validity for the nine variables measured in the revised scales (see Table 3.1).

Table 3.1 Validity analysis on variables

	$\chi^2$	df	$\chi^2/df$	RMSEA	CFI	TLI	SRMR
<b>Structural validity</b>							
Workload (WL)	0.000	0.000		0.000	1.000	1.000	0.000
Emotional demands (ED)	44.188	4.000	11.047	0.102	0.952	0.881	0.042
Salary level (SA)	13.952	2.000	6.976	0.079	0.989	0.968	0.008
Promotion opportunity (PR)	24.963	5.000	4.993	0.065	0.985	0.970	0.017
Transactional leadership (TRC)	499.546	51.000	9.795	0.096	0.886	0.853	0.096
Transformational leadership (TRF)	85.038	14.000	6.074	0.073	0.964	0.946	0.020
Burnout (BO)	71.778	5.000	14.356	0.118	0.961	0.921	0.025
Work engagement (WE)	309.876	22.000	14.085	0.117	0.967	0.946	0.028
Job performance (PE)	1634.421	89.000	18.364	0.135	0.892	0.872	0.046
<b>Discriminant validity</b>							
9-factor model	2814.812	909.000	3.097	0.047	0.926	0.920	0.045
8-factor model: WL+ED; TRC; TRF; SA; PR; BO; WE; PE	2944.004	917.000	3.210	0.048	0.922	0.915	0.051
8-factor model: TRC+TRF; WE; ED; SA; PR; BO; WE; PE	3012.105	917.000	3.285	0.049	0.919	0.913	0.046
8-factor model: SA+PR; TRC; TRF; WE; ED; BO; WE; PE	3373.268	917.000	3.679	0.053	0.905	0.897	0.047
7-factor model: SA+PR; TRC+TRF; WE; ED; BO; WE; PE	3569.770	924.000	3.863	0.055	0.898	0.890	0.048
7-factor model: SA+PR; WE+ED; TRC; TRF; BO; WE; PE	3501.729	924.000	3.790	0.054	0.900	0.893	0.052
7-factor model: WE+ED; TRC+TRF; SA; PR; BO; WE; PE	3140.150	924.000	3.398	0.050	0.914	0.908	0.052
6-factor model: WE+ED; TRC+TRF; SA+PR; BO; WE; PE	3696.885	930.000	3.975	0.056	0.893	0.886	0.053
5-factor model: WE+ED; TRC+TRF; SA+PR; BO+WE; PE	6201.736	935.000	6.633	0.077	0.796	0.784	0.087
4-factor model: TRC+TRF; WE+ED+SA+PR; BO+WE; PE	7596.424	939.000	8.090	0.086	0.742	0.728	0.103

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3-factor model: TRC+TRF; WE+ED+SA+PR+BO+ WE; PE	13865.116	956.000	14.503	0.119	0.501	0.483	0.290
2-factor model: TRC+TRF; WE+ED+SA+PR+BO+ WE+PE	15047.892	963.000	15.626	0.124	0.455	0.440	0.312
Single-factor model:	22713.476	975.000	23.296	0.153	0.159	0.146	0.386

In this study, Harman's single factor test was used to analyze the common method bias. The results showed that the variance explained by the first factor was 33.016%, which is less than the critical value of 40%. It can be considered that there was no serious common method bias in the data of this study.

### 3.4 Statistical analyses

The data analysis of this study includes three parts: a) reliability and validity test of measurement scales for each variable; b) descriptive statistics of each variable, comparison of between-group differences, and correlation analysis between variables; and c) hypothesis testing with the moderated mediation effect model. All data were processed and analyzed using R 4.2.2 (R Core Team, 2013) and Mplus 8.3 (Muthén & Muthén, 2017). First, the reliability and validity of the measurement scales for each variable were tested. The internal consistency coefficient was used as the indicator for reliability, and the confirmatory factor analysis was performed to test the structural validity. Then, independent sample t-tests and one-way analysis of variance (ANOVA) were performed to compare the means between groups, and Pearson's product-moment correlation was used to examine the correlation between the variables. Finally, we tested the moderated mediation effect models and used 10000-sample bootstrapping to construct the confidence interval estimation. For the moderation effect, the interaction term was obtained by multiplying the centralized variables (Enders & Tofighi, 2007).

In the above analysis, gender (0 = female, 1 = male), educational background (0 = college or below, 1 = undergraduate, 2 = master, 3 = doctor or above), and professional title (0 = junior, 1 = intermediate, 2 = deputy senior, 3 = senior) were all processed as dummy variables prior the actual analysis. Among them, the gender "female", the educational background "junior college or below", and the professional title "junior" were taken as the reference groups. The missing values in each analysis were processed through full information maximum likelihood estimation (Enders, 2010).

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## Chapter 4: Results

This chapter mainly presents the study's data analysis results, including descriptive statistical analysis, correlation analysis, variance test, and hypothesis test.

### 4.1 Descriptive statistical analysis

The sampling of this study was conducted from November, 2021 to April, 2022. The samples were from 10 public Grade A tertiary Traditional Chinese Medicine (TCM) hospitals in Guangdong province, China. A total of 1200 questionnaires were distributed. During data cleaning, we deleted the questionnaires with missing data or obviously filled without attention, and 958 valid questionnaires were eventually obtained for data analysis. This strict screening process ensured the reliability and validity of the research results.

The descriptive statistical analysis is reported in Table 4.1. Female doctors constituted a substantial majority at 69.1%, while male doctors comprised 31.9%. Regarding age distribution, there was a noticeable concentration, with a mean age of 36.17 years and an SD of 7.6 years, indicating a predominantly youthful and middle-aged workforce within the organization. These findings bear significant implications for human resource management and talent development planning within Traditional Chinese Medicine (TCM) hospitals.

Table 4.1 Descriptive statistical analysis

	Percent/Mean	SD
1. Gender (0 = female, 1 = male)	0.319	0.466
2. Age	36.179	7.661
3. Undergraduate (0 = college, 1 = undergraduate)	0.664	0.472
4. Master (0 = college, 1 = master)	0.14	0.346
5. Doctor or above (0 = college, 1 = doctor)	0.007	0.084
6. Years of working with the current superior	7.651	5.678
7. Intermediate (0 = junior, 1 = intermediate)	0.325	0.468
8. Deputy senior (0 = junior, 1 = deputy senior)	0.139	0.346
9. Senior (0 = junior, 1 = senior)	0.041	0.197
10. Workload	4.861	1.104
11. Emotional demands	5.036	0.938
12. Salary level	3.366	1.4
13. Promotion opportunity	3.624	1.214
14. Transactional leadership	4.275	1.203
15. Transformational leadership	4.402	1.244
16. Burnout	3.36	1.417
17. Work engagement	4.23	1.203
18. Job performance	4.428	0.914

Analysis of educational attainment revealed that a majority of employees held

undergraduate degrees, accounting for 66.4%. Conversely, fewer employees possessed master's degrees or doctoral degrees, indicating the talent shortage and the professional development issues within TCM hospitals.

In terms of professional titles, employees with intermediate professional titles constituted the largest proportion, reflecting characteristics of the professional title evaluation and promotion mechanisms within TCM hospitals and individual career development trends. Conversely, the proportion of employees holding senior professional titles was notably lower, again warning the talent challenges as discussed in the introduction chapter.

For the key variables, the respondents reported a medium-high level of workload perception (mean = 4.861, SD = 1.104). Although workload remains within acceptable limits, doctors experience notable stress, particularly in emotional demands (mean = 5.036, SD = 0.938), indicating a need for increased emotional support and stress management resources. Perception of salary level and perceived promotion opportunities were moderate (mean = 3.366, SD = 1.4 and mean = 3.624, SD = 1.214, respectively), suggesting room for improvement in both areas.

Transactional and transformational leadership styles were widely reported (mean = 4.275, SD = 1.203 and mean = 4.402, SD = 1.244, respectively). Despite a moderate-low level of perceived burnout (mean = 3.36, SD = 1.417), employees maintained high work enthusiasm and motivation. Work engagement (mean = 4.23, SD = 1.203) and job performance (mean = 4.428, SD = 0.914) were high within the sampled TCM hospitals. While individual variation in job performance was minimal, continued attention to job demands and resources is necessary to enhance employee satisfaction and performance, promoting personal growth and organizational development.

## 4.2 Correlation analysis

Through the correlation analysis of variables among doctors in TCM hospitals, as shown in Table 4.2, we obtained a series of important findings regarding the relationship between individual characteristics, professional titles, educational level, job characteristics, and leadership styles.

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Table 4.2 Correlation analysis

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
1. Gender (0 = female, 1 = male)																	
2. Age	.304**																
3. Undergraduate (0 = college, 1 = undergraduate)	-.001	.074															
4. Master (0 = college, 1 = master)	.318**	.077	-.953**														
5. Doctor or above (0 = college, 1 = doctor)	.233	-.063	-.597**	-.147													
6. Years of working with the current superior	-.030	.386**	.005	-.134*	-.369*												
7. Intermediate (0 = junior, 1 = intermediate)	.141**	.225**	.214**	.058	-.214	.123**											
8. Deputy senior (0 = junior, 1 = deputy senior)	.289**	.601**	.009	.263**	.330*	.204**	-.808**										
9. Senior (0 = junior, 1 = senior)	.405**	.633**	-.061	.376**	.087	-.094	-.627**	-.442*									
10. Workload	.071	.087**	-.032	.091	-.040	.058	.045	.039	.094								
11. Emotional demands	.037	.053	-.081	.078**	.219	-.002	.015	.080	.060	.616**							
12. Salary level	-.061	.040	.080*	-.169	-.126	.083**	-.089*	.134*	.037	-.020	.062*						
13. Promotion opportunity	-.058	.012	.039	-.090	-.146	.053	-.130**	.129*	.073	.071**	.146**	.777**					
14. Transactional leadership	-.028	-.022	.095*	-.145**	-.160	-.004	-.114**	.111*	-.086	.099**	.195**	.598**	.650**				
15. Transformational leadership	-.055	.004	.073	-.116*	-.148	-.005	-.129**	.145**	-.071	.062*	.182**	.636**	.697**	.848**			
16. Burnout	.115**	-.001	-.007	.052	.099	.053	.039	-.081	-.016	.277**	.172**	-.296**	-.227**	-.185**	-.275**		
17. Work engagement	-.064	.056	.076	-.186**	-.185	.031	-.125**	.165**	-.010	.065*	.152**	.595**	.647**	.644**	.684**	-.377**	
18. Job performance	.026	.048	.057	-.066	.101	.041	-.069	.123*	.030	.134**	.257**	.415**	.480**	.527**	.549**	-.069**	.615**

Note: \*  $p < 0.05$ , \*\*  $p < 0.01$ .

The results revealed several significant correlations among the variables. Workload and emotional demands showed a strong positive correlation of (.616,  $p < 0.01$ ). Salary level had a weak positive correlation with promotion opportunity (.062,  $p < 0.5$ ). Promotion opportunity was positively correlated with transformational leadership (.697,  $p < 0.01$ ) and job performance (.480,  $p < 0.01$ ).

Transactional leadership demonstrated positive correlations with workload (.099,  $p < 0.01$ ), emotional demands (.195,  $p < 0.01$ ), promotion opportunity (.650,  $p < 0.01$ ), work engagement (.644,  $p < 0.01$ ) and job performance (.527,  $p < 0.01$ ).

Similarly, transformational leadership showed positive correlations with workload (.062,  $p < 0.01$ ), emotional demands (.182,  $p < 0.01$ ), promotion opportunity (.697,  $p < 0.01$ ), work engagement (.684,  $p < 0.01$ ) and job performance (.549,  $p < 0.01$ ). In general, transformation leadership reported more positive association with performance outcomes than transactional leadership.

Burnout exhibited positive relationships with the two job demands: workload (.277,  $p < 0.01$ ), emotional demands (.172,  $p < 0.01$ ), and negative relationships with promotion opportunity (-.296,  $p < 0.01$ ), transactional leadership (-.227,  $p < 0.01$ ), transformational leadership (-.185,  $p < 0.01$ ), and work engagement (-.275,  $p < 0.01$ ).

Work engagement was positively related to promotion opportunity (.065,  $p < 0.5$ ), transformational leadership (.152,  $p < 0.01$ ), and job performance (.615,  $p < 0.01$ ), but negatively related to burnout (-.377,  $p < 0.01$ ).

Overall, the findings highlight the importance of leadership styles, workload, emotional factors, and promotion opportunities in influencing job performance, work engagement, and burnout in the workplace.

### 4.3 Variance test

The independent sample t-test was used to analyze the difference between male and female doctors in the mean score of each variable.

Utilizing data presented in Table 4.3, a significant difference was noted in perceived burnout, with male doctors reporting higher levels compared to female doctors ( $t = 2.792$ ,  $p = 0.005$ ), indicating a need for targeted interventions to address work stress and burnout among male employees. In addition, it was observed that, on average, male doctors reported slightly higher levels of workload compared to their female counterparts ( $M = 4.948$  vs.  $F = 4.821$ , respectively), though this discrepancy was not statistically significant ( $t = 1.663$ ,  $p = 0.097$ ).

Table 4.3 Variables' mean differences by gender

Dependent variable	Male		Female		t	p
	Mean	SD	Mean	SD		
WL	4.948	1.082	4.821	1.113	1.663	0.097
ED	5.074	0.932	5.018	0.941	0.864	0.388
SA	3.270	1.458	3.412	1.371	1.466	0.143
PR	3.545	1.279	3.662	1.182	1.386	0.166
TRF	4.324	1.306	4.438	1.214	1.323	0.186
TRC	4.236	1.255	4.293	1.180	0.681	0.496
WE	4.141	1.324	4.271	1.142	1.558	0.120
BO	3.546	1.519	3.272	1.361	2.792	0.005
PE	4.455	0.961	4.415	0.892	0.624	0.533

Note: WL = Workload, ED = Emotional demands, SA = Salary level, PR = Promotion opportunity, TRF = Transformational leadership, TRC = Transactional leadership, WE = Work engagement, BO = Burnout, PE = Job performance.

No significant gender differences were found in other variables. Overall, while gender did not emerge as a significant influencing factor in most variables, the notably higher perception of burnout among males underscores the importance of addressing this issue in management practices.

In exploring the impact of individual characteristics within organizational settings on work attitudes and behaviors, educational attainment and professional title are recognized as pivotal factors. Employing one-way analysis of variance (ANOVA), this study investigated mean differences in various variables—namely, workload, emotional demands, salary level, promotion opportunity, transformational leadership, transactional leadership, work engagement, burnout, and job performance—across groups categorized by differing educational levels and professional titles.

Analysis of the data presented in Table 4.4 revealed noteworthy findings. Significant variances were observed among groups with varying educational levels concerning salary level ( $F(3,954) = 4.011, p = 0.008$ ), transactional leadership ( $F(3,954) = 3.618, p = 0.013$ ), and work engagement ( $F(3,954) = 5.908, p = 0.001$ ). These results indicate substantive shifts in individuals' perceptions and experiences across these dimensions with increasing educational attainment. Specifically, individuals holding master's degrees exhibited lower levels of work engagement and salary compared to their counterparts with college or undergraduate degrees, potentially reflecting dissonance between compensation associated with higher education in TCM hospitals.



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Table 4.4 Variables' mean differences by educational level and professional title

Dependent variable	Independent variable		Mean	SD	F	<i>p</i>
WL	Professional title	Junior	4.790	1.148	1.575	0.194
		Intermediate	4.915	1.046		
		Deputy senior	4.927	1.037		
		Senior	5.077	1.208		
	Educational level	College	4.829	1.178	0.917	0.432
		Undergraduate	4.842	1.123		
		Master	5.005	0.836		
		Doctor	4.714	1.840		
ED	Professional title	Junior	4.984	0.965	1.385	0.246
		Intermediate	5.051	0.906		
		Deputy senior	5.148	0.822		
		Senior	5.162	1.187		
	Educational level	College	5.081	0.897	1.613	0.185
		Undergraduate	4.996	0.987		
		Master	5.142	0.734		
		Doctor	5.476	0.716		
SA	Professional title	Junior	3.364	1.451	3.037	0.028
		Intermediate	3.230	1.334		
		Deputy senior	3.660	1.296		
		Senior	3.481	1.523		
	Educational level	College	3.441	1.512	4.011	0.008
		Undergraduate	3.429	1.373		
		Master	2.996	1.320		
		Doctor	2.893	1.406		
PR	Professional title	Junior	3.654	1.261	4.374	0.005
		Intermediate	3.451	1.145		
		Deputy senior	3.868	1.113		
		Senior	3.821	1.346		
	Educational level	College	3.680	1.257	1.487	0.216
		Undergraduate	3.650	1.208		
		Master	3.452	1.182		
		Doctor	3.143	1.193		
TRF	Professional title	Junior	4.460	1.255	4.996	0.002
		Intermediate	4.222	1.232		
		Deputy senior	4.671	1.092		
		Senior	4.198	1.486		
	Educational level	College	4.421	1.261	2.454	0.062
		Undergraduate	4.452	1.232		
		Master	4.168	1.233		
		Doctor	3.816	1.710		
TRC	Professional title	Junior	4.336	1.225	3.893	0.009
		Intermediate	4.123	1.167		
		Deputy senior	4.481	1.121		
		Senior	4.039	1.365		
	Educational level	College	4.282	1.242	3.618	0.013
		Undergraduate	4.338	1.188		
		Master	3.994	1.169		
		Doctor	3.679	1.631		
WE	Professional title	Junior	4.258	1.213	4.929	0.002
		Intermediate	4.062	1.212		
		Deputy senior	4.530	1.076		

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Dependent variable	Independent variable		Mean	SD	F	<i>p</i>
BO	Educational level	Senior	4.202	1.271	5.908	0.001
		College	4.348	1.227		
		Undergraduate	4.280	1.185		
		Master	3.867	1.169		
		Doctor	3.524	1.694		
	Professional title	Junior	3.375	1.430	0.969	0.407
		Intermediate	3.421	1.396		
		Deputy senior	3.176	1.464		
		Senior	3.313	1.271		
		College	3.279	1.528		
	Educational level	Undergraduate	3.354	1.396	0.691	0.558
		Master	3.475	1.348		
		Doctor	3.771	1.867		
		Junior	4.419	0.926		
		Intermediate	4.359	0.894		
PE	Professional title	Deputy senior	4.606	0.907	2.354	0.071
		Senior	4.487	0.922		
		College	4.386	0.953		
	Educational level	Undergraduate	4.456	0.937	0.957	0.413
		Master	4.337	0.725		
		Doctor	4.686	1.082		

Note: WL = Workload, ED = Emotional demands, SA = Salary level, PR = Promotion opportunity, TRF = Transformational leadership, TRC = Transactional leadership, WE = Work engagement, BO = Burnout, PE = Job performance.

Additionally, significant variances were observed in perceptions of transactional leadership between individuals with master's degrees and those with college or undergraduate degrees, suggesting differential sensitivities and expectations regarding leadership styles among individuals with diverse educational backgrounds.

In conclusion, the ANOVA analysis revealed varying levels of significance in factors such as salary level, promotion opportunity, transactional leadership, and transformational leadership based on professional titles. These findings provide valuable insights into the impact of educational level and professional title on different aspects of work-related variables. Examining the influence of professional titles on various organizational aspects, significant differences were identified between groups regarding salary level ( $F(3,954) = 3.037, p = 0.028$ ), promotion opportunity ( $F(3,954) = 4.347, p = 0.005$ ), transformational leadership ( $F(3,954) = 4.996, p = 0.002$ ), transactional leadership ( $F(3,954) = 3.893, p = 0.009$ ), and work engagement ( $F(3,954) = 4.929, p = 0.002$ ).

Comparative analysis revealed that individuals holding deputy senior titles exhibited significantly higher levels of salary, promotion opportunity, transformational leadership, transactional leadership, and work engagement in comparison to those with intermediate titles. This discrepancy likely reflects the elevated status and greater influence wielded by individuals with higher professional titles within the organizational hierarchy, affording them increased

access to organizational resources.

Furthermore, significant differences in perceptions of transformational leadership were observed between individuals with intermediate and junior professional titles, indicating potential shifts in perceived leadership styles with advancements in professional standing. However, individuals with senior professional titles did not surpass those holding deputy senior titles in perceived job performance, suggesting a potential decline in perceived job performance following attainment of the highest professional title.

## 4.4 Hypothesis test

### 4.4.1 Regression analysis

In this study, the data was processed and analyzed using R 4.2.2 (R Core Team, 2013) and Mplus 8.3 (Muthén & Muthén, 2017). The moderated mediation effect models were tested, and the 10000-sample bootstrapping was used for confidence interval estimation. For the analysis of moderation effects, the interaction term was obtained by multiplying the centralized variables (Enders & Tofighi, 2007).

In the above-mentioned analysis, gender (0 = female, 1 = male), educational level (0 = college or below, 1 = undergraduate, 2 = master, 3 = doctor or above), and professional title (0 = junior, 1 = intermediate, 2 = deputy senior, 3 = senior) were all processed as dummy variables prior the data analysis. The “female” gender, the educational level of “college or below”, and the “junior” professional title were taken as the reference groups. In each analysis, the missing values were processed through full information maximum likelihood estimation (Enders, 2010).

First of all, we looked at the effect of salary level and promotion opportunity on work engagement, corresponding to hypothesis H1-a (*Salary level is positively associated with work engagement*) and hypothesis H1-b (*Promotion opportunity is positively associated with work engagement*).

According to the data in Table 4.5, in Model 1, the  $\beta$  value of the salary level was 0.502 (S.E. = 0.024,  $t = 20.669$ ), showing that there was a significant positive relationship between salary level and work engagement. More specifically, the coefficient of salary level was positive, which means that the increase of salary level was directly related to the improvement of work engagement. In addition, the  $t$ -value was much greater than 1.96 (at 95% confidence level), indicating that this result was statistically significant. Therefore, we can confirm that hypothesis H1-a was supported by the data.

Table 4.5 Regression analysis of salary level, promotion opportunity, and work engagement

	Work engagement					
	Model 1			Model 2		
	$\beta$	S.E.	t	$\beta$	S.E.	t
Intercept	2.322	0.227	10.231**	1.621	0.228	7.111**
Gender (0 = female, 1 = male)	-0.055	0.073	-0.757	-0.048	0.068	-0.709
Age	0.012	0.006	1.969*	0.015	0.006	2.473*
Years of working with the current superior	-0.011	0.006	-1.842	-0.010	0.006	-1.772
Undergraduate	-0.051	0.089	-0.579	-0.050	0.083	-0.605
Master	-0.238	0.124	-1.924	-0.334	0.118	-2.815**
Doctor	-0.607	0.468	-1.298	-0.541	0.422	-1.280
Intermediate	-0.157	0.083	-1.880	-0.111	0.079	-1.408
Deputy senior	0.046	0.119	0.383	0.043	0.115	0.372
Senior	-0.264	0.193	-1.367	-0.316	0.174	-1.814
SA	0.502	0.024	20.669**			
PR				0.631	0.027	23.314**

Note:  $\beta$  = Unstandardized regression coefficient; S.E. = Standard error; t = t distribution value; \*  $p < 0.05$ , \*\*  $p < 0.01$ ; SA = Salary level, PR = Promotion opportunity.

In Model 2, the  $\beta$  value of promotion opportunity was 0.631 (S.E. = 0.027,  $t = 23.314$ ), showing that there was a significant positive relationship between promotion opportunity and work engagement. The coefficient of promotion opportunity was positive, indicating that more promotion opportunities would motivate employees to be more engaged in work. The t-value was much greater than 1.96, indicating that the result was statistically significant. Therefore, hypothesis H1-b was also strongly supported by the data.

Then, we used regression analysis to test hypotheses H2-a (*Workload is positively associated with burnout*) and H2-b (*Emotional demands are positively associated with burnout*). The results are presented in Table 4.6. In Model 3, the  $\beta$  value of workload was 0.349 (S.E. = 0.041,  $t = 8.556$ ), showing that there was a significant positive relationship between workload and burnout. Specifically, the coefficient of workload was positive, which means that the increase in workload would lead to the improvement of burnout. The t-value was much greater than 1.96 (at 95% confidence level), indicating that the result was statistically significant. Therefore, we can confirm that hypothesis H2-a was supported by the data.

Table 4.6 Regression analysis of workload, emotional demands, and burnout

	Burnout					
	Model 3			Model 4		
	$\beta$	S.E.	t	$\beta$	S.E.	t
Intercept	1.516	0.343	4.423**	1.731	0.382	4.534**
Gender (0 = female, 1 = male)	0.269	0.101	2.665**	0.293	0.104	2.825**
Age	-0.002	0.009	-0.253	0.000	0.009	0.009
Years of working with the current superior	0.017	0.009	1.801	0.020	0.009	2.208*
Undergraduate	0.110	0.125	0.880	0.140	0.129	1.086
Master	0.212	0.164	1.297	0.263	0.169	1.559
Doctor	0.662	0.502	1.317	0.545	0.628	0.867
Intermediate	-0.083	0.118	-0.706	-0.093	0.120	-0.772
Deputy senior	-0.414	0.178	-2.325*	-0.472	0.186	-2.535*

	Burnout					
	Model 3			Model 4		
	$\beta$	S.E.	t	$\beta$	S.E.	t
Senior	-0.279	0.263	-1.060	-0.295	0.274	-1.074
WL	0.349	0.041	8.556**			
ED				0.267	0.049	5.460**

Note:  $\beta$  = Unstandardized regression coefficient; S.E. = Standard error; t = t distribution value; \*  $p < 0.05$ , \*\*  $p < 0.01$ ; WL = Workload, ED = Emotional demands.

In Model 4, the  $\beta$  value of emotional demands was 0.267 (S.E. = 0.049,  $t = 5.460$ ), showing that there was a significant positive relationship between emotional demands and burnout. The coefficient of emotional demands was positive, indicating that an increase in emotional demands would lead to a higher risk of burnout. The t-value was much greater than 1.96, indicating that the result was statistically significant. Therefore, hypothesis H2-b was also supported by the data.

In the next part of the study, we focused on the mediating role of work engagement in the relationship between salary level or promotion opportunity and job performance. Therefore, we tested hypothesis H3-a (*Work engagement mediates the relationship between salary level and job performance*) and hypothesis H3-b (*Work engagement mediates the relationship between promotion opportunity and job performance*).

The regression analysis results in Table 4.7 show that in Model 5, that salary level was significantly directly related to work engagement ( $\beta = 0.502$ , S.E. = 0.024,  $t = 20.669$ ). That means, salary level had a positive relationship with work engagement. However, when work engagement was taken as a mediator, the relationship between salary level and job performance was weakened ( $\beta = 0.048$ , S.E. = 0.022,  $t = 2.164$ ). Although the relationship was still significant, the lower coefficient suggests that work engagement might have played a partial mediating role between salary level and job performance. Moreover, work engagement was significantly associated with job performance ( $\beta = 0.442$ , S.E. = 0.029,  $t = 15.334$ ), showing that work engagement was a significant factor of job performance. Based on the above analysis, we can see that work engagement may mediate the relationship between salary level and job performance, thus supporting hypothesis H3-a.

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Table 4.7 Regression analysis of work engagement between salary level or promotion opportunity and job performance

	Model 5						Model 6					
	WE			PE			WE			PE		
	$\beta$	S.E.	t	$\beta$	S.E.	t	$\beta$	S.E.	t	$\beta$	S.E.	t
Intercept	2.322	0.227	10.231**	2.323	0.191	12.140**	1.621	0.228	7.111**	2.226	0.192	11.566**
Gender (0 = female, 1 = male)	-0.055	0.073	-0.757	0.093	0.053	1.741	-0.048	0.068	-0.709	0.094	0.053	1.774
Age	0.012	0.006	1.969*	-0.002	0.005	-0.497	0.015	0.006	2.472*	-0.001	0.005	-0.293
Years of working with the current superior	-0.011	0.006	-1.841	0.006	0.005	1.189	-0.010	0.006	-1.772	0.005	0.005	1.068
Undergraduate	-0.051	0.089	-0.579	0.097	0.063	1.531	-0.050	0.083	-0.605	0.095	0.062	1.537
Master	-0.238	0.124	-1.924	0.158	0.086	1.835	-0.334	0.118	-2.815**	0.142	0.084	1.695
Doctor	-0.607	0.468	-1.298	0.681	0.494	1.380	-0.541	0.422	-1.280	0.681	0.501	1.360
Intermediate	-0.157	0.083	-1.880	0.001	0.063	0.016	-0.111	0.079	-1.409	0.004	0.063	0.066
Deputy senior	0.046	0.119	0.383	-0.003	0.090	-0.030	0.043	0.115	0.372	-0.010	0.090	-0.109
Senior	-0.264	0.193	-1.367	0.069	0.148	0.465	-0.316	0.174	-1.814	0.043	0.148	0.289
SA	0.502	0.024	20.669**	0.048	0.022	2.164*						
PR							0.631	0.027	23.314**	0.104	0.027	3.799**
WE				0.442	0.029	15.334**				0.406	0.030	13.497**

Note:  $\beta$  = Unstandardized regression coefficient; S.E. = Standard error; t = t distribution value; \*  $p < 0.05$ , \*\*  $p < 0.01$ ; SA = Salary level, PR = Promotion opportunity, WE = Work engagement, PE = Job performance.

In Model 6, the direct relationship between promotion opportunity and work engagement was significant ( $\beta = 0.631$ , S.E. = 0.027,  $t = 23.314$ ). That means, promotion opportunity was positively related to work engagement. However, when work engagement was taken as a mediator, the relationship between promotion opportunity and job performance was weakened ( $\beta = 0.104$ , S.E. = 0.027,  $t = 3.799$ ). Although this relationship was still significant, the decreased coefficient suggests that work engagement might have played a partial mediating role between promotion opportunity and job performance. Moreover, work engagement was significantly related to job performance ( $\beta = 0.406$ , S.E. = 0.030,  $t = 13.497$ ), which further confirmed that work engagement was a significant determinant of job performance. Therefore, we posit that work engagement may mediate the relationship between promotion opportunity and job performance, thus supporting hypothesis H3-b.

Then, we focused on how burnout affects the relationship between workload or emotional demands and job performance. Therefore, we tested hypothesis H4-a (*Burnout mediates the relationship between workload and job performance*) and hypothesis H4-b (*Burnout mediates the relationship between emotional demands and job performance*).

The regression analysis results in Table 4.8 show that in Model 7, the direct relationship between workload and burnout was significant ( $\beta = 0.349$ , S.E. = 0.041,  $t = 8.556$ ), showing that workload was positively related to burnout. However, when burnout was taken as a mediator, the relationship between workload and job performance was weakened ( $\beta = 0.135$ , S.E. = 0.034,  $t = 3.965$ ). Although this relationship was still significant, the reduced coefficient suggests that burnout might have played a partial mediating role between workload and job performance. In addition, burnout was significantly negatively associated with job performance ( $\beta = -0.073$ , S.E. = 0.025,  $t = -2.914$ ). That means, increased burnout is related to decreased job performance. Based on the above analysis, we posit that burnout may mediate the relationship between workload and job performance, thus supporting hypothesis H4-a.

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Table 4.8 Regression analysis of burnout between workload or emotional demands and job performance

	Model 7						Model 8					
	BO			PE			BO			PE		
	$\beta$	S.E.	t	$\beta$	S.E.	t	$\beta$	S.E.	t	$\beta$	S.E.	t
Intercept	1.516	0.343	4.422**	3.937	0.265	14.832**	1.731	0.382	4.534**	3.180	0.296	10.745**
Gender (0 = female, 1 = male)	0.269	0.101	2.664**	0.052	0.066	0.793	0.293	0.104	2.825**	0.059	0.065	0.915
Age	-0.002	0.009	-0.253	0.000	0.006	-0.046	0.000	0.009	0.009	0.000	0.006	0.038
Years of working with the current superior	0.017	0.009	1.801	0.006	0.006	0.973	0.020	0.009	2.208*	0.008	0.006	1.351
Undergraduate	0.110	0.125	0.880	0.082	0.082	1.001	0.140	0.129	1.086	0.116	0.080	1.443
Master	0.212	0.164	1.297	-0.078	0.103	-0.755	0.263	0.169	1.559	-0.055	0.099	-0.549
Doctor	0.662	0.502	1.317	0.311	0.448	0.694	0.545	0.628	0.867	0.214	0.438	0.489
Intermediate	-0.083	0.118	-0.706	-0.096	0.078	-1.234	-0.093	0.120	-0.772	-0.114	0.075	-1.516
Deputy senior	-0.414	0.178	-2.325*	0.121	0.120	1.001	-0.472	0.186	-2.535**	0.071	0.114	0.623
Senior	-0.279	0.263	-1.061	0.057	0.199	0.288	-0.295	0.274	-1.074	0.030	0.183	0.162
WL	0.349	0.041	8.556**	0.135	0.034	3.965**						
ED							0.267	0.049	5.460**	0.273	0.040	6.855**
BO				-0.073	0.025	-2.914**				-0.077	0.024	-3.248**

Note:  $\beta$  = Unstandardized regression coefficient; S.E. = Standard error; t = t distribution value; \*  $p < 0.05$ , \*\*  $p < 0.01$ ; WL = Workload, ED = Emotional demands, BO = Burnout, PE = Job performance.



In Model 8, the direct relationship between emotional demands and burnout was significant ( $\beta = 0.267$ , S.E. = 0.049,  $t = 5.460$ ), showing that emotional demands were positively related to burnout. When burnout was taken as a mediator, we can see that the relationship between emotional demands and job performance was still significant: the  $\beta$  value increased slightly to 0.273, S.E. decreased to 0.040, and the  $t$  value increased to 6.855. It shows that the introduction of burnout provided us with a more profound understanding of the relationship between emotional demands and job performance. In addition, burnout was significantly negatively associated with job performance ( $\beta = -0.077$ , S.E. = 0.024,  $t = -3.248$ ), which highlighted the significant role of burnout in reducing job performance. Considering the change in the direct relationship between emotional demands and job performance after introducing burnout, we can infer that burnout mediates the relationship between emotional demands and job performance, thus supporting hypothesis H4-b.

To explore how transformational leadership affects the relationship between salary level or promotion opportunity and work engagement, we tested hypothesis H5-a (*Transformational leadership accentuates the positive relationship between salary level and work engagement*) and hypothesis H5-b (*Transformational leadership accentuates the positive relationship between promotion opportunity and work*).

The regression analysis results regarding the moderating effect are presented in Table 4.9. In Model 9, the results showed that salary level had a significant positive relationship with work engagement ( $\beta = 0.207$ , S.E. = 0.032,  $t = 6.443$ ). Transformational leadership was also significantly positively related to work engagement ( $\beta = 0.515$ , S.E. = 0.036,  $t = 14.363$ ). In addition, the coefficient of the interaction between salary level and transformational leadership ( $SA \times TRF$ ) was 0.039 (S.E. = 0.019,  $t = 2.087$ ). Although the effect of this interaction was statistically significant, the coefficient was relatively small. It shows that transformational leadership may have accentuated the positive relationship between salary level and work engagement, but such an accentuating effect was weak.

Table 4.9 Regression analysis of transformational leadership between salary level or promotion opportunity and work engagement

	Work engagement					
	Model 9			Model 10		
	$\beta$	S.E.	$t$	$\beta$	S.E.	$t$
Intercept	3.994	0.178	22.448**	3.937	0.181	21.732**
Gender (0 = female, 1 = male)	-0.055	0.064	-0.852	-0.055	0.063	-0.878
Age	0.010	0.006	1.678	0.011	0.006	2.001*
Years of working with the current superior	-0.004	0.005	-0.857	-0.005	0.005	-0.872
Undergraduate	-0.080	0.074	-1.087	-0.076	0.073	-1.050
Master	-0.254	0.109	-2.318*	-0.298	0.108	-2.756**

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	Work engagement					
	Model 9			Model 10		
	$\beta$	S.E.	t	$\beta$	S.E.	t
Doctor	-0.441	0.430	-1.027	-0.431	0.415	-1.038
Intermediate	-0.056	0.073	-0.767	-0.051	0.072	-0.705
Deputy senior	0.056	0.106	0.532	0.053	0.104	0.507
Senior	-0.054	0.167	-0.322	-0.100	0.159	-0.630
SA	0.207	0.032	6.443**			
TRF	0.515	0.036	14.363**	0.454	0.038	12.043**
PR				0.307	0.037	8.286**
SA×TRF	0.039	0.019	2.087*			
PR×TRF				0.037	0.018	2.063*

Note:  $\beta$  = Unstandardized regression coefficient; S.E. = Standard error; t = t distribution value; \*  $p < 0.05$ , \*\*  $p < 0.01$ ; SA = Salary level, PR = Promotion opportunity, TRF = Transformational leadership.

In Model 10, the coefficient of promotion opportunity was 0.307 (S.E. = 0.037,  $t = 8.286$ ), indicating that promotion opportunity was significantly positively associated with work engagement. However, different from the salary level, the coefficient of the interaction between promotion opportunity and transformational leadership (PR × TRF) was 0.037 (S.E. = 0.018,  $t = 2.063$ ), and the result was also statistically significant. It shows that transformational leadership may have accentuated the positive relationship between promotion opportunity and work engagement.

Based on the above results, we can conclude that transformational leadership had a moderating effect on the relationship between salary level or promotion opportunity and work engagement, that is, transformational leadership accentuated the positive relationship between the former two and work engagement. It means that under transformational leadership, employees are likely to be more engaged in work because of a higher salary level and a better promotion opportunity.

Through the regression analysis results regarding the moderating effect on mediation as shown in Table 4.10, Table 4.11, Table 4.12, Figure 4.1, and Figure 4.2, we explored how transformational leadership affects the mediation effect of work engagement between salary level or promotion opportunity and job performance, so as to test hypothesis H5-c (*Transformational leadership accentuates the mediation effect of work engagement between salary level and job performance*) and H5-d (*Transformational leadership accentuates the mediation effect of work engagement between promotion opportunity and job performance*).

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Table 4.10 Regression analysis of transformational leadership between work engagement, salary level, and job performance

	SA			TRF			WE			PE		
	$\beta$	S.E.	t	$\beta$	S.E.	t	$\beta$	S.E.	t	$\beta$	S.E.	t
Intercept	0.198	0.323	0.613	0.016	0.273	0.058	3.994	0.178	22.448**	2.484	0.207	12.018**
Gender (0 = female, 1 = male)	-0.100	0.105	-0.957	-0.073	0.093	-0.787	-0.055	0.064	-0.852	0.093	0.053	1.741
Age	-0.008	0.009	-0.866	0.002	0.008	0.289	0.010	0.006	1.678	-0.002	0.005	-0.497
Years of working with the current superior	0.018	0.009	2.014*	-0.005	0.008	-0.620	-0.004	0.005	-0.857	0.006	0.005	1.189
Undergraduate	-0.006	0.129	-0.044	0.070	0.109	0.638	-0.080	0.074	-1.087	0.097	0.063	1.531
Master	-0.487	0.172	-2.822**	-0.229	0.153	-1.502	-0.254	0.109	-2.318*	0.158	0.086	1.835
Doctor	-0.598	0.513	-1.168	-0.701	0.635	-1.104	-0.441	0.430	-1.027	0.681	0.494	1.380
Intermediate	-0.065	0.119	-0.550	-0.230	0.104	-2.204*	-0.056	0.073	-0.767	0.001	0.063	0.016
Deputy senior	0.474	0.181	2.621**	0.256	0.153	1.671	0.056	0.106	0.532	-0.003	0.090	-0.030
Senior	0.485	0.310	1.563	-0.210	0.308	-0.680	-0.054	0.167	-0.322	0.069	0.148	0.465
SA							0.207	0.032	6.443**	0.048	0.022	2.164*
TRF							0.515	0.036	14.362**			
WE										0.442	0.029	15.334**
SA×TRF							0.039	0.019	2.087*			

Note:  $\beta$  = Unstandardized regression coefficient; S.E. = Standard error; t = t distribution value; \*  $p < 0.05$ , \*\*  $p < 0.01$ ; SA = Salary level, TRF = Transformational leadership, WE = Work engagement, PE = Job performance.

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Table 4.11 Regression analysis of transformational leadership between work engagement, promotion opportunity, and job performance

	PR			TRF			WE			PE		
	$\beta$	S.E.	t	$\beta$	S.E.	t	$\beta$	S.E.	t	$\beta$	S.E.	t
Intercept	0.323	0.268	1.204	0.019	0.273	0.069	3.937	0.181	21.732**	2.604	0.203	12.824**
Gender (0 = female, 1 = male)	-0.091	0.091	-0.991	-0.073	0.093	-0.787	-0.055	0.063	-0.878	0.094	0.053	1.774
Age	-0.011	0.008	-1.370	0.002	0.008	0.289	0.011	0.006	2.001*	-0.001	0.005	-0.293
Years of working with the current superior	0.013	0.008	1.692	-0.005	0.008	-0.620	-0.005	0.005	-0.871	0.005	0.005	1.068
Undergraduate	-0.006	0.110	-0.056	0.070	0.109	0.638	-0.076	0.073	-1.050	0.095	0.062	1.537
Master	-0.236	0.152	-1.558	-0.229	0.153	-1.502	-0.298	0.108	-2.756**	0.142	0.084	1.695
Doctor	-0.581	0.436	-1.332	-0.701	0.635	-1.104	-0.431	0.415	-1.037	0.681	0.501	1.360
Intermediate	-0.124	0.105	-1.185	-0.230	0.104	-2.204*	-0.051	0.072	-0.705	0.004	0.063	0.066
Deputy senior	0.381	0.156	2.450*	0.256	0.153	1.671	0.053	0.104	0.507	-0.010	0.090	-0.109
Senior	0.468	0.279	1.676	-0.210	0.308	-0.680	-0.100	0.159	-0.630	0.043	0.148	0.289
PR							0.307	0.037	8.286**	0.104	0.027	3.799**
TRF							0.454	0.038	12.043**			
WE										0.406	0.030	13.497**
PR $\times$ TRF							0.037	0.018	2.063*			

Note:  $\beta$  = Unstandardized regression coefficient; S.E. = Standard error; t = t distribution value; \*  $p < 0.05$ , \*\*  $p < 0.01$ ; PR = Promotion opportunity, TRF = Transformational leadership, WE = Work engagement, PE = Job performance.

Table 4.12 Mediation effect of work engagement with different levels of transformational leadership

Mediation effect path	TRF	Estimate	S.E.	t	Lower	Upper
PR $\rightarrow$ WE $\rightarrow$ PE		0.125	0.017	7.342	0.093	0.160
	High	0.144	0.018	8.136	0.111	0.181
	Low	0.106	0.021	5.007	0.065	0.148
SA $\rightarrow$ WE $\rightarrow$ PE		0.091	0.015	6.031	0.062	0.121
	High	0.113	0.015	7.567	0.085	0.143
	Low	0.070	0.021	3.279	0.027	0.111

Note: Estimate = Unstandardized simple mediation effect coefficient; S.E. = Standard error; t = t distribution value; \*\*  $p < 0.01$ . Lower = bootstrap 95% lower range limit; Upper = bootstrap 95% upper range limit; SA = Salary level, PR = Promotion opportunity, TRF = Transformational leadership, WE = Work engagement, PE = Job performance.

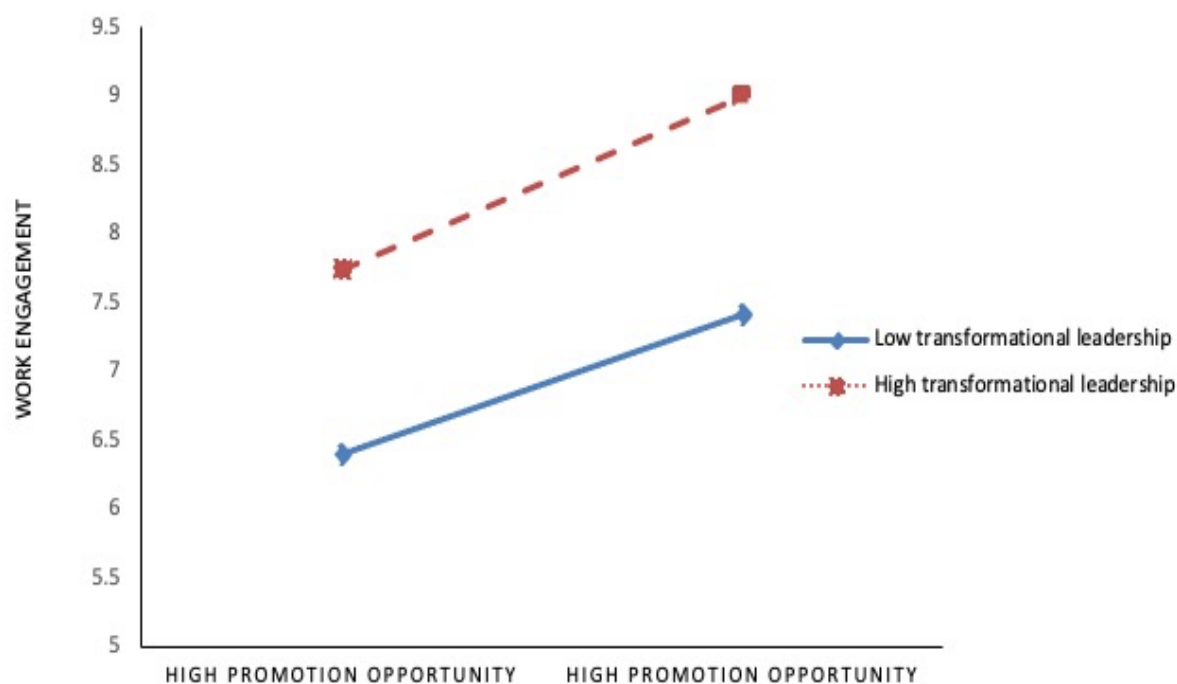


Figure 4.1 Transformational leadership moderates the relationship between promotion opportunity and work engagement

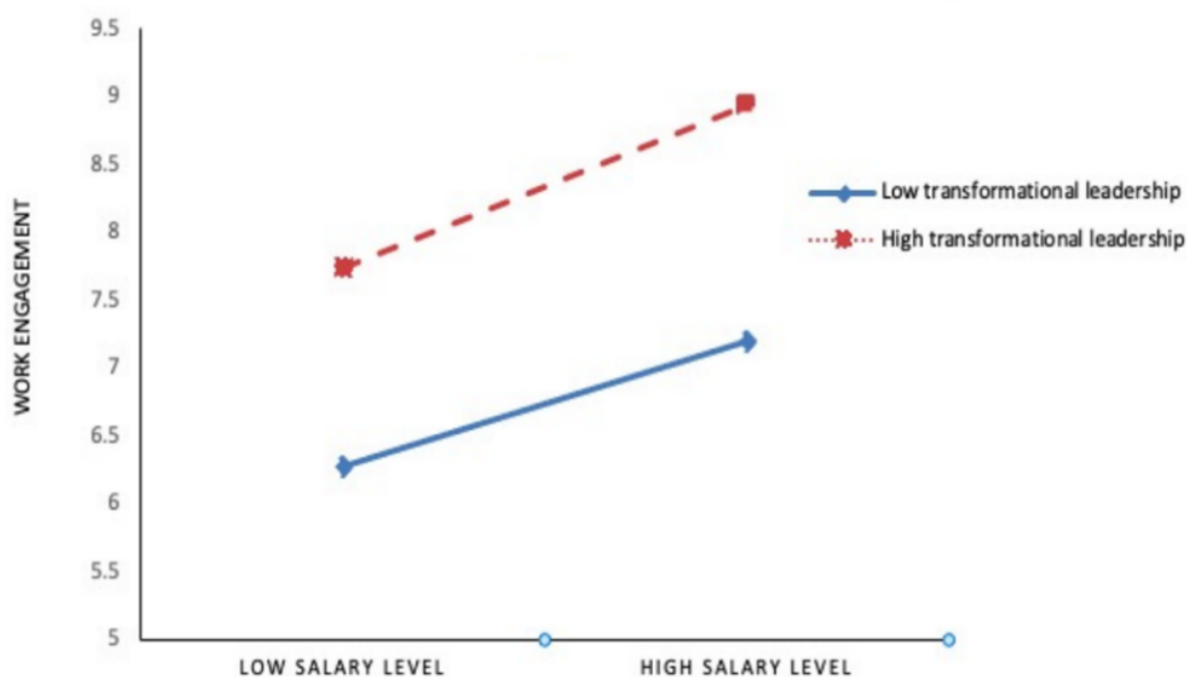


Figure 4.2 Transformational leadership moderates the relationship between salary level and work engagement

As shown in Table 4.10, we looked at the direct effect of salary level on job performance. Without controlling transformational leadership, the results showed that salary level was

significantly positively related to job performance ( $\beta = 0.207$ ,  $t = 6.443$ ,  $p < 0.01$ ), indicating that there was a positive relationship between salary level and job performance. When the transformational leadership was controlled, the coefficient of salary level decreased ( $\beta = 0.048$ ,  $t = 2.164$ ,  $p < 0.05$ ). The relationship was still significant but weakened, which shows that transformational leadership may have influenced the effect of salary level on job performance to a certain extent. At the same time, transformational leadership itself had a significant positive relationship with job performance ( $\beta = 0.515$ ,  $t = 14.362$ ,  $p < 0.01$ ), and work engagement was also a significant positive predictor of job performance ( $\beta = 0.442$ ,  $t = 15.334$ ,  $p < 0.01$ ). The coefficient of the interaction between salary level and transformational leadership ( $SA \times TRF$ ) was 0.039 ( $t = 2.087$ ,  $p < 0.05$ ), indicating that transformational leadership accentuated the positive relationship between salary level and job performance. Therefore, it can be concluded that transformational leadership can accentuate the mediating effect of work engagement between salary level and job performance, thus supporting hypothesis H5-c.

Next, we analyzed the direct effect of promotion opportunity on job performance, as shown in Table 4.11. Without controlling transformational leadership, the results showed that promotion opportunity was significantly positively associated with job performance ( $\beta = 0.307$ ,  $t = 8.286$ ,  $p < 0.01$ ), indicating that there was a positive relationship between promotion opportunity and job performance. When the transformational leadership was controlled, the coefficient of promotion opportunity decreased ( $\beta = 0.104$ ,  $t = 3.799$ ,  $p < 0.01$ ). The relationship was still significant but weakened, which shows that transformational leadership may have influenced the effect of promotion opportunity on job performance to a certain extent. In addition, transformational leadership itself was significantly positively related to job performance ( $\beta = 0.454$ ,  $t = 12.043$ ,  $p < 0.01$ ), and work engagement was also a significant positive predictor of job performance ( $\beta = 0.406$ ,  $t = 13.497$ ,  $p < 0.01$ ). The coefficient of the interaction between promotion opportunity and transformational leadership ( $PR \times TRF$ ) was 0.037 ( $t = 2.063$ ,  $p < 0.05$ ), indicating that transformational leadership accentuated the positive relationship between promotion opportunity and job performance. Therefore, it can be concluded that transformational leadership can accentuate the mediating effect of work engagement between promotion opportunity and job performance, thus supporting hypothesis H5-d.

In order to further analyze the moderating role of transformational leadership, we produced charts for the supported moderating effect (Figure 4.1 and Figure 4.2). As shown in Figure 4.1, when transformational leadership style is strong, the positive relationship between promotion opportunity and work engagement is strong; when transformational leadership is weak, this

positive relationship is weakened. As shown in Figure 4.2, when transformational leadership is strong, the positive relationship between salary level and work engagement is strong; when transformational leadership is weak, this positive relationship is weakened. These results further provided support for hypotheses H5-c and H5-d.

The results presented above show that stronger transformational leadership can enhance the positive relationship between job resources and work engagement. See Table 4.12 for results of the specific simple mediation effects. Therefore, transformational leadership not only had a direct positive relationship with job performance, but also enhanced the positive relationship between salary level (and promotion opportunity) and job performance by accentuating the mediation effect of work engagement. That means transformational leadership can enhance employees' response to salary level and promotion opportunity by improving their work engagement, thus driving the improvement of job performance.

To explore how transformational leadership affects the relationship between workload or emotional demands and burnout, we tested hypothesis H6-a (*Transformational leadership mitigates the positive relationship between workload and burnout*) and hypothesis H6-b (*Transformational leadership mitigates the positive relationship between emotional demands and burnout*).

The regression analysis results of the moderating effect are presented in Table 4.13. In Model 11, the results showed that workload was significantly negatively related to burnout ( $\beta = 0.376$ , S.E. = 0.039,  $t = 9.643$ ), indicating a strong negative relationship between workload and burnout. However, after introducing transformational leadership, we found that the coefficient of the interaction between workload and transformational leadership ( $WL \times TRF$ ) was -0.015 (S.E. = 0.029,  $t = -0.499$ ), which was not statistically significant. Therefore, hypothesis H6-a, that is, transformational leadership mitigates the positive relationship between workload and burnout, was not supported.

Table 4.13 Regression analysis of transformational leadership between workload or emotional demands and burnout

	Burnout					
	Model 11			Model 12		
	$\beta$	S.E.	$t$	$\beta$	S.E.	$t$
Intercept	3.232	0.295	10.967**	3.109	0.298	10.420**
Gender (0 = female, 1 = male)	0.240	0.097	2.474*	0.259	0.099	2.626**
Age	-0.002	0.009	-0.201	0.000	0.009	0.042
Years of working with the current superior	0.015	0.009	1.645	0.019	0.009	2.088*
Undergraduate	0.137	0.118	1.160	0.182	0.120	1.514
Master	0.133	0.153	0.871	0.169	0.156	1.086
Doctor	0.435	0.471	0.924	0.242	0.605	0.401
Intermediate	-0.161	0.112	-1.444	-0.183	0.113	-1.624

	Burnout					
	Model 11			Model 12		
	$\beta$	S.E.	t	$\beta$	S.E.	t
Deputy senior	-0.328	0.178	-1.845	-0.388	0.185	-2.095*
Senior	-0.348	0.256	-1.359	-0.358	0.263	-1.358
WL	0.376	0.039	9.643**			
TRF	-0.326	0.038	-8.652**	-0.350	0.037	-9.407**
ED				0.347	0.048	7.191**
WL×TRF	-0.015	0.029	-0.499			
ED×TRF				-0.055	0.036	-1.533

Note:  $\beta$  = Unstandardized regression coefficient; S.E. = Standard error; t = t distribution value; \*  $p < 0.05$ , \*\*  $p < 0.01$ ; WL = Workload, ED = Emotional demands, TRF = Transformational leadership.

In Model 12, the coefficient of emotional demands was 0.347 (S.E. = 0.048,  $t = 7.191$ ), indicating that emotional demands were significantly positively related to burnout. Similar to workload, the coefficient of the interaction between emotional demands and transformational leadership (ED  $\times$  TRF) was -0.055 (S.E. = 0.036,  $t = -1.533$ ), which was not statistically significant. It shows that transformational leadership did not mitigate the positive relationship between emotional demands and burnout, and thus, H6-b was not supported.

Hypotheses H6-c and H6-d put forward that transformational leadership could mitigate the mediation effect of burnout between workload and job performance and between emotional demands and job performance. In order to examine the moderating effect, after adding the control variables, we first put independent variables (i.e., workload and emotional demands) into the model, then introduced the moderating variable (i.e., transformational leadership), and finally included the product of independent variables and the moderating variable (i.e., the product of workload or emotional demands and transformational leadership). The hierarchical regression analysis results are presented in Table 4.14 and Table 4.15, according to which, the product of workload and transformational leadership had no significant relationship with job performance ( $\beta = -0.015$ ,  $t = -0.499$ ,  $p > 0.01$ ), and the product of emotional demands and transformational leadership did not have a significant relationship with job performance either ( $\beta = -0.055$ ,  $t = -1.533$ ,  $p > 0.01$ ). Therefore, hypotheses H6-c and H6-d were not supported.



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Table 4.14 Regression analysis of workload, transformational leadership, burnout, and job performance

	WL			TRF			BO			PE		
	$\beta$	S.E.	t	$\beta$	S.E.	t	$\beta$	S.E.	t	$\beta$	S.E.	t
Intercept	-0.414	0.254	-1.632	0.019	0.273	0.069	3.232	0.295	10.967**	4.807	0.195	24.713**
Gender (0 = female, 1 = male)	0.082	0.077	1.065	-0.073	0.093	-0.787	0.240	0.097	2.474*	0.029	0.056	0.509
Age	0.009	0.007	1.163	0.002	0.008	0.289	-0.002	0.009	-0.201	0.008	0.005	1.480
Years of working with the current superior	0.008	0.006	1.223	-0.005	0.008	-0.620	0.015	0.009	1.645	0.000	0.005	0.102
Undergraduate	-0.013	0.102	-0.128	0.070	0.109	0.638	0.137	0.118	1.160	0.025	0.071	0.348
Master	0.134	0.127	1.050	-0.229	0.153	-1.502	0.133	0.153	0.871	-0.015	0.091	-0.164
Doctor	-0.094	0.729	-0.129	-0.702	0.635	-1.104	0.435	0.471	0.924	0.382	0.319	1.198
Intermediate	0.036	0.095	0.380	-0.230	0.104	-2.204	-0.161	0.112	-1.444	-0.038	0.067	-0.562
Deputy senior	-0.053	0.136	-0.387	0.256	0.153	1.671	-0.328	0.178	-1.845	0.094	0.103	0.908
Senior	0.048	0.256	0.186	-0.210	0.308	-0.680	-0.348	0.256	-1.359	0.004	0.175	0.022
WL							0.376	0.039	9.643**	0.156	0.032	4.884**
TRF							-0.326	0.038	-8.652**			
BO										-0.085	0.020	-4.310**
WL $\times$ TRF							-0.015	0.029	-0.499			

Note:  $\beta$  = Unstandardized regression coefficient; S.E. = Standard error; t = t distribution value; \*  $p < 0.05$ , \*\*  $p < 0.01$ ; WL = Workload, TRF = Transformational leadership, BO = Burnout, PE = Job performance.

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Table 4.15 Regression analysis of emotional demands, transformational leadership, burnout, and job performance

	ED			TRF			BO			PE		
	$\beta$	S.E.	t	$\beta$	S.E.	t	$\beta$	S.E.	t	$\beta$	S.E.	t
Intercept	-0.035	0.210	-0.166	0.016	0.273	0.058	3.109	0.298	10.420**	4.556	0.209	21.779**
Gender (0 = female, 1 = male)	0.018	0.066	0.279	-0.073	0.093	-0.787	0.259	0.099	2.626**	0.059	0.065	0.915
Age	0.002	0.007	0.365	0.002	0.008	0.289	0.000	0.009	0.042	0.000	0.006	0.038
Years of working with the current superior	-0.003	0.006	-0.552	-0.005	0.008	-0.620	0.019	0.009	2.088*	0.008	0.006	1.351
Undergraduate	-0.129	0.082	-1.579	0.070	0.109	0.638	0.182	0.120	1.514	0.116	0.080	1.443
Master	-0.015	0.106	-0.141	-0.229	0.153	-1.502	0.169	0.156	1.086	-0.055	0.099	-0.549
Doctor	0.315	0.323	0.975	-0.701	0.635	-1.104	0.242	0.605	0.401	0.214	0.438	0.489
Intermediate	0.083	0.080	1.036	-0.230	0.104	-2.204*	-0.183	0.113	-1.624	-0.114	0.075	-1.517
Deputy senior	0.149	0.121	1.228	0.256	0.153	1.671	-0.388	0.185	-2.095*	0.071	0.114	0.623
Senior	0.121	0.249	0.486	-0.210	0.308	-0.680	-0.358	0.263	-1.358	0.030	0.183	0.162
ED							0.347	0.048	7.191**	0.273	0.040	6.855**
TRF							-0.350	0.037	-9.407**			
BO										-0.077	0.024	-3.249**
ED× TRF							-0.055	0.036	-1.533			

Note:  $\beta$  = Unstandardized regression coefficient; S.E. = Standard error; t = t distribution value; \*  $p < 0.05$ , \*\*  $p < 0.01$ ; ED = Emotional demands, TRF = Transformational leadership, BO = Burnout, PE = Job performance.

Hypotheses H7-a and H7-b suggest that transactional leadership could accentuate the positive relationship between salary level and work engagement and between promotion opportunity and work engagement. The results of the hierarchical regression analysis of the main effects are presented in Table 4.16. According to the results of Model 13 and Model 14, the product of salary level and transactional leadership had no significant relationship with work engagement ( $\beta = -0.003$ ,  $t = -0.177$ ,  $p > 0.01$ ), and the product of promotion opportunity and transactional leadership did not have a significant relationship with work engagement either ( $\beta = 0.002$ ,  $t = 0.117$ ,  $p > 0.01$ ). Therefore, hypotheses H7-a and H7-b were not supported.

Table 4.16 Regression analysis of transactional leadership between salary level or promotion opportunity and work engagement

	Work engagement					
	Model 13			Model 14		
	$\beta$	S.E.	$t$	$\beta$	S.E.	$t$
Intercept	3.968	0.181	21.880**	3.903	0.183	21.360**
Gender (0 = female, 1 = male)	-0.081	0.067	-1.219	-0.075	0.064	-1.162
Age	0.013	0.006	2.300*	0.015	0.006	2.598**
Years of working with the current superior	-0.007	0.005	-1.242	-0.007	0.005	-1.282
Undergraduate	-0.090	0.079	-1.140	-0.084	0.077	-1.079
Master	-0.222	0.116	-1.912	-0.282	0.113	-2.491*
Doctor	-0.426	0.425	-1.001	-0.412	0.409	-1.009
Intermediate	-0.096	0.076	-1.261	-0.076	0.074	-1.028
Deputy senior	0.036	0.107	0.340	0.036	0.105	0.341
Senior	-0.099	0.171	-0.582	-0.158	0.161	-0.983
SA	0.277	0.032	8.779**			
TRC	0.440	0.035	12.450**	0.379	0.037	10.267**
PR				0.388	0.037	10.433**
SA $\times$ TRC	-0.003	0.017	-0.177			
PR $\times$ TRC				0.002	0.018	0.117

Note:  $\beta$  = Unstandardized regression coefficient; S.E. = Standard error;  $t$  =  $t$  distribution value; \*  $p < 0.05$ , \*\*  $p < 0.01$ ; SA = Salary level, PR = Promotion opportunity, TRC = Transactional leadership.

Hypotheses H7-c and H7-d put forward that transactional leadership could accentuate the mediation effect of work engagement between salary level and job performance and between promotion opportunity and job performance. The hierarchical regression analysis results of the main effects are shown in Table 4.17 and Table 4.18, according to which, the product of salary level and transactional leadership had no significant relationship with job performance ( $\beta = -0.003$ ,  $t = -0.177$ ,  $p > 0.01$ ), and the product of promotion opportunity and transactional leadership did not have a significant relationship with job performance either ( $\beta = 0.002$ ,  $t = 0.117$ ,  $p > 0.01$ ). Therefore, hypotheses H7-c and H7-d were not supported.

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Table 4.17 Regression analysis of salary level, transactional leadership, work engagement, and job performance

	SA			TRC			WE			PE		
	$\beta$	S.E.	t	$\beta$	S.E.	t	$\beta$	S.E.	t	$\beta$	S.E.	t
Intercept	0.198	0.323	0.613	0.219	0.277	0.791	3.968	0.181	21.880**	2.484	0.207	12.017**
Gender (0 = female, 1 = male)	-0.100	0.105	-0.957	0.010	0.089	0.114	-0.081	0.067	-1.219	0.093	0.053	1.741
Age	-0.008	0.009	-0.866	-0.006	0.008	-0.682	0.013	0.006	2.300*	-0.002	0.005	-0.497
Years of working with the current superior	0.018	0.009	2.014*	-0.001	0.008	-0.157	-0.007	0.005	-1.242	0.006	0.005	1.189
Undergraduate	-0.006	0.129	-0.044	0.085	0.108	0.781	-0.090	0.079	-1.140	0.097	0.063	1.531
Master	-0.487	0.172	-2.822**	-0.288	0.150	-1.913	-0.222	0.116	-1.912	0.158	0.086	1.835
Doctor	-0.598	0.513	-1.168	-0.715	0.617	-1.158	-0.426	0.425	-1.001	0.681	0.494	1.380
Intermediate	-0.065	0.119	-0.550	-0.172	0.103	-1.674	-0.096	0.076	-1.261	0.001	0.063	0.016
Deputy senior	0.474	0.181	2.621**	0.264	0.158	1.665	0.036	0.107	0.340	-0.003	0.090	-0.030
Senior	0.485	0.310	1.564	-0.121	0.296	-0.410	-0.099	0.171	-0.582	0.069	0.148	0.465
SA							0.277	0.032	8.779**	0.048	0.022	2.164*
TRC							0.440	0.035	12.450**			
WE										0.442	0.029	15.334**
SA $\times$ TRC							-0.003	0.017	-0.177			

Note:  $\beta$  = Unstandardized regression coefficient; S.E. = Standard error; t = t distribution value; \*  $p < 0.05$ , \*\*  $p < 0.01$ ; SA = Salary level, TRC = Transactional leadership, WE = Work engagement, PE = Job performance.

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Table 4.18 Regression analysis of promotion opportunity, transactional leadership, work engagement, and job performance

	PR			TRC			WE			PE		
	$\beta$	S.E.	t	$\beta$	S.E.	t	$\beta$	S.E.	t	$\beta$	S.E.	t
Intercept	0.323	0.268	1.204	0.219	0.277	0.791	3.903	0.183	21.360**	2.604	0.203	12.824**
Gender (0 = female, 1 = male)	-0.091	0.091	-0.991	0.010	0.089	0.114	-0.075	0.064	-1.162	0.094	0.053	1.774
Age	-0.011	0.008	-1.370	-0.006	0.008	-0.682	0.015	0.006	2.598**	-0.001	0.005	-0.293
Years of working with the current superior	0.013	0.008	1.692	-0.001	0.008	-0.157	-0.007	0.005	-1.282	0.005	0.005	1.068
Undergraduate	-0.006	0.110	-0.056	0.085	0.108	0.781	-0.084	0.077	-1.079	0.095	0.062	1.537
Master	-0.236	0.152	-1.558	-0.288	0.150	-1.913	-0.282	0.113	-2.491*	0.142	0.084	1.695
Doctor	-0.581	0.436	-1.332	-0.715	0.617	-1.158	-0.412	0.409	-1.009	0.681	0.501	1.360
Intermediate	-0.124	0.105	-1.185	-0.172	0.103	-1.674	-0.076	0.074	-1.028	0.004	0.063	0.066
Deputy senior	0.381	0.156	2.450*	0.264	0.158	1.665	0.036	0.105	0.341	-0.010	0.090	-0.109
Senior	0.468	0.279	1.676	-0.121	0.296	-0.410	-0.158	0.161	-0.983	0.043	0.148	0.289
PR							0.388	0.037	10.433**	0.104	0.027	3.799**
TRC							0.379	0.037	10.267**			
WE										0.406	0.030	13.497**
PR $\times$ TRC							0.002	0.018	0.117			

Note:  $\beta$  = Unstandardized regression coefficient; S.E. = Standard error; t = t distribution value; \*  $p < 0.05$ , \*\*  $p < 0.01$ ; PR = Promotion opportunity, TRC = Transactional leadership, WE = Work engagement, BO = Burnout, PE = Job performance.

To explore how transactional leadership affects the relationship between workload (and emotional demands) and burnout, we tested hypothesis H8-a (*Transactional leadership accentuates the positive relationship between workload and burnout*) and hypothesis H8-b (*Transactional leadership accentuates the positive relationship between emotional demands and burnout*).

According to the regression analysis results of the moderating effect in Table 4.19, in Model 15 and Model 16, the product of workload and transactional leadership had no significant relationship with burnout ( $\beta = 0.008$ ,  $t = 0.254$ ,  $p > 0.01$ ), and the product of emotional demands and transactional leadership did not have a significant relationship with burnout either ( $\beta = -0.040$ ,  $t = -1.035$ ,  $p > 0.01$ ). Therefore, hypotheses H8-a and H8-b were not supported.

Table 4.19 Regression analysis of workload, emotional demands, transactional leadership, and burnout

	Burnout					
	Model 15			Model 16		
	$\beta$	S.E.	t	$\beta$	S.E.	t
Intercept	3.281	0.299	10.969**	3.144	0.303	10.374**
Gender (0 = female, 1 = male)	0.270	0.098	2.755**	0.290	0.100	2.903**
Age	-0.004	0.009	-0.435	-0.001	0.009	-0.163
Years of working with the current superior	0.016	0.009	1.757	0.020	0.009	2.231*
Undergraduate	0.129	0.122	1.058	0.176	0.125	1.408
Master	0.137	0.157	0.876	0.180	0.160	1.123
Doctor	0.487	0.479	1.017	0.320	0.609	0.526
Intermediate	-0.125	0.115	-1.088	-0.146	0.117	-1.253
Deputy senior	-0.347	0.178	-1.950	-0.410	0.186	-2.209*
Senior	-0.311	0.261	-1.188	-0.320	0.270	-1.187
WL	0.378	0.039	9.686**			
TRC	-0.248	0.041	-5.995**	-0.258	0.042	-6.204**
ED				0.327	0.049	6.618**
WL× TRC	0.008	0.032	0.254			
ED× TRC				-0.040	0.038	-1.035

Note:  $\beta$  = Unstandardized regression coefficient; S.E. = Standard error; t = t distribution value; \*  $p < 0.05$ , \*\*  $p < 0.01$ ; WL = Workload, ED = Emotional demands, TRC = Transactional leadership.

Hypotheses H8-c and H8-d proposed that transactional leadership could accentuate the mediation effect of burnout between workload and job performance and between emotional demands and job performance. According to the regression analysis results of the moderating effect in Table 4.20 and Table 4.21, the product of workload and transactional leadership had no significant relationship with job performance ( $\beta = 0.008$ ,  $t = 0.254$ ,  $p > 0.01$ ), and the product of emotional demands and transactional leadership did not have a significant relationship with job performance either ( $\beta = -0.040$ ,  $t = -1.036$ ,  $p > 0.01$ ). Therefore, hypotheses H8-c and H8-d were not supported.

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Table 4.20 Regression analysis of workload, transactional leadership, burnout, and job performance

	WL			TRC			BO			PE		
	$\beta$	S.E.	t	$\beta$	S.E.	t	$\beta$	S.E.	t	$\beta$	S.E.	t
Intercept	-0.414	0.254	-1.632	0.219	0.277	0.791	3.281	0.299	10.969**	4.592	0.221	20.758**
Gender (0 = female, 1 = male)	0.082	0.077	1.065	0.010	0.089	0.114	0.270	0.098	2.754**	0.052	0.066	0.793
Age	0.009	0.007	1.163	-0.006	0.008	-0.682	-0.004	0.009	-0.435	0.000	0.006	-0.046
Years of working with the current superior	0.008	0.006	1.223	-0.001	0.008	-0.157	0.016	0.009	1.758	0.006	0.006	0.973
Undergraduate	-0.013	0.102	-0.128	0.085	0.108	0.781	0.129	0.122	1.058	0.082	0.082	1.001
Master	0.134	0.127	1.050	-0.288	0.150	-1.913	0.137	0.157	0.876	-0.078	0.103	-0.755
Doctor	-0.094	0.729	-0.129	-0.714	0.617	-1.158	0.487	0.479	1.017	0.311	0.448	0.694
Intermediate	0.036	0.095	0.380	-0.172	0.103	-1.674	-0.125	0.115	-1.088	-0.096	0.078	-1.234
Deputy senior	-0.053	0.136	-0.387	0.264	0.158	1.665	-0.347	0.178	-1.950	0.121	0.120	1.001
Senior	0.048	0.256	0.186	-0.121	0.296	-0.410	-0.311	0.261	-1.188	0.057	0.199	0.288
WL							0.378	0.039	9.685**	0.135	0.034	3.965**
TRC							-0.248	0.041	-5.994**			
BO										-0.073	0.025	-2.914**
WL $\times$ TRC							0.008	0.032	0.254			

Note:  $\beta$  = Unstandardized regression coefficient; S.E. = Standard error; t = t distribution value; \*  $p < 0.05$ , \*\*  $p < 0.01$ ; WL = Workload, TRC = Transactional leadership, BO = Burnout, PE = Job performance.

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Table 4.21 Regression analysis of emotional demands, transactional leadership, burnout, and job performance

	ED			TRC			BO			PE		
	$\beta$	S.E.	t	$\beta$	S.E.	t	$\beta$	S.E.	t	$\beta$	S.E.	t
Intercept	-0.035	0.209	-0.167	0.219	0.275	0.797	3.144	0.310	10.146**	4.556	0.209	21.840**
Gender (0 = female, 1 = male)	0.018	0.067	0.274	0.010	0.089	0.114	0.290	0.099	2.923**	0.059	0.064	0.917
Age	0.002	0.006	0.370	-0.006	0.008	-0.689	-0.001	0.009	-0.160	0.000	0.006	0.039
Years of working with the current superior	-0.003	0.006	-0.550	-0.001	0.008	-0.156	0.020	0.009	2.223*	0.008	0.006	1.348
Undergraduate	-0.129	0.082	-1.579	0.085	0.109	0.779	0.176	0.125	1.404	0.116	0.080	1.460
Master	-0.015	0.107	-0.140	-0.288	0.151	-1.900	0.180	0.162	1.107	-0.055	0.100	-0.544
Doctor	0.315	0.320	0.985	-0.715	0.618	-1.156	0.320	0.612	0.523	0.214	0.436	0.491
Intermediate	0.083	0.082	1.018	-0.172	0.103	-1.666	-0.146	0.116	-1.266	-0.114	0.074	-1.541
Deputy senior	0.149	0.122	1.225	0.264	0.157	1.677	-0.410	0.185	-2.216*	0.071	0.114	0.624
Senior	0.121	0.253	0.479	-0.121	0.292	-0.415	-0.320	0.272	-1.178	0.030	0.180	0.165
ED							0.327	0.049	6.609**	0.273	0.040	6.895**
TRC							-0.258	0.041	-6.235**			
BO										-0.077	0.024	-3.264**
ED× TRC							-0.040	0.038	-1.036			

Note:  $\beta$  = Unstandardized regression coefficient; S.E. = Standard error; t = t distribution value; \*  $p < 0.05$ , \*\*  $p < 0.01$ . ED = Emotional demands, TRC = Transactional leadership, BO = Burnout, PE = Job performance.



#### 4.4.2 Path coefficient analysis

As shown in the first diagram in Figure 4.3, which is a hypothesis testing model for the salary level in job resources, we examined the moderated mediation effect of different leadership styles (i.e., transactional leadership and transformational leadership) between work engagement, salary level, and job performance. Among them, H5-c, which represents transformational leadership accentuating the mediation effect of work engagement between salary level and job performance, was supported; H7-c, which represents transactional leadership accentuating the mediating role of work engagement between salary level and job performance, was not supported. As put forward by H5-c, transformational leadership accentuates the mediation effect of work engagement between salary level and job performance; that means, when transformational leadership exists, in addition to the direct effect of salary level on job performance, the relationship between salary level and job performance can be indirectly enhanced by improving work engagement. Transformational leadership can motivate employees to be more engaged in work by incentivizing and inspiring them, so as to achieve better job performance with a higher salary level. However, the moderating effect of transactional leadership is marked as “N.S” (i.e., non-significant) in the diagram, indicating that it is not statistically significant. That means, in the current data set, transactional leadership did not play the role of accentuating the mediation of work engagement between salary level and job performance ( $\beta = -0.003, p > 0.05$ ). Hypothesis H7-c was not supported, which means transactional leadership did not significantly accentuate the indirect effect of salary level on job performance through work engagement. That may be because the incentive mechanism of transactional leadership focuses more on the completion and achievement of clearly defined tasks and goals, rather than the improvement of job performance by enhancing work engagement. Therefore, as an effective moderator, transformational leadership can significantly improve employees' job performance at higher salary levels by accentuating the mediating role of work engagement. This leadership style enhances employees' work engagement and commitment by providing incentives, personal consideration, and career development opportunities, thereby improving their job performance. In contrast, in the current data set, transactional leadership did not play a similar role of accentuating the mediation effect, which may be due to its incentive mechanism, which is distinct from that of transformational leadership, or otherwise, further research is needed to find out its impact on work engagement and job performance. When planning for leadership development and compensation systems, organizations should fully consider the diversity and complexity of leadership styles and how

they affect job performance through the mediation of work engagement.

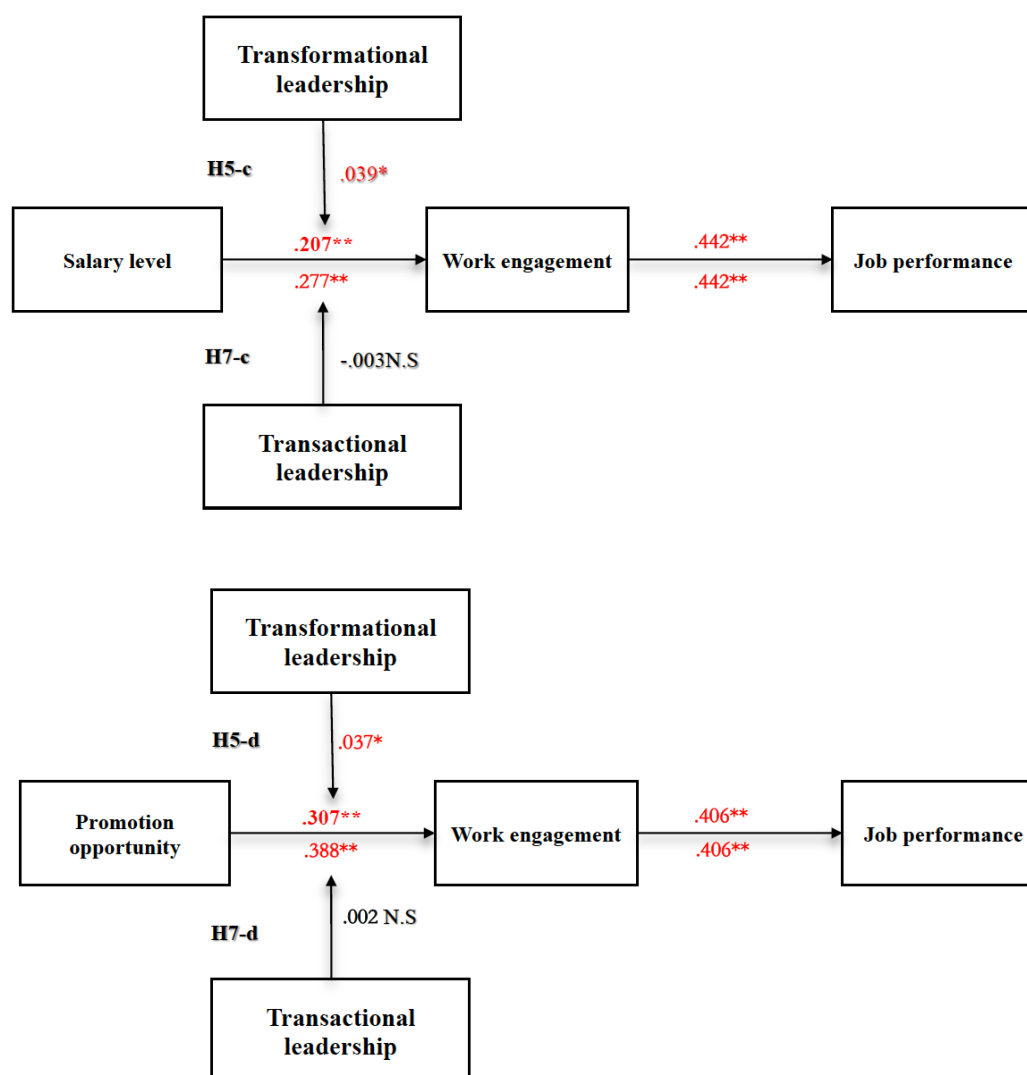


Figure 4.3 Coefficient and significance level of hypothesis testing on job resources

Through the second diagram in Figure 4.3, which is a hypothesis testing model for the promotion opportunity in job resources, we aim to illustrate whether different leadership styles (i.e., transformational leadership and transactional leadership) play a moderating role in the mediation effect of work engagement between promotion opportunity and job performance. Among them, H5-d, which represents transformational leadership accentuating the mediation effect of work engagement between promotion opportunity and job performance, was supported; H7-d, which represents transactional leadership accentuating the mediating role of work engagement between promotion opportunity and job performance, was not supported. According to H5-d, transformational leadership is hypothesized to accentuate the mediating role of work engagement between promotion opportunity and job performance. The statistical results showed that the moderating effect of transformational leadership was significant ( $\beta =$

0.037,  $p < 0.05$ ), thus supporting hypothesis H5-d. That means, under transformational leadership, the positive effect of promotion opportunity on job performance can be strengthened. Specifically, transformational leadership can stimulate employees' work engagement by providing vision, motivation, and individualized consideration, so as to achieve higher job performance in the presence of promotion opportunity. According to H7-d, transactional leadership is hypothesized to accentuate the mediating effect of work engagement between promotion opportunity and job performance. However, the statistical results showed that the moderating effect of transactional leadership was not significant ( $\beta = 0.002$ ,  $p > 0.05$ ), thus marked as "N.S" (i.e., non-significant), and therefore, hypothesis H7-d was not supported. It shows that in this data set, transactional leadership did not significantly accentuate the indirect effect of promotion opportunity on job performance through work engagement. This model diagram revealed the mechanism of promotion opportunity indirectly affecting job performance through work engagement, and it was found that transformational leadership and transactional leadership played different moderating roles in this process. By accentuating the moderating effect of work engagement, transformational leadership significantly improved employees' job performance with the availability of promotion opportunity. However, transactional leadership did not play the role of accentuating this moderation effect in the present data set. These findings are of great significance for understanding how leadership styles affect employees' career development and job performance and provide insights into what leadership style organizations need to consider when planning for leadership development and promotion systems.

Through the first diagram in Figure 4.4, which is a hypothesis testing model for workload in job demands, we aim to illustrate whether different leadership styles (i.e., transformational leadership and transactional leadership) played a moderating role in the mediation of burnout between workload and job performance. H6-c, which represents transformational leadership mitigating the mediation effect of burnout between workload and job performance, was not supported; H8-c, which represents transactional leadership accentuating the mediating role of burnout between workload and job performance, was not supported. The statistical results showed that the moderating effect of transformational leadership was not significant ( $\beta = -0.015$ ,  $p > 0.005$ ), thus not supporting H6-c; the moderating effect of transactional leadership was not significant either ( $\beta = 0.008$ ,  $p > 0.05$ ), and thus, H8-c was not supported. That means, in the present data set, transformational leadership and transactional leadership did not significantly mitigate or accentuate the negative effect of burnout on job performance. Therefore, when it comes to the moderating effect of transformational leadership and transactional leadership, neither of them significantly affected the relationship between workload and job performance

or the mediation effect of burnout therein. These findings suggest that when implementing leadership development plans, we may need to consider the effect of other factors on employees' workload, burnout, and job performance. When formulating leadership strategies, organizations should consider multiple leadership styles and their comprehensive influence on employees' well-being and job performance, so as to achieve the strategic objectives and long-term success of the organization.

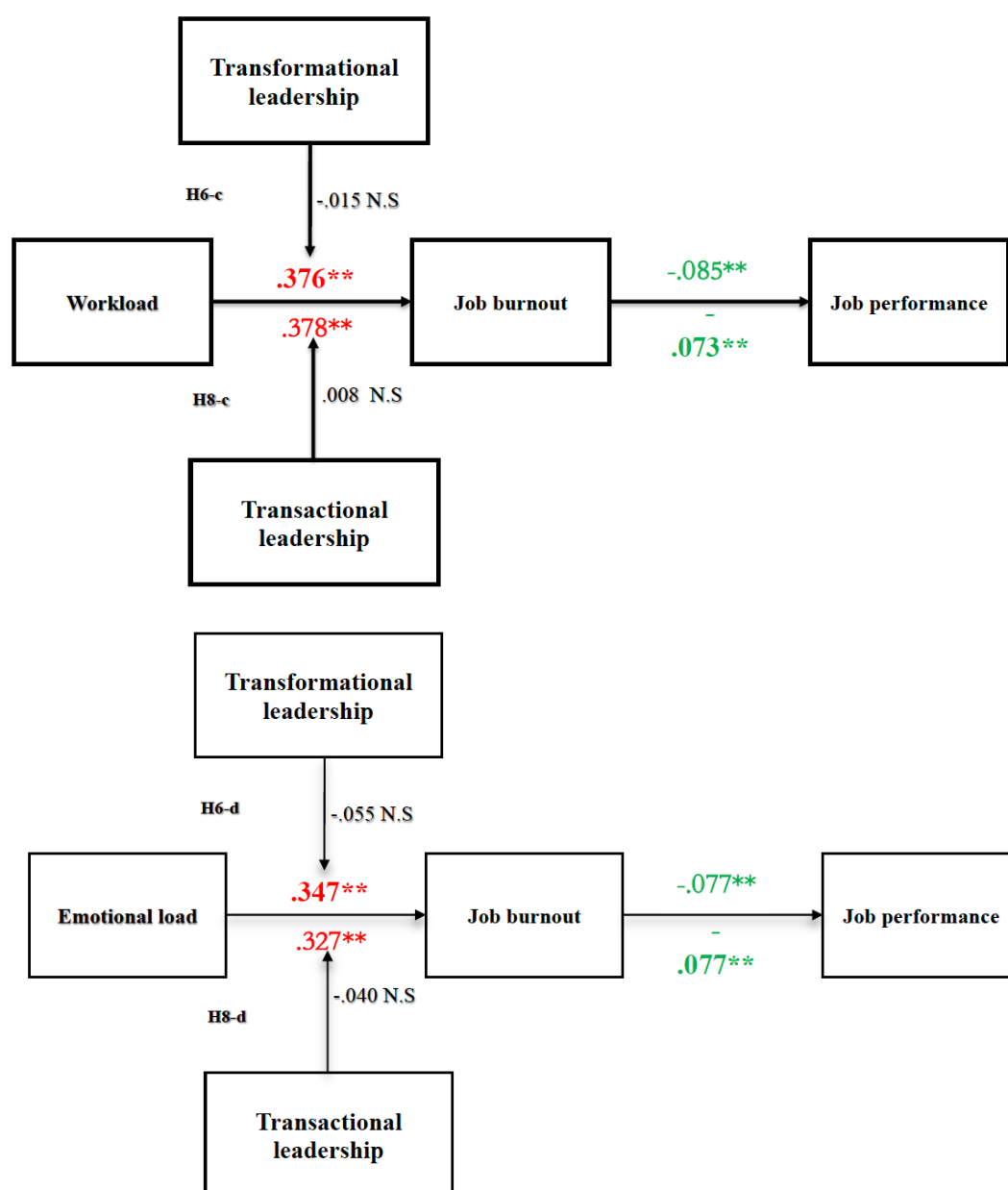


Figure 4.4 Coefficient and significance level of hypothesis testing on job demands

The second diagram in Figure 4.4 is a hypothesis testing model for emotional demands in job demands, which aims to illustrate whether different leadership styles (i.e., transformational leadership and transactional leadership) moderated the mediation of burnout between emotional demands and job performance. H6-d, which represents transformational leadership mitigating

the mediating role of burnout between emotional demands and job performance, was not supported; H8-d, which represents transactional leadership accentuating the mediation effect of burnout between emotional demands and job performance, was not supported either. In H6-d, transformational leadership is hypothesized to mitigate the mediating role of burnout between emotional demands and job performance. The statistical results showed that such a moderating effect was not significant ( $\beta = -0.055, p > 0.05$ ), thus not supporting H6-d. That means, in this data set, transformational leadership did not significantly mitigate the negative effect of burnout on job performance. In H8-d, transactional leadership is hypothesized to accentuate the mediation effect of burnout between emotional demands and job performance. However, the statistical results showed that the moderating effect of transactional leadership was not significant ( $\beta = -0.040, p > 0.05$ ), thus not supporting H8-d. That means that in the present data set, transactional leadership did not significantly accentuate the negative effect of burnout on job performance. Therefore, when it comes to the moderating effects of transformational leadership and transactional leadership, neither of them significantly affected the relationship between emotional demands and job performance or the mediation effect of burnout therein. These findings suggest that we may need to consider the impact of other factors on employees' emotional demands, burnout, and job performance when implementing leadership development plans. When developing leadership strategies, organizations should consider various leadership styles and their comprehensive impact on employees' well-being and job performance so as to achieve organizational goals.

In summary, based on the above-presented results, the findings of this study showed that salary level, as well as promotion opportunity, was positively associated with work engagement. At the same time, workload and emotional demands were positively associated with burnout. In addition, work engagement played a mediating role in the relationship between salary level and job performance and between promotion opportunity and job performance, while burnout played a mediating role between workload and job performance and between emotional demands and job performance. Moreover, transformational leadership accentuated the positive relationship between salary level and work engagement and between promotion opportunity and work engagement, as well as the mediation effect of work engagement between salary level and job performance and between promotion opportunity and job performance. However, as for the hypotheses regarding transactional leadership, no supporting evidence was found, indicating that transactional leadership did not accentuate the positive relationship between salary level and work engagement or between promotion opportunity and work engagement, nor the mediation effect of work engagement between salary level and job performance or

between promotion opportunity and job performance. The hypothesis testing results are as follows:

H1-a “*Salary level is positively associated with work engagement*” was supported;

H1-b “*Promotion opportunity is positively associated with work engagement*” was supported;

H2-a “*Workload is positively associated with burnout*” was supported;

H2-b “*Emotional demands are positively associated with burnout*” was supported;

H3-a “*Work engagement mediates the relationship between salary level and job performance*” was supported;

H3-b “*Work engagement mediates the relationship between promotion opportunity and job performance*” was supported;

H4-a “*Burnout mediates the relationship between workload and job performance*” was supported;

H4-b “*Burnout mediates the relationship between emotional demands and job performance*” was supported;

H5-a “*Transformational leadership accentuates the positive relationship between salary level and work engagement*” was supported;

H5-b “*Transformational leadership accentuates the positive relationship between promotion opportunity and work engagement*” was supported;

H5-c “*Transformational leadership accentuates the mediation effect of work engagement between salary level and job performance*” was supported;

H5-d “*Transformational leadership accentuates the mediation effect of work engagement between promotion opportunity and job performance*” was supported;

H6-a “*Transformational leadership mitigates the positive relationship between workload and burnout*” was not supported;

H6-b “*Transformational leadership mitigates the positive relationship between emotional demands and burnout*” was not supported;

H6-c “*Transformational leadership mitigates the mediation effect of burnout between workload and job performance*” was not supported;

H6-d “*Transformational leadership mitigates the mediation effect of burnout between emotional demands and job performance*” was not supported;

H7-a “*Transactional leadership accentuates the positive relationship between salary level and work engagement*” was not supported;

H7-b “*Transactional leadership accentuates the positive relationship between promotion*

*opportunity and work engagement*” was not supported;

H7-c “*Transactional leadership accentuates the mediation effect of work engagement between salary level and job performance*” was not supported;

H7-d “*Transactional leadership accentuates the mediation effect of work engagement between promotion opportunity and job performance*” was not supported;

H8-a “*Transactional leadership accentuates the positive relationship between workload and burnout*” was not supported;

H8-b “*Transactional leadership accentuates the positive relationship between emotional demands and burnout*” was not supported;

H8-c “*Transactional leadership accentuates the mediation effect of burnout between workload and job performance*” was not supported;

H8-d “*Transactional leadership accentuates the mediation effect of burnout between emotional demands and job performance*” was not supported.

## **Chapter 5: Discussion and conclusions**

In this chapter, we will explain and discuss the research results in detail, including the results of descriptive statistical analysis, variance analysis, direct effects, mediation effects, moderation effects, and moderated mediation effects. In addition, this chapter will present the managerial implications and theoretical contributions of our findings and discuss this study's limitations and future research prospects.

### **5.1 Discussion**

#### **5.1.1 Results of descriptive statistics**

During the descriptive statistical analysis of doctors in traditional Chinese medicine (TCM) hospitals, we first analyzed the demographic characteristics. The results showed that in terms of gender and age distribution, female doctors were the majority, accounting for 69.3%, while male doctors accounted for 30.7%; the doctors' ages were mostly in the range of 30-45 years old, which accounted for 65.2%. In terms of educational level, most doctors had received an undergraduate degree or above, among which doctors holding an undergraduate degree was the majority, accounting for 66.4%, while those holding a master's degree accounted for 32.9% and those with a doctoral degree accounted for 0.7%. In terms of working years, on average, the doctors had worked with the current superior for 7.65 years. As to the distribution of professional titles, doctors with intermediate professional titles accounted for 32.5%, those with deputy senior professional titles accounted for 13.9%, and senior professional titles accounted for 4.1%. This indicates a gender imbalance, an overall low educational level, and a small percentage of senior professional titles among employees in TCM hospitals. The government should formulate policies to address these problems in the medium and long term, and TCM hospitals should attend these issues in the short term.

We further analyzed the job characteristics faced by doctors. The results showed that doctors were generally faced with high work stress, such as high workload and emotional demands, with an average score of 4.861 and 5.036, respectively. That is in line with the results of many previous studies on hospital work stress (Ding & Shang, 2023; F. Yang et al., 2023), which precisely reflects the overwhelming workload faced by doctors in TCM hospitals in reality. In particular, during TCM diagnosis, doctors need to spend a lot of time communicating



with patients to obtain relevant information about the patient, such as medical history, life habits, and emotional state. Long-hour communication not only requires doctors' patience but may also make doctors bear a greater emotional burden, especially when there is fluctuation in patients' emotions or the communication faces obstacles.

In summary, the descriptive statistical analysis results provide a preliminary description of the influence mechanism of job characteristics and leadership styles on doctors' performance in TCM hospitals. These findings help us to gain a better understanding of the working environment, talent structure, and job performance of doctors, and provide useful information for further quantitative research and the management decision-making in practice.

### **5.1.2 Results of variance analysis**

The independent sample t-test was used to analyze the difference between male and female doctors in each variable's mean values, and the single factor test was used to find out the mean differences of each variable among groups with different educational levels and different professional titles. The results of variance analysis showed that the level of burnout among male doctors was significantly higher than that among females ( $t = -2.792$ ,  $p = 0.005$ ), which is consistent with the practical situation. In the context of TCM hospitals, male doctors tend to face higher work pressure and workload, which is probably due to the fact that males usually assume more responsibilities and work tasks in the medical sector. Such high work pressure and workload may directly lead to an increase in burnout. Traditionally, society holds higher expectations for men in their careers, and for that reason, they may bear greater professional pressure, making them more likely to feel exhausted and burned out. If men face more challenges in terms of family-work balance in their careers, it may further accentuate their burnout and may even lead to great career sacrifice and conflict. In addition, cultural and social expectations have a profound impact on men's professional behavior and stress perception. In some cultures, men may be more inclined to show a strong sense of professional responsibility, which may lead to higher burnout (Ding, 2014).

Moreover, compared with doctors with intermediate professional titles, those with deputy senior titles had a significantly higher salary level (mean difference = 0.429,  $p = 0.016$ ) and promotion opportunity (mean difference = 0.417,  $p = 0.005$ ), perceived significantly stronger transformational leadership (mean difference = 0.449,  $p = 0.003$ ) and transactional leadership (mean difference = 0.358,  $p = 0.021$ ), showed significantly higher work engagement (mean difference = 0.468,  $p = 0.001$ ), and significantly better job performance (mean difference = 0.247,  $p = 0.045$ ). Relatively speaking, the higher mean score of transformational leadership

among doctors with deputy senior titles may indicate that they bear more responsibilities and enjoy higher salary and more benefits. That may be related to the fact that those with higher professional titles assume more responsibilities at the leadership level. The results suggest that hospital managers should value highly educated talents and provide them with support such as promotion opportunities.

These differences among doctors with different professional titles and genders lay a foundation for the management of TCM hospitals to understand the influence mechanism on doctors' job performance and are helpful for the formulation of targeted training and support strategies, so as to improve doctors' overall job performance. However, further research is still needed to dive deeper into these findings.

### **5.1.3 Main effects**

The results of this study showed that among the relationships between job resources and work engagement, the salary level and the promotion opportunity had a significant positive effect on the work engagement of employees in TCM hospitals. Work engagement refers to the positive psychological state of employees participating in work, which is closely related to the improvement of job satisfaction and psychological health. According to the Job Demands-Resources Theory, job resources can be divided into physical resources, psychological resources, and cognitive resources according to their attributes. When employees are exposed to any of the important resources, the corresponding motivational mechanism will be activated, which will generate positive expectations for the job position and further trigger a series of actions that are favorable to the organization. This research has shown that the salary level can significantly affect the daily work engagement of doctors in TCM hospitals. If the hospital includes salary increases as a material incentive in the performance evaluation system, doctors in TCM hospitals will be more devoted to their daily work. Our study found that job resources such as salary level played a significant role in promoting work engagement. First of all, salary increases at work can enhance the job satisfaction of medical professionals, stimulate their motivation for work, trigger individuals' dedication and enthusiasm, mitigate the fatigue caused by job demands, and enable them to gain physical and mental well-being under pressure. In addition, timely and appropriate material incentive feedback enables medical professionals to continuously improve and solve work-related problems and drive the continuous enhancement of their ability at work, thus improving their engagement in medical services. Furthermore, having good promotion opportunity and career development prospects is conducive to medical professionals' self-learning and development, encouraging them to take the initiative to take on

challenging work beyond their defined duties and increasing individuals' dedication to providing high-quality medical services.

With respect to the relationship between job demands and burnout, workload and emotional demands had a significant positive effect on burnout among employees in TCM hospitals. According to the Job Demands-Resources Model, there is a strong relationship between job demands and emotional exhaustion and between insufficient job resources and the emotional exhaustion and depersonalization dimensions of burnout. On this basis, it was proposed that burnout is formed through two stages, that is, job demands cause sustained excessive fatigue, which further leads to emotional exhaustion (Barbier et al., 2013; Xia & Lu, 2014). Hockey's Job Demand-Control Model states that under the effect of stressor-job demands, employees will develop corresponding behavior protection strategies, which is a result of motivating individual efforts. The more active this effort is, the more engaged they will be in work. Research has shown that job demands and emotional exhaustion are highly related (Du, 2020; Qi et al., 2016), which is consistent with the analysis results in this study. In TCM hospitals, patient demand is the main cause of burnout among doctors in TCM hospitals. This study found that long-time excessive job demands would lead to emotional exhaustion. After employees are imposed a large number of job demands, they will be emotionally exhausted due to the heavy emotional burden, thus further developing associated negative emotions.

Work engagement had a significant positive relationship with job performance. Work engagement is a positive and lasting attitude and reflects the enthusiasm and recognition of employees for their profession. Those who are more engaged in their work will make more efforts and thus achieve better job outcomes (Z. Chen, 2017; Luo & Liao, 2007). This study found that work engagement had a significant positive relationship with job performance and thus confirmed that work engagement had a positive effect on the job performance of doctors in TCM hospitals. Within the Job Demands-Resources Model framework, work engagement is regarded as a high-quality personal resource. The higher the work engagement, the more likely it is for employees to obtain better job outcomes. Employees with higher work engagement are more energetic, are more willing to devote themselves to work, and proactively complete work tasks, thus creating high-quality task performance. Employees with high work engagement have the spirit of self-dedication and are willing to help other colleagues by completing additional work, so as to foster the achievement of the team's common goals and improve organizational performance. Highly engaged employees will be more focused and more spontaneous to work, and are more likely to generate novel ideas and make innovative behaviors, thus improving the innovation performance of employees. Employees with higher work engagement tend to be

more identified with their work and are more willing to invest in learning, so as to continuously improve their professional skills (Tang, 2021).

Burnout had a significant negative relationship with the job performance of employees in TCM hospitals. It can be seen from the data of this study that when TCM doctors develop burnout, their job performance will decline significantly. If they are in such an exhausted state at work, they may unconsciously disconnect themselves from work. That is mainly because they have developed antipathy and resistance toward their work, which is not only manifested psychologically but is also embodied by the behavior in practice that they no longer show a positive attitude when dealing with work tasks. That will reduce their work engagement and gradually lower the quality of their work, which will eventually lead to a decline in job performance. This finding is consistent with the conclusions of previous studies. For example, J. Yang et al. (2017b) and Y. Guo et al. (2019) conducted research among medical professionals and found that the patients served by medical professionals with burnout showed lower satisfaction, and these medical professionals' burnout directly affected their daily work behavior, thus further reducing their job performance. Through empirical analysis, researchers such as X. Wang and Gan (2003) pointed out that burnout was closely related to many negative job behaviors, including turnover and low work efficiency, thus having a negative impact on job performance. Those who perceive that they are experiencing burnout tend to suffer from physical and psychological discomfort. That is because they bear great pressure from work and life and thus have developed the attitude of getting away from it. At the same time, they also have lost their enthusiasm for work, no longer care about or are interested in work, may even fall into a state of depression, and are not motivated to maintain stable social and interpersonal networks. All these will result in a significant decline in individuals' job performance (Xia & Lin, 2013). For the employees who show emotional exhaustion, lack of personality, and do not have a sense of accomplishment, managers need to pay attention to their situation and implement appropriate intervention measures to mitigate those negative effects. According to the Job Demands-Resources Model, if employees show the above conditions, their job performance will be reduced, which will lead to a decline in the overall performance of the company (Ju & Shao, 2004). Therefore, organizations should pay more attention to how to alleviate employees' burnout to prevent its adverse impact on job performance.

#### **5.1.4 Mediation effects**

Regarding the mediation effects, our study showed that work engagement played a mediating role in the relationship between salary level, promotion opportunity, and job performance.

Specifically, in TCM hospitals, higher work engagement of employees and more material incentives can drive employees to make more efforts in pursuit of higher salaries and greater promotion opportunities, thus having a positive impact on their job performance. First, when individuals' work engagement increases, they will show a more positive attitude, which helps to stimulate their work enthusiasm, making them willing to devote themselves to their duties. Secondly, this high level of behavioral engagement will also make them more energetic, confident, and persistent when facing challenges or difficulties – they will maintain a positive and empowering attitude in dealing with problems, thus creating a harmonious and friendly environment and further improving individuals' job performance.

In addition, this study also showed that burnout played a mediating role in the relationship between workload, emotional demands, and job performance. Burnout is considered as a result variable of workload and emotional demands as the latter two can lead to burnout. High workload and emotional demands will have a negative impact on employees, leading to burnout, which will interrupt the employees' full-dedication working state and ultimately lead to a reduction in their job performance. In other words, burnout plays a mediating role in transforming workload and emotional demands into job performance reduction. This process highlights the significant role of burnout in the organization's working environment. Its mediating effect illustrates its key role in the relationship between work stress and employees' job performance. Due to work stress, employees will be burned out, which will interrupt their full dedication to work, thus reducing their job performance.

### **5.1.5 Moderation effects**

The results showed that transformational leadership accentuated the positive relationship between salary level, promotion opportunity, and work engagement. Through trust, tolerance, and encouragement to employees, transformational leaders enable employees to develop trust in the organization and prioritize the interests of the organization, thereby stimulating their sense of ownership and motivation, so as to foster the achievement of employees' work goals (C. Li & Shi, 2005). In a challenging environment, employees will be more dedicated to their work and mobilize existing resources to achieve work goals, which enables them to obtain additional new resources, so as to better transform high-level job resources into positive organizational outcomes. On the other hand, strengthening transformational leadership can better stimulate the intrinsic motivation of employees; through means such as salary levels and promotion opportunities, it can drive employees to adopt problem-oriented stress-coping strategies; at the same time, it can also bring them positive work experience and emotional

response, thus creating more resource gains, thereby improving their psychological health and well-being (Shi et al., 2022). In addition, due to employees' trust in transformational leaders, leaders' significant behaviors will have an impact on employees' self-perception. Leaders, through their behaviors, should make employees perceive the organization's trust in them and the significant meaning of their work, so as to improve their sense of responsibility and make them put the interests of the organization first, thus achieving better job performance (Sui et al., 2012). In other words, improving employees' enthusiasm and sense of participation in organizational goals is the main focus of transformational leadership. Through their own behavior, leaders positively affect their employees, enabling them to develop a high level of wellbeing and enthusiasm while being engaged in work. Work engagement is manifested by employees' high enthusiasm for their work, strong focus and dedication, and willingness to make more efforts to achieve their goals.

In this study, transformational leadership did not play a significant moderating role in the relationship between job demands (i.e., emotional demands and workload) and burnout. We suggest that there are three reasons why the moderation effect was not significant in the context of TCM hospitals: 1) The medical sector is usually characterized by high specialization and high tension. Medical professionals' work involves taking responsibility for patients' lives, which may lead them to pay more attention to the completion of specific tasks, patient safety, and medical service quality, rather than the influence of the leadership style. In such an environment, the moderation of leadership style in the mediation path between burnout, emotional demands, and job performance may be subtle and complex. 2) Medical professionals may face pressure from various aspects, including work intensity, patient needs, and time pressure, among others, the influence of which may exceed that of leadership style. Burnout is a complex multifactorial phenomenon, and leadership style is only one of the factors. 3) The importance of teamwork and communication. The cooperation and effective communication of medical teams are crucial to medical services. In this regard, leaders' social and communication skills may have a more direct impact on job performance and emotional demands, not necessarily through moderation. In summary, the complexity of the medical sector and the special attributes of the medical profession may make the moderation of leadership style in the mediation effect path of job demands, burnout, and job performance non-significant. In in-depth research on this topic, it is necessary to consider the unique characteristics of the medical sector and the complex relationship between leadership style and medical professionals.

In this study, transactional leadership did not show a significant moderation effect on the relationship between job resources (i.e., salary level and promotion opportunity) and work

engagement, as well as between job demands (i.e., emotional demands and workload) and burnout. As far as transactional leadership is concerned, leaders and employees regard each other as a means to achieve the targeted goals. Through negotiation, both parties determine the objectives to be achieved, and employees will expect to obtain the necessary support to meet their needs. In this case, transactional leaders will discuss the current problems and needs together with their employees, help them clarify their responsibilities and plan work processes based on consensus, and motivate them to perform tasks. The core idea of transactional leadership is that there is a contractual exchange between leaders and their subordinates, that is, there is a reciprocal relationship of mutual benefits between leaders and subordinates. For example, leaders will provide subordinates salaries and job opportunities to meet their needs, while subordinates will repay their leaders by following the instructions and completing the defined tasks (W. Chen & Shi, 2007). Therefore, compared with transformational leadership, the salary level and promotion opportunity in transactional leadership have a less significant positive impact on employees' work engagement.

We posit that there are five reasons why the moderation effect of transactional leadership was not significant in the context of TCM hospitals: 1) Transactional leaders usually focus more on the completion of tasks and a clear reward system. Among medical professionals, a highly specialized professional population, work engagement may be more driven by their responsibility for patients and task completion. Hence, the moderating role of transactional leadership in this regard may be relatively weak, as it is more likely that the work motivation of medical professionals comes from the task itself rather than external rewards. 2) The value proposition of medical professionals. Medical professionals usually possess a strong sense of mission and responsibility for patients. In this case, their work engagement is more likely to be driven by their concern about patients' well-being rather than external job resources. Therefore, the reward system emphasized by transactional leaders may have less effect on the relationship between medical professionals' work engagement (or burnout) and job performance. 3) The unique characteristics of medical services. Medical services have their particular characteristics as they focus on the health and treatment effectiveness of patients. Medical professionals may be more concerned with providing high-quality medical services, which may make the leader's transactional style less significant in moderating the mediation effect in the relationship between job resources, job demands, and job performance. 4) The incentive mechanism of transactional leadership. Transactional leaders tend to use a reward and punishment mechanism to motivate employees. However, in the medical field, medical professionals may be more driven by intrinsic motivation, such as the care of patients and the pursuit of the medical career.

In this case, the reward and punishment mechanism of transactional leadership may have a reduced moderation effect. 5) The compatibility of leadership style and the medical profession. In the medical field, the leadership style that emphasizes teamwork, patient care, and professional responsibility may be more welcomed by medical professionals. If transactional leaders put more emphasis on tasks and rewards/punishments, it may not be aligned with the values of medical professionals, resulting in its reduced moderation effect. In general, in the context of TCM hospital, the moderating role of transactional leadership in the mediation effect path between medical professionals' job demands, job resources, work engagement, burnout, and job performance may be affected by the unique characteristics of the medical profession and the values of medical professionals. Therefore, in in-depth research, to understand the relationship between leadership style and job performance more comprehensively, it is necessary to take into account the uniqueness of the medical service sector.

#### **5.1.6 Moderated mediation effects**

Transformational leadership played a moderated mediating role between work engagement, salary level or promotion opportunity, and job performance. Transformational leaders tend to influence employees' values through their charisma, build a promising vision, stimulate employees' work enthusiasm and high-level needs, and show care to employees, thus driving them to make efforts to achieve organizational goals (N. Wang et al., 2013). Moreover, transformational leadership is positively related to employees' job performance and organizational commitment. By encouraging and incentivizing employees and providing them with professional guidance, leaders can make employees more likely to recognize the significance and challenge of their work, thereby improving their job satisfaction. Working with transformational leaders can help to improve employees' job satisfaction and thus enhance employees' work engagement.

Transformational leadership is a motivational process. It relies on the charisma and influence of leaders to win the support and recognition of employees in TCM hospitals. This process can also guide and instruct doctors to meet their inner desires, so as to stimulate their enthusiasm for work; through appeal, leaders can show their high expectations for doctors and make them realize their value in the team (Y. Li, 2018). In addition, these leaders will care for and respect doctors, thereby changing their attitude at work and improving their work engagement, thus having a moderated mediating effect in the relationship between salary level or promotion opportunity and job performance. However, the contractual exchange relationship between transactional leaders and employees makes it difficult for leaders to have effective



interaction with employees by means such as salary incentives with the aim of achieving targeted performance goals and improving job performance.

## 5.2 Conclusions

With the reform and gradual improvement of China's medical system, TCM institutions are facing many challenges, such as insufficient talent reserves, physicians' salaries, and patient trust. Based on the context of TCM hospitals, through literature review and by using the Job Demands-Resources Model, this thesis attempts to explore the dual processes of job demands and job resources influencing the job performance of doctors in TCM hospitals through burnout and work engagement. At the same time, we took the leadership style of doctors' direct superiors, namely transformational leadership and transactional leadership, as moderators and built a theoretical model, based on which we analyzed the collected data, tested all hypotheses, and provided preliminary explanations for the results. According to the analysis, this study draws the following conclusions:

(1) Job resources (i.e., salary level and promotion opportunity) had a significant positive effect on the work engagement of employees in TCM hospitals. The salary level and promotion opportunity are representative job resources in the hospital context, as they can reduce the work-family conflict of medical professionals and improve doctors' job satisfaction and professional commitment. Compared with general hospitals and Western medicine hospitals, TCM hospitals have their unique characteristics and face distinct challenges. First, due to the characteristics of the discipline of TCM, the number of individuals engaged in this field is limited, and the human resources are insufficient (J. Lin et al., 2022). Secondly, the education mode of TCM practitioners emphasizes that juniors should be instructed and guided by experienced supervisors, and their job positions should be arranged according to their age and experience, which leads to the problem of limited promotion channels during their career development (Pan et al., 2017). In addition, at present in China, the doctor profession is leading other professions in terms of growth cost, work intensity, social value, and industry responsibility, but their income and social status are not aligned with that. Therefore, job resources such as satisfying and fair salary levels and more career promotion channels will be able to enhance employees' work motivation, stimulate their work enthusiasm, and improve their work engagement.

(2) Job demands (i.e., emotional demands, workload) had a significant positive effect on burnout of employees in TCM hospitals. The profession of doctors in TCM hospitals has a special nature: a) Irreplaceability. Patients' treatment completely relies on doctors' long-term

acquisition of professional knowledge and accumulation of experience. b) High risk. c) High labor intensity, including both physical and mental labor (Y. Li, 2011). Besides facing a heavy workload, medical professionals are frequently in contact with patients and their families and encounter complex medical conditions. During work, they need to coordinate with patients, patients' families, and colleagues from different departments. They are involved in a wide range of tasks and bear the pressure of multiple roles. In addition, at present, as the doctor-patient relationship remains tense, and medical disputes are increasing year by year, doctors often face many emotional problems and are constantly worried that medical disputes and medical violence will happen to them someday. The job demand of emotional demands has been widely referred to among medical professionals (Abendroth & Flannery, 2006). Therefore, doctors in TCM hospitals need to face both workload and emotional pressure simultaneously, which will accelerate the depletion of their energy and cognitive power, making it more likely to cause exhaustion (Crawford et al., 2010), thus leading to stronger work exhaustion and depersonalization, that is, burnout.

(3) Work engagement had a significant positive relationship with the job performance of employees in TCM hospitals. In recent years, scholars have a deeper understanding of the relationship between work engagement and job outcomes. They believe that when work engagement is increased, employees' improved job performance can be accurately predicted, and this prediction power even exceeds that of burnout (Shin, 2003). The finding of our study once again confirmed the core hypothesis that work engagement can improve job performance. Work engagement is a work-related positive and fulfilling emotional and cognitive state characterized by vitality, dedication, and engagement (Schaufeli et al., 2002). The state of being highly engaged in work can raise doctors' attention to their responsibilities and enhance their loyalty and affective connection to the doctor profession, thus making them invest more time and effort in the treatment of patients, which is conducive to achieving high job performance. In addition, with higher work engagement, the employees will be in a positive and excited psychological state. This optimistic and well-being state leads them to deal with peer relations with a more inclusive and open attitude, and they will further affect colleagues around them by passing on this positive emotion, which helps to form a working atmosphere where people are optimistic about difficulties and are in a harmonious relationship with each other, which is conducive to improving the job performance among employees (Kataria et al., 2013).

(4) Burnout had a significant negative relationship with the job performance of employees in TCM hospitals. Although the cost of TCM treatment is relatively low, and TCM has the

characteristics of “simplicity, convenience, low cost, and effectiveness”, which is greatly beneficial to patients. However, with the increase in the number of patients, its actual benefits have decreased, resulting in unguaranteed salaries for TCM doctors, thus having a negative impact on the development of TCM. Due to the excessive workload and work pressure and the lack of stable salaries, many TCM hospitals still face the problem of relying on Western medicine to maintain their operations. Therefore, in the face of high-intensity work and inadequate salaries, many doctors in TCM hospitals have been in a state of burnout for a long time, resulting in their inability to focus on work; moreover, they are unable to maintain efficient performance due to exhaustion. A large number of studies have shown that doctors who feel exhausted and anxious at work are more likely to make mistakes (Bakker & Van Emmerik et al., 2008), and correcting these mistakes will further aggravate the already high job demands. This study found that burnout made individuals develop a negative or even resistant attitude toward work, which is not conducive to job performance improvement. That is consistent with the research findings of many scholars: the work exclusion caused by burnout will further aggravate the negative attitude of employees (Van den Broeck & De Cuyper et al., 2010).

(5) Work engagement played a positive mediating role in the relationship between job resources (i.e., salary level and promotion opportunity) and job performance. According to the Conservation of Resources Theory (Hobfoll, 1989), employees tend to obtain psychological resources that they consider valuable, which helps to keep them motivated in the face of workplace challenges and is conducive to improving their performance. When there are a variety of favorable job conditions available, such as generous salaries and benefits and rich career development channels, employees will perceive the recognition and appreciation from the company, thus stimulating their enthusiasm for work, enhancing their awareness of their own values, and enabling them to experience a more friendly doctor-patient relationship. In this case, they are more likely to perceive emotional support such as patients' respect, understanding, and trust, which will lead to a change in their attitude toward work tasks and mitigate their sense of alienation caused by work. This kind of perception is one of the important internal resources of medical professionals. It drives employees to be more proactive in engaging in the practice of medical services, thus achieving better performance.

(6) Burnout played a negative mediating role in the relationship between job demands (i.e., emotional demands and workload) and job performance. Burnout is caused by continuous energy depletion due to work (Bakker & Costa, 2014; Taris, 2006). According to the Conservation of Resources Theory, individuals have the tendency to conserve, protect, and

acquire resources (Hobfoll, 1989), and the results of resource reduction and resource increase will lead to different behaviors. Among them, resource shortage is a typical job demand (Crawford et al., 2010). When medical professionals are faced with huge work stress (i.e., emotional demands or excessive workload), they will be more alert to possible dangers in society and thus take self-defense actions (Cacioppo et al., 2016), which will further accelerate the depletion of existing resources. If the decreasing cognitive and psychological resources cannot be replenished immediately, it may cause negative emotions among individuals, such as anxiety, uneasiness, and dissatisfaction, thus making them physically and psychologically exhausted. That will further aggravate the uncertainty and volatility of the working environment, greatly deplete individuals' psychological resources, and make employees' personal resources continue to be threatened and lost (Yao et al., 2020), which will greatly reduce doctors' work enthusiasm and emotional state and inhibit their work vitality, thus reducing their job performance.

(7) Transformational leadership accentuated the mediating effect of work engagement between job resources (i.e., salary level and promotion opportunity) and job performance. The salary level and promotion opportunity provide medical professionals with resources on the organizational level, which is conducive to achieving work goals and reducing work pressure and can drive individuals' personal progress, knowledge acquisition, and ability improvement. (Demerouti et al., 2001). Therefore, satisfactory salaries and rich career promotion opportunities can help employees better handle various affairs in their work. In addition, according to the view of Van Knippenberg and Sitkin (2013), transformational leadership can have the following effects on employees' work attitude or behavior: a) leaders show respect and sufficient trust to employees and give them autonomy and freedom at work; b) they stimulate employees' intrinsic motivation and make them shift from pursuing personal goals to pursuing the common goals of the team; c) with an appropriate and effective reward system, they stimulate the enthusiasm and creativity of employees, so as to promote the development, progress, and continuous optimization of the company. This conclusion is similar to the view of the motivational process. Under transformational leadership, job resources such as salary level and promotion opportunity have the potential to stimulate employees' work motivation and thus can lead to high work engagement (Bakker & Demerouti, 2007).

(8) Transformational leadership did not show a significant moderation effect in the relationship between job demands (i.e., emotional demands and workload) and burnout; in addition, neither transformational leadership nor transactional leadership played a significant moderating role in the mediation effect of burnout between job demands (i.e., emotional

demands and workload) and job performance.

(9) Transactional leadership did not show a significant moderation effect in the relationship between job demands (i.e., emotional demands and workload) and burnout and between job resources (i.e., salary level and promotion opportunity) and work engagement. Moreover, transactional leadership did not play a significant moderating role in the mediation effect of work engagement between job resources (i.e., salary level and promotion opportunity) and job performance.

### 5.3 Managerial implications

With economic development and social progress, people are having increasing demands for health, and China has included people's health in the national strategy. In this context, it is the right time for TCM, as an indispensable component of China's medical system, to take the opportunity to develop vigorously. With the promulgation and implementation of the *Law of the People's Republic of China on Traditional Chinese Medicine*, TCM has received increased attention from the whole society. In order to foster the high-quality development of the TCM industry and improve the job performance of doctors, based on the dual-process hypothesis of the Job Demands-Resources Model, this study, explored the impact of job characteristics, namely job demands and job resources, on job performance through burnout and work engagement among doctors in TCM hospitals, and clarified the mediating mechanism. By integrating the leadership style in the Job Demands-Resources Model, we examined the interaction of two types of leadership styles, namely transformational and transactional leadership, with job demands and job resources, and clarified the contextual conditions for job characteristics influencing the job performance of doctors in TCM hospitals, so as to put forward a set of comprehensive mechanisms for improving doctors' job performance in TCM hospitals. Based on the above-presented empirical results and considering the development status of the TCM industry, this study puts forward the following five suggestions:

(1) Advancing the compensation system reform and optimizing the performance-based salary system. It is suggested to comprehensively advance the performance evaluation reform of the public medical system and set up a contact mechanism between relevant authorities and clinical units, regularly visit the front line of practice to promote policies and communicate evaluation criteria to ensure that medical professionals understand the performance management rules of the hospital, adopt the hierarchical management in clinical institutions, form a service mode with mutual assistance to prevent the distortion of information, improve

the objectives and evaluation index of the departments, stimulate medical professionals' enthusiasm for work, promote the development of the departments, enhance the overall operation effectiveness, and strengthen their subjective conception. In addition, it is recommended to implement a bonus-based compensation system. Medical institutions need to first make a comprehensive evaluation of each departments in the past year, including the income, cost, task volume, task quality, economic benefits, efficiency index, and public satisfaction, and then combine the doctors' technical ability, job risk level, responsibility fulfillment, task performance (including task number and quality, among others), service attitude, and medical ethics, to clearly distinguish between clinical, prevention, diagnosis and treatment, administration, and logistics departments and clearly differentiate doctors at different positions in the same department. At the same time, it is also necessary to pay attention to the even distribution of the indicators within each department, to prevent unfair results in the evaluation of each department or position, such as "the department with more responsibility receiving a lower score, while the department with less responsibility receiving a higher score", so as to prevent medical professionals' dissatisfaction, which may lead to resentment.

(2) Optimizing the talent structure and the allocation of supervisors and establishing a talent nurturing system for inheritance. Within medical institutions, it is suggested to strengthen the reform of the human resources system, eliminate the practice of ranking according to seniority, and provide fair opportunities for the career development of TCM professionals. Institutions should establish talent profiles to provide talent resource information, provide comprehensive preferential benefits and issue corresponding job subsidies to introduced outstanding TCM talents, and help them solve the problems of housing, spouse arrangement, and children's schooling to relieve their worries and make them work at ease, so as to improve their work engagement and job performance. It is necessary to establish the evaluation criteria and evaluation system for TCM talents based on the "professional practice ability of TCM" and formulate policies conducive to the cultivation of TCM talents, prioritizing the construction of the TCM workforce. Rich career promotion channels should be provided for talents who have made outstanding achievements in scientific research, teaching, research outcome commercialization, diagnosis and treatment of difficult diseases in the field of TCM. Diversified career promotion paths should be available for professionals who have made significant contributions to the field.

(3) The research findings showed that different from transactional leadership, transformational leadership could affect the work engagement and job performance of subordinate doctors by affecting the relationship between job resources and performance.

Therefore, in order to further promote the development of the medical industry, TCM hospitals not only need to optimize the salary structure and implement a more reasonable performance-based incentive mechanism, but also should focus on nurturing and appropriately giving play to the transformational leadership by encouraging the heads of all departments to adopt transformational leadership to cope with the challenges at work, improve the performance of medical professionals, and drive them to proactively engage in the work, thus improving their professional ability and job performance, so as to comprehensively improve the service quality and operational efficiency of medical institutions and ultimately achieve the overall goal of the hospital.

(4) The results showed that emotional demands were an essential factor leading to burnout. The emotional demands usually involve dealing with situations with high stress and great emotional fluctuations at work, such as emergency cases, communicating with patients, and facing death and severe illness. For the employees of TCM hospitals, especially the doctors, the emotional demands may come from situations such as interacting with patients, dealing with the doctor-patient relationship, and coping with possible medical disputes. Workload includes long-time work, high-intensity cognitive and physical labor, and constantly updating and acquiring medical knowledge. In view of this, TCM hospitals should establish a comprehensive psychological support system to provide psychological counseling and emotional support services for employees and help them get timely relief and assistance in the face of work stress. In addition, it is necessary to optimize the doctor-patient communication mechanism and enhance the communication and understanding between doctors and patients to improve patients' satisfaction with medical services and reduce the psychological pressure on doctors in dealing with the doctor-patient relationship. Finally, managers of TCM hospitals should create a safe and supportive working environment and establish a working environment in which employees feel safe, respected, and supported, so as to prevent excessive emotional demands caused by a poor working environment.

(5) Medical professionals in TCM hospitals are faced with a huge workload on a daily basis, including the requirements for professional knowledge and skills, high labor intensity, a wide range of work tasks, dealing with complex conditions, and tense doctor-patient relationships. TCM hospitals should reasonably arrange the work and rest time, optimize the work process, and reasonably schedule the work and off hours of employees to avoid long-hour overwork of employees, which will result in excessive workload. Secondly, it is necessary to strengthen employee training and provide regular professional training and knowledge updates to help employees improve work efficiency and mitigate their work stress caused by insufficient

upskilling. In addition, managers of TCM hospitals should be concerned with the well-being of employees and pay attention to their health status by conducting regular health examinations and providing health improvement resources such as gym and yoga courses, so as to help employees reduce the physical and psychological pressure brought by work.

## 5.4 Theoretical contributions

This thesis conducted further exploration of the impact of job characteristics and leadership styles on the job performance of doctors in TCM hospitals. Using the Job Demands-Resources Model, it conducted an empirical analysis, based on which relevant conclusions were drawn. It provides a new perspective for the research on the job performance of doctors in TCM hospitals and effectively improves and supplements the research on the job performance of doctors in the context of TCM hospitals in China. This study explored the specific processes in which different job characteristics and different leadership styles affect the job performance of doctors in TCM hospitals, providing a theoretical basis for guiding the programs for improving doctors' job performance in TCM hospitals.

(1) It explored the specific processes of different job characteristics and different leadership styles affecting the performance of doctors in TCM hospitals, introduced new mechanisms, and further developed the existing research model. Based on the dual-process hypothesis of the Job Demands-Resources Model, it analyzed the impact of job characteristics, namely job demands and job resources, on doctors' job performance through burnout and work engagement, and clarified the mediating mechanism, based on which, a set of comprehensive mechanisms for improving doctors' job performance in TCM hospitals were put forward.

(2) It found out the moderation effect of transformational leadership on the job performance of doctors in TCM hospitals. By applying the leadership style in the Job Demands-Resources Model, this research examined the interaction of the two most commonly referred leadership styles (i.e., transformational and transactional leadership) with job demands and resources, and identified transformational leadership as the key contextual condition for improving the job performance of doctors in TCM hospitals,.

(3) By introducing a new theoretical perspective, it expands the theoretical application of the Job Demands-Resources Model in the management practices of TCM hospitals in China and provides a new perspective for the research on doctors' job performance in TCM hospitals. Unlike in practice, where the activities related to improving the job performance of doctors in TCM hospitals are in full swing, very few researchers have considered the characteristics of



TCM hospitals and focused on the context of TCM hospitals when discussing the mechanism of doctors' job performance improvement. The relevant studies in the field of hospital management mostly did not distinguish between the types of hospitals but rather explored the influencing factors and influencing process of doctor performance in the general hospital text. Although employees may face varied working environments in different companies, the situations they encounter can be divided into two main categories: job demands and job resources. When job demands lead to work exhaustion among employees, they will have a negative effect on job outcomes; on the other hand, if job resources can stimulate employees' enthusiasm and improve their work engagement, they will bring positive effects to their results.

## 5.5 Limitations and prospects

This study has some limitations, based which we put forward the following suggestions for future study.

(1) Our questionnaire was answered by the employees themselves, and we cannot rule out the possible tendency of subjectively affirming themselves. Based on the Job Demands-Resources Model, this study analyzed the impact of job demands and job resources of doctors in TCM hospitals on their job performance through the dual processes of burnout and work engagement. At the same time, the leadership styles of doctors' direct superiors, namely transformational leadership and transactional leadership, were taken as moderators. Future research can consider using a paired questionnaire for leaders and employees to further explore the mechanism of different leadership styles moderating the dual processes with the mediation of work engagement and burnout. The collection and utilization of multi-source data can reduce the impact of homologous bias, making the research findings more convincing.

(2) This study was based on the overall relationship between doctors' incentives and job performance in TCM hospitals and failed to distinguish the sample sources of different hospitals and departments. However, in practice, the leadership styles in different departments and hospitals may be different. Future studies can use stratified random sampling and multi-layer model analysis to control the differences in leadership styles in different hospitals or departments and further explore the influence mechanism of different job demands and job resources on doctors' job performance under different leadership styles.

(3) This study is limited in terms of research purposes and research methods as it only explored the moderation effect of transformational leadership and transactional leadership. It remains unknown whether there are other better and related boundary effects. Therefore, it is

suggested to consider adding additional leadership styles as moderating variables in future studies for in-depth research.

(4) Using cross-sectional data, we could not test the causal relationships. This study explored how leadership styles and job characteristics affect the job performance of doctors in TCM hospitals, but due to the limitations of cross-sectional data, the causal relationships could not be verified. Although cross-sectional data revealed the immediate relationships between the variables, it could not determine whether leadership styles and job characteristics are the direct causes of changes in the job performance of doctors in TCM hospitals. Future research should adopt longitudinal research method, experimental method, or mixed methods to more accurately reveal the causal mechanism between leadership styles, job characteristics, and job performance, and provide empirical support for the management of TCM hospitals.

(5) This study utilized internationally established scales to test the hypotheses; however, most hypotheses were not supported in the Chinese context. This indicates that leadership styles may influence the relationship between job demands, job resources, and doctors' job performance differently across cultural settings. It also underscores the importance of cultural context in research, suggesting that internationally established scales may need to be adapted and localized for use in China. Therefore, future research should focus on examining how different leadership styles impact doctors' job demands and job resources within China's unique cultural and healthcare environment, and how these factors collectively influence doctors' performance. Such research will contribute to a better understanding and enhancement of hospital management in TCM hospitals, ultimately improving the quality and efficiency of healthcare services.

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## Bibliography

- Abendroth, M., & Flannery, J. (2006). Predicting the risk of compassion fatigue: A study of hospice nurses. *Journal of Hospice & Palliative Nursing*, 8(6), 346-356.
- Achtziger, A., Gollwitzer, P. M., & Sheeran, P. (2008). Implementation intentions and shielding goal striving from unwanted thoughts and feelings. *Personality and Social Psychology Bulletin*, 34(3), 381-393.
- Alrowwad, A., Abualoush, S. H., & Masa'Deh, R. (2020). Innovation and intellectual capital as intermediary variables among transformational leadership, transactional leadership, and organizational performance. *Journal of Management Development*, 39(2), 196-222.
- Arnold, K. A., Turner, N., Barling, J., Kelloway, E. K., & McKee, M. C. (2007). Transformational leadership and psychological well-being: the mediating role of meaningful work. *Journal of Occupational Health Psychology*, 12(3), 193.
- Avolio, B. J., Bass, B. M., & Jung, D. I. (1999). Re-examining the components of transformational and transactional leadership using the Multifactor Leadership. *Journal of Occupational and Organizational Psychology*, 72(4), 441-462.
- Avolio, B. J., & Bass, B. M. (1998). You can drag a horse to water but you can't make it drink unless it is thirsty. *Journal of Leadership Studies*, 5(1), 4-17.
- Bakker, A. B., Demerouti, E., De Boer, E., & Schaufeli, W. B. (2003). Job demands and job resources as predictors of absence duration and frequency. *Journal of Vocational Behavior*, 62(2), 341-356.
- Bakker, A. B., Demerouti, E., Taris, T. W., Schaufeli, W. B., & Schreurs, P. J. (2003). A multigroup analysis of the job demands-resources model in four home care organizations. *International Journal of Stress Management*, 10(1), 16.
- Bakker, A. B., Demerouti, E., & Verbeke, W. (2004). Using the job demands-resources model to predict burnout and performance. *Human Resource Management: Published in Cooperation with the School of Business Administration, the University of Michigan and in Alliance with the Society of Human Resources Management*, 43(1), 83-104.
- Bakker, A. B., Schaufeli, W. B., Leiter, M. P., & Taris, T. W. (2008). Work engagement: An emerging concept in occupational health psychology. *Work & Stress*, 22(3), 187-200.
- Bakker, A. B., Van Emmerik, H., & Van Riet, P. (2008). How job demands, resources, and burnout predict objective performance: A constructive replication. *Anxiety, Stress, & Coping*, 21(3), 309-324.
- Bakker, A. B., & Costa, P. L. (2014). Chronic job burnout and daily functioning: A theoretical analysis. *Burnout Research*, 1(3), 112-119.
- Bakker, A. B., & Demerouti, E. (2007). The job demands-resources model: State of the art. *Journal of Managerial Psychology*, 22(3), 309-328.
- Bakker, A., Demerouti, E., & Schaufeli, W. (2003). Dual processes at work in a call centre: An application of the job demands-resources model. *European Journal of Work and Organizational Psychology*, 12(4), 393-417.
- Barbier, M., Hansez, I., Chmiel, N., & Demerouti, E. (2013). Performance expectations, personal resources, and job resources: How do they predict work engagement? *European Journal of Work and Organizational Psychology*, 22(6), 750-762.
- Bass, B. M. (1985). *Leadership and performance beyond expectations*. Free Press.
- Bass, B. M., Avolio, B. J., Jung, D. I., & Berson, Y. (2003). Predicting unit performance by assessing transformational and transactional leadership. *Journal of Applied Psychology*,

88(2), 207.

- Bass, B. M., & Avolio, B. J. (1994). *Improving organizational effectiveness through transformational leadership*. Sage.
- Bass, B. M., & Avolio, B. J. (1996). Multifactor leadership questionnaire. *Western Journal of Nursing Research*.
- Bauer, G. F., Hämmig, O., Schaufeli, W. B., & Taris, T. W. (2014). A critical review of the job demands-resources model: Implications for improving work and health. In G. F. Bauer & O. Hämmig (Eds.), *Bridging occupational, organizational and public health: A transdisciplinary approach* (pp. 43-68). Springer.
- Behrendt, P., Matz, S., & Göritz, A. S. (2017). An integrative model of leadership behavior. *The Leadership Quarterly*, 28(1), 229-244.
- Bono, J. E., Foldes, H. J., Vinson, G., & Muros, J. P. (2007). Workplace emotions: the role of supervision and leadership. *Journal of Applied Psychology*, 92(5), 1357.
- Borman, W. C., & Motowidlo, S. J. (1997). Task performance and contextual performance: The meaning for personnel selection research. *Human Performance*, 10(2), 99-109.
- Borman, W. C., & Motowidlo, S. M. (1993). Expanding the criterion domain to include elements of contextual performance. In N. Schmitt & W. C. Borman (Eds.), *Personnel selection in organizations* (pp. 71-98). Jossey-Bass.
- Bormann, K. C., & Diebig, M. (2021). Following an uneven lead: Trickle-down effects of differentiated transformational leadership. *Journal of Management*, 47(8), 2105-2134.
- Bosak, J., Kilroy, S., Chênevert, D., & Flood, P. C. (2021). Examining the role of transformational leadership and mission valence on burnout among hospital staff. *Journal of Organizational Effectiveness: People and Performance*, 8(2), 208-227.
- Breevaart, K., Bakker, A., Hetland, J., Demerouti, E., Olsen, O. K., & Espevik, R. (2014). Daily transactional and transformational leadership and daily employee engagement. *Journal of Occupational and Organizational Psychology*, 87(1), 138-157.
- Breevaart, K., & Bakker, A. B. (2018). Daily job demands and employee work engagement: The role of daily transformational leadership behavior. *Journal of Occupational Health Psychology*, 23(3), 338.
- Burns, J. M. (2012). *Leadership*. Open Road Media.
- Cacioppo, S., Bangee, M., Balogh, S., Cardenas-Iniguez, C., Qualter, P., & Cacioppo, J. T. (2016). Loneliness and implicit attention to social threat: A high-performance electrical neuroimaging study. *Cognitive Neuroscience*, 7(1-4), 138-159.
- Cao, C., Shang, L., & Meng, Q. (2020). Applying the job demands-resources model to exploring predictors of innovative teaching among university teachers. *Teaching and Teacher Education*, 89, 103009.
- Carless, S. A., Wearing, A. J., & Mann, L. (2000). A short measure of transformational leadership. *Journal of Business and Psychology*, 14, 389-405.
- Carr, S. E., Celenza, A., Mercer, A. M., Lake, F., & Puddey, I. B. (2018). Predicting performance of junior doctors: Association of workplace based assessment with demographic characteristics, emotional intelligence, selection scores, and undergraduate academic performance. *Medical Teacher*, 40(11), 1175-1182.
- Chen, H., & Baron, M. (2006). Nursing directors' leadership styles and faculty members' job satisfaction in Taiwan. *Journal of Nursing Education*, 45(10), 404.
- Chen, W., & Shi, K. (2007). 变革型领导和交易型领导的回顾与展望 [Transformational and transactional leadership and its mechanism]. *Management Review* (09), 22-29.
- Chen, X., He, W., & Weng, L. (2018). What is wrong with treating followers differently? The basis of leader-member exchange differentiation matters. *Journal of Management*, 44(3), 946-971.
- Chen, Y., Tang, D., & Zhu, B. (2022a). 情感耗竭对全科住培医生职业承诺的影响和工作投

- 入的中介作用 [The influence of emotional exhaustion on the professional commitment of general practitioners and the mediating effect of job involvement]. *Zhejiang Medical Education*, 21(06), 358-363.
- Chen, Y., Tang, D., & Zhu, B. (2022b). 基于工作要求-资源模型的江苏省全科住培医师职业承诺及其影响因素研究 [Study on career commitment and its influencing factors of general practitioners in Jiangsu Province based on Job Demand-resource Model]. *Jiangsu Health System Management*, 33(07), 857-861.
- Chen, Z. (2017). 护士工作要求、工作资源与工作投入的相关性 [Effects of job demand and job resource on work engagement]. *Chinese Nursing Research*, 31(33), 4280-4283.
- Chênevert, D., Kilroy, S., Johnson, K., & Fournier, P. (2021). The determinants of burnout and professional turnover intentions among Canadian physicians: application of the job demands-resources model. *Bmc Health Services Research*, 21, 1-10.
- Chipidza, F. E., Wallwork, R. S., & Stern, T. A. (2015). Impact of the doctor-patient relationship. *The Primary Care Companion for Cns Disorders*, 17(5), 27354.
- Cho, Y., Shin, M., Billing, T. K., & Bhagat, R. S. (2019). Transformational leadership, transactional leadership, and affective organizational commitment: a closer look at their relationships in two distinct national contexts. *Asian Business & Management*, 18, 187-210.
- Cole, M. S., Walter, F., Bedeian, A. G., & O Boyle, E. H. (2012). Job burnout and employee engagement: A meta-analytic examination of construct proliferation. *Journal of Management*, 38(5), 1550-1581.
- Coomber, B., & Barriball, K. L. (2007). Impact of job satisfaction components on intent to leave and turnover for hospital-based nurses: a review of the research literature. *International Journal of Nursing Studies*, 44(2), 297-314.
- Crant, J. M. (2000). Proactive behavior in organizations. *Journal of Management*, 26(3), 435-462.
- Crawford, E. R., LePine, J. A., & Rich, B. L. (2010). Linking job demands and resources to employee engagement and burnout: a theoretical extension and meta-analytic test. *Journal of Applied Psychology*, 95(5), 834.
- Cui, G., Wang, F., & Xu, Y. (2014). 医生工作资源对工作要求与职业倦怠关系的调节作用 [Mediation effects of the doctors' job resource on relationships between the job demand and burnout]. *China Journal of Health Psychology*, 22(12), 1786-1790.
- Cui, Y., Wu, Y., Zhao, L., Yang, L., Liu, H., Wang, S., Du, X., Zhao, C., & Mao, J. (2018). 组织承诺在领导行为与护士工作满意度间的中介效应研究 [Mediating role of organizational commitment in relationship between leadership and nurses' job satisfaction]. *Chinese Hospital Management*, 38(06), 61-63.
- Demerouti, E., Bakker, A. B., Nachreiner, F., & Schaufeli, W. B. (2001). The job demands-resources model of burnout. *Journal of Applied Psychology*, 86(3), 499.
- Demerouti, E., & Bakker, A. B. (2011). The job demands-resources model: Challenges for future research. *Sa Journal of Industrial Psychology*, 37(2), 1-9.
- Deng, G., Zhao, D., Lio, J., Ma, X., Liang, L., & Feng, C. (2020). Linking hospital culture to the training performance of residents: The roles of leader-member exchange and transactional leadership style. *Journal of Evaluation in Clinical Practice*, 26(1), 92-100.
- Deng, Y., & Fan, L. (2014). 多元化氛围和感知差异对员工工作投入与工作倦怠的影响——一项跨层次的研究 [The impact of perceived dissimilarity and diversity climate on employee job involvement and burnout - A cross-level research]. *Soft Science*, 28(02), 87-90.
- Ding, J., & Shang, W. (2023). 新冠疫情下江苏省医护人员情绪劳动及智力对比研究 [A comparative study on emotional labor and intelligence of medical staff in Jiangsu province under the COVID-19 epidemic]. *Chinese Hospitals*, 27(04), 67-70.

- Ding, Z. (2014). *The influence of gender role on stress behavior response* [Doctoral dissertation]. Fudan University.
- Du, W. (2020). *The influence mechanism of emotional labor on physical and mental health of medical staff based on the Job Demands-Resources Model* [Doctoral dissertation]. Wuhan University.
- Enders, C. K. (2010). *Applied missing data analysis*. Guilford Press.
- Enders, C. K., & Tofighi, D. (2007). Centering predictor variables in cross-sectional multilevel models: a new look at an old issue. *Psychological Methods*, 12(2), 121.
- Eriksson, T., & Villeval, M. C. (2008). Performance-pay, sorting and social motivation. *Journal of Economic Behavior & Organization*, 68(2), 412-421.
- Feng, T., & Su, J. (2021). 军队医院护理变革型领导与团队绩效关系研究 [Study on the relationship between nursing transformational leadership and team performance in military hospital]. *Military Medical Journal of South China*, 35(05), 355-359.
- Fernández-Muñiz, B., Montes-Peón, J. M., & Vázquez-Ordás, C. J. (2017). The role of safety leadership and working conditions in safety performance in process industries. *Journal of Loss Prevention in the Process Industries*, 50, 403-415.
- Fernet, C., Trépanier, S., Austin, S., Gagné, M., & Forest, J. (2015). Transformational leadership and optimal functioning at work: On the mediating role of employees' perceived job characteristics and motivation. *Work & Stress*, 29(1), 11-31.
- Fields, D. L., & Herold, D. M. (1997). Using the leadership practices inventory to measure transformational and transactional leadership. *Educational and Psychological Measurement*, 57(4), 569-579.
- Fried, Y., Ben David, H. A., Tiegs, R. B., Avital, N., & Yeverechyahu, U. (1998). The interactive effect of role conflict and role ambiguity on job performance. *Journal of Occupational and Organizational Psychology*, 71(1), 19-27.
- Gagné, M., & Deci, E. L. (2005). Self-determination theory and work motivation. *Journal of Organizational Behavior*, 26(4), 331-362.
- Gao, Q., & Wu, Z. (2016). 变革型领导对员工主动行为的作用机制研究 [The influence mechanism of transformational leadership on employees' initiative behavior]. *Leadership Science*, (26), 31-33.
- Gowen III, C. R., Henagan, S. C., & McFadden, K. L. (2009). Knowledge management as a mediator for the efficacy of transformational leadership and quality management initiatives in US health care. *Health Care Management Review*, 34(2), 129-140.
- Gulyani, G., & Sharma, T. (2018). Total rewards components and work happiness in new ventures: The mediating role of work engagement. *Evidence-based HRM: A Global Forum for Empirical Scholarship*, 6(3), 255-271.
- Guo, A., & Yang, J. (2020). 资源守恒下员工创新与绩效的竞争与共赢:有中介的调节嵌套研究 [Competition and win-win between employee innovation and performance under the conservation of resources: A moderation-mediation nested model]. *Science and Management*, 40(05), 42-49.
- Guo, Y., Wang, X., Wang, S., & Zhang, J. (2019). 基于微信的积极心理干预对护士工作倦怠及工作绩效的影响 [Effect of a WeChat-based positive psychotherapy on burnout and job performance in nurses]. *Journal of Nursing Science*, 34(08), 1-3.
- Hackman, J. R., & Oldham, G. R. (1976). Motivation through the design of work: Test of a theory. *Organizational Behavior and Human Performance*, 16(2), 250-279.
- Hakanen, J. J., Bakker, A. B., & Schaufeli, W. B. (2006). Burnout and work engagement among teachers. *Journal of School Psychology*, 43(6), 495-513.
- Hakanen, J. J., Schaufeli, W. B., & Ahola, K. (2008). The Job Demands-Resources model: A three-year cross-lagged study of burnout, depression, commitment, and work engagement.

- Work & Stress*, 22(3), 224-241.
- Halbesleben, J. R., Harvey, J., & Bolino, M. C. (2009). Too engaged? A conservation of resources view of the relationship between work engagement and work interference with family. *Journal of Applied Psychology*, 94(6), 1452.
- Hall, G. B., Dollard, M. F., Winefield, A. H., Dormann, C., & Bakker, A. B. (2013). Psychosocial safety climate buffers effects of job demands on depression and positive organizational behaviors. *Anxiety, Stress & Coping*, 26(4), 355-377.
- Han, J., Cheng, H., & Shi, X. (2018). 唐山市三甲医院临床医生工作绩效及其影响因素 [Job performance and influencing factors of clinicians in third grade class a hospitals in Tangshan City]. *Medicine and Society*, 31(05), 69-71.
- Han, Y., Liao, J., & Long, L. (2007). 雇员工作绩效结构模型构建与实证研究 [Model of development and empirical study on employee job performance construct]. *Journal of Management Sciences in China*, (05), 62-77.
- Häusser, J. A., Mojzisch, A., Niesel, M., & Schulz-Hardt, S. (2010). Ten years on: A review of recent research on the Job Demand–Control (-Support) model and psychological well-being. *Work & Stress*, 24(1), 1-35.
- Hinkin, T. R., & Schriesheim, C. A. (2008). A theoretical and empirical examination of the transactional and non-leadership dimensions of the Multifactor Leadership Questionnaire (MLQ). *The Leadership Quarterly*, 19(5), 501-513.
- Hobfoll, S. E. (1989). Conservation of resources: a new attempt at conceptualizing stress. *American Psychologist*, 44(3), 513.
- Hobfoll, S. E. (2001). The influence of culture, community, and the nested-self in the stress process: Advancing conservation of resources theory. *Applied Psychology*, 50(3), 337-421.
- Hoch, J. E., Bommer, W. H., Dulebohn, J. H., & Wu, D. (2018). Do ethical, authentic, and servant leadership explain variance above and beyond transformational leadership? A meta-analysis. *Journal of Management*, 44(2), 501-529.
- Hockey, G. R. J. (2011). A motivational control theory of cognitive fatigue. In P. L. Ackerman (Ed.), *Cognitive fatigue: Multidisciplinary perspectives on current research and future applications* (pp. 167–187). American Psychological Association.
- Hollander, E. P. (1993). Legitimacy, power, and influence: A perspective on relational features of leadership. In M. M. Chemers & R. Ayman (Eds.), *Leadership theory and research: Perspectives and directions* (pp. 29–47). Academic Press.
- Homans, G. C. (1958). Social behavior as exchange. *American Journal of Sociology*, 63(6), 597-606.
- Hou, H., & Lu, F. (2018). 新生代工作价值观、内在动机对工作绩效影响——组织文化的调节效应 [Effects of work values of millennial employees, intrinsic motivation on job performance: the moderating effect of organizational culture]. *Management Review*, 30(04), 157-168.
- House, R. J. (1971). A path goal theory of leader effectiveness. *Administrative Science Quarterly*, 16(3), 321-339.
- Hu, Q., Schaufeli, W. B., & Taris, T. W. (2017). How are changes in exposure to job demands and job resources related to burnout and engagement? A longitudinal study among Chinese nurses and police officers. *Stress and Health*, 33(5), 631-644.
- Huang, Y., & Shen, S. (2017). 中医药人才培养现状及建议浅析 [The current situation and suggestions of the cultivation of traditional Chinese medicine talents]. *Journal Of Community Medicine*, 15(01), 72-74.
- Jabnoun, N., & Juma AL Rasasi, A. (2005). Transformational leadership and service quality in UAE hospitals. *Managing Service Quality: An International Journal*, 15(1), 70-81.
- Jelača, M. S., Bjekić, R., & Leković, B. (2016). A proposal for research framework based on the theoretical analysis and practical application of MLQ questionnaire. *Economic Themes*,



54(4), 549-562.

- Ju, X., & Shao, L. (2004). 职业倦怠的工作要求-资源模型 [The Job Demands-Resources Model of burnout]. *Chinese Journal of Applied Psychology*, (03), 58-62.
- Judge, T. A., & Piccolo, R. F. (2004). Transformational and transactional leadership: a meta-analytic test of their relative validity. *Journal of Applied Psychology*, 89(5), 755.
- Kahn, W. A. (1990). Psychological conditions of personal engagement and disengagement at work. *Academy of Management Journal*, 33(4), 692-724.
- Karasek Jr, R. A. (1979). Job demands, job decision latitude, and mental strain: Implications for job redesign. *Administrative Science Quarterly*, 24(2), 285-308.
- Kark, R., & Shamir, B. (2002). The influence of transformational leadership on followers' relational versus collective self-concept. In S. Taneja (Ed.), *Academy of management proceedings* (pp. D1-D6). Academy of Management.
- Kataria, A., Garg, P., & Rastogi, R. (2013). Does psychological climate augment OCBs? The mediating role of work engagement. *The Psychologist-Manager Journal*, 16(4), 217.
- Kellerman, B. (2004). *Bad leadership: What it is, how it happens, why it matters*. Harvard Business Press.
- Kim, S., Price, J. L., Mueller, C. W., & Watson, T. W. (1996). The determinants of career intent among physicians at a US Air Force hospital. *Human Relations*, 49(7), 947-976.
- Korunka, C., Kubicek, B., Schaufeli, W. B., & Hoonakker, P. (2009). Work engagement and burnout: Testing the robustness of the Job Demands-Resources model. *The Journal of Positive Psychology*, 4(3), 243-255.
- Kuai, Y. (2017). *Study on the head teacher's turnover intention* [Doctoral dissertation]. East China Normal University].
- Kwon, K., & Kim, T. (2020). An integrative literature review of employee engagement and innovative behavior: Revisiting the JD-R model. *Human Resource Management Review*, 30(2), 100704.
- Lehmann, A. I., Rodgers, S., Calabrese, P., Kamm, C. P., Wyl, V. V., & Bauer, G. F. (2021). Relationship between Job Demands-Resources and turnover intention in chronic disease—The example of multiple sclerosis. *Stress and Health*, 37(5), 940-948.
- Leithwood, K. (1994). Leadership for school restructuring. *Educational Administration Quarterly*, 30(4), 498-518.
- Lequeurre, J., Gillet, N., Ragot, C., & Fouquereau, E. (2013). Validation of a French questionnaire to measure job demands and resources. *Revue Internationale De Psychologie Sociale*, 26(4), 93-124.
- Lewig, K. A., Xanthopoulou, D., Bakker, A. B., Dollard, M. F., & Metzger, J. C. (2007). Burnout and connectedness among Australian volunteers: A test of the Job Demands-Resources model. *Journal of Vocational Behavior*, 71(3), 429-445.
- Li, C., & Shi, K. (2005). 变革型领导的结构与测量 [The structure and measurement of transformational leadership in China]. *Acta Psychologica Sinica*, (06), 97-105.
- Li, F., Jiang, L., Yao, X., & Li, Y. (2013). Job demands, job resources and safety outcomes: The roles of emotional exhaustion and safety compliance. *Accident Analysis & Prevention*, 51, 243-251.
- Li, J., Huang, R., Shen, H., & Gao, L. (2014). 护士群体工作倦怠的工作要求-资源模型探索 [Job Demands-Resources Model of nurses' burnout]. *Chinese Journal of Clinical Psychology*, 22(05), 881-884.
- Li, X., & Lin, Z. (2013). 变革型与交易型领导有效性的实证比较 [An empirical comparison of transformational and transactional leadership effectiveness]. *Journal of Xiamen University of Technology*, 21(01), 69-73.
- Li, Y. (2011). 对公立医院医生绩效考核现状的研究——基于广东省茂名市中医院分析 [The current situation of doctors' performance appraisal in public hospitals - Based on

- Maoming Hospital of Traditional Chinese Medicine in Guangdong Province]. *Modern Hospital Management*, 9(05), 16-19.
- Li, Y. (2018). 变革型领导对员工创新行为的影响:心理授权与情感承诺的作用 [Impact of transformational leadership on employees' innovative behavior: Roles of psychological empowerment and affective commitment]. *Science Research Management*, 39(07), 123-130.
- Li, Y., Castaño, G., & Li, Y. (2018). Linking leadership styles to work engagement: The role of psychological capital among Chinese knowledge workers. *Chinese Management Studies*, 12(2), 433-452.
- Liang, W. (2020). 工作要求、工作资源与教师的工作满意度——基于上海教师教学国际调查数据的实证研究 [Job demands, job resources and teachers' job satisfaction: An empiric study based on the Shanghai data from the TALIS 2018 results]. *Educational Research*, 41(10), 102-115.
- Lin, J., Liu, B., Wang, Y., & Wang, Y. (2022). 公立中医院绩效评价:困境与对策 [Performance evaluation of public traditional Chinese medicine hospitals: Difficulties and countermeasures]. *China Chief Financial Officer*, (09), 105-107.
- Lin, P., MacLennan, S., Hunt, N., & Cox, T. (2015). The influences of nursing transformational leadership style on the quality of nurses' working lives in Taiwan: a cross-sectional quantitative study. *Bmc Nursing*, 14, 1-9.
- Lin, X., Luan, Y., & Zhao, G. (2022). 交易型领导与员工绩效的关系研究:一项元分析 [Research on the relationship between transactional leadership and employee performance: Based on meta-analysis]. *Lanzhou Academic Journal*, (03), 85-96.
- Lin, X., & Xu, Y. (2021). 未来工作自我清晰度与员工反馈寻求行为的关系:变革型领导和工作投入的影响 [Relationship between future work self salience and feedback seeking behavior: The Impact of transformational leadership and work engagement]. *Management Review*, 33(07), 216-226.
- Llorens, S., Bakker, A. B., Schaufeli, W., & Salanova, M. (2006). Testing the robustness of the job demands-resources model. *International Journal of Stress Management*, 13(3), 378-391.
- Loh, M. Y., Idris, M. A., Dollard, M. F., & Isahak, M. (2018). Psychosocial safety climate as a moderator of the moderators: Contextualizing JDR models and emotional demands effects. *Journal of Occupational and Organizational Psychology*, 91(3), 620-644.
- Luo, J., & Liao, J. (2007). 企业员工工作投入研究综述 [A review of research on employees' work engagement in Enterprises]. *Foreign Economics & Management*, (05), 40-46.
- MacGregor, J., & Cunningham, J. B. (2018). To be or not to be... at work while ill: A choice between sickness presenteeism and sickness absenteeism in the workplace. *Journal of Organizational Effectiveness: People and Performance*, 5(4), 314-327.
- MacKenzie, S. B., Podsakoff, P. M., & Rich, G. A. (2001). Transformational and transactional leadership and salesperson performance. *Journal of the Academy of Marketing Science*, 29, 115-134.
- Mäkikangas, A., Bakker, A. B., & Schaufeli, W. B. (2017). Antecedents of daily team job crafting. *European Journal of Work and Organizational Psychology*, 26(3), 421-433.
- Maslach, C., Schaufeli, W. B., & Leiter, M. P. (2001). Job burnout. *Annual Review of Psychology*, 52(1), 397-422.
- Maslach, C., & Jackson, S. E. (1981). The measurement of experienced burnout. *Journal of Organizational Behavior*, 2(2), 99-113.
- Mauno, S., Kinnunen, U., & Ruokolainen, M. (2007). Job demands and resources as antecedents of work engagement: A longitudinal study. *Journal of Vocational Behavior*, 70(1), 149-171.

- Mazzetti, G., Vignoli, M., & Petruzzello, G. (2019). The harder you are, the healthier you become. May hardiness and engagement explain the relationship between leadership and employees' health? *Frontiers in Psychology*, 9, 438254.
- McElroy, J. C., & Weng, Q. (2016). The connections between careers and organizations in the new career era: Questions answered, questions raised. *Journal of Career Development*, 43(1), 3-10.
- McVicar, A. (2016). Scoping the common antecedents of job stress and job satisfaction for nurses (2000–2013) using the job demands–resources model of stress. *Journal of Nursing Management*, 24(2), E112-E136.
- Molino, M., Cortese, C. G., & Ghislieri, C. (2019). Unsustainable working conditions: The association of destructive leadership, use of technology, and workload with workaholism and exhaustion. *Sustainability*, 11(2), 446.
- Montgomery, A. J., Panagopolou, E., & Benos, A. (2006). Work–family interference as a mediator between job demands and job burnout among doctors. *Stress and Health: Journal of the International Society for the Investigation of Stress*, 22(3), 203-212.
- Muthén, B., & Muthén, L. (2017). Mplus. In W. J. van der Linden (Ed.), *Handbook of item response theory* (pp. 507-518). Chapman and Hall/CRC.
- Narayanan, A., Greco, M., Powell, H., & Bealing, T. (2011). Measuring the quality of hospital doctors through colleague and patient feedback. *Journal of Management & Marketing in Healthcare*, 4(3), 180-195.
- Nielsen, B., & Smeets, S. (2018). The role of the EU institutions in establishing the banking union. Collaborative leadership in the EMU reform process. *Journal of European Public Policy*, 25(9), 1233-1256.
- Novitasari, D., Goestjahjanti, F. S., & Asbari, M. (2020). The Role of Readiness to Change between Transformational Leadership and Performance: Evidence from a Hospital during Covid-19 Pandemic. *Apmba (Asia Pacific Management and Business Application)*, 9(1), 37-56.
- Nurlina, N. (2022). Examining linkage between transactional leadership, organizational culture, commitment and compensation on work satisfaction and performance. *Golden Ratio of Human Resource Management*, 2(2), 108-122.
- Nuutinen, S., Ahola, S., Eskelinen, J., & Kuula, M. (2021). How job resources influence employee productivity and technology-enabled performance in financial services: the job demands–resources model perspective. *Journal of Organizational Effectiveness: People and Performance*, 9(2), 233-252.
- Oldham, G. R., & Cummings, A. (1996). Employee creativity: Personal and contextual factors at work. *Academy of Management Journal*, 39(3), 607-634.
- Pan, H., Lai, Q., Ren, J., Ge, X., & Yan, Y. (2017). 创新驱动下中医药卓越人才培养模式的思考与实践 [Some thoughts on and implementation of the innovation driven training model for professionals of Chinese medicine]. *China Higher Medical Education*, (01), 25-27.
- Pandey, J. (2019). Factors affecting job performance: an integrative review of literature. *Management Research Review*, 42(2), 263-289.
- Pang, L. (2018). *The influence mechanism of transformational leadership on employees' failure learning behavior* [Doctoral dissertation]. Jilin University.
- Perko, K., Kinnunen, U., & Feldt, T. (2017). Long-term profiles of work-related rumination associated with leadership, job demands, and exhaustion: A three-wave study. *Work & Stress*, 31(4), 395-420.
- Piccolo, R. F., & Colquitt, J. A. (2006). Transformational leadership and job behaviors: The mediating role of core job characteristics. *Academy of Management Journal*, 49(2), 327-340.

- Qi, Y., & Wu, X. (2018). 工作要求—资源模型:理论和实证研究的拓展脉络 [Job Demands-Resources Model: The development of theoretical and empirical research]. *Journal of Beijing Normal University (Social Sciences)*, (06), 28-36.
- Qi, Y., Wu, X., & Wang, X. (2016). 中小学教师工作重塑与工作投入的交叉滞后分析 [A cross-lag analysis of primary and secondary school teachers' work remodeling and work engagement]. *Chinese Journal of Clinical Psychology*, 24(05), 935-938.
- R Core Team (2013). *R: A language and environment for statistical computing*. R Foundation for Statistical Computing.
- Rhee, S., Hur, W., & Kim, M. (2017). The relationship of coworker incivility to job performance and the moderating role of self-efficacy and compassion at work: The job demands-resources (JD-R) approach. *Journal of Business and Psychology*, 32, 711-726.
- Rich, B. L., Lepine, J. A., & Crawford, E. R. (2010). Job engagement: Antecedents and effects on job performance. *Academy of Management Journal*, 53(3), 617-635.
- Richardson, A. M., Burke, R. J., & Martinussen, M. (2006). Work and health outcomes among police officers: The mediating role of police cynicism and engagement. *International Journal of Stress Management*, 13(4), 555.
- Salanova, M., Lorente, L., Chambel, M. J., & Martinez, I. M. (2011). Linking transformational leadership to nurses' extra-role performance: the mediating role of self-efficacy and work engagement. *Journal of Advanced Nursing*, 67(10), 2256-2266.
- Schaufeli, W. B. (2017). Applying the Job Demands-Resources model: A 'how to' guide to measuring and tackling work engagement and burnout. *Organizational Dynamics*, 46(2), 120-132.
- Schaufeli, W. B., Bakker, A. B., & Salanova, M. (2006). The measurement of work engagement with a short questionnaire: A cross-national study. *Educational and Psychological Measurement*, 66(4), 701-716.
- Schaufeli, W. B., Salanova, M., González-Romá, V., & Bakker, A. B. (2002). The measurement of engagement and burnout: A two sample confirmatory factor analytic approach. *Journal of Happiness Studies*, 3, 71-92.
- Schaufeli, W. B., & Bakker, A. B. (2004). Job demands, job resources, and their relationship with burnout and engagement: A multi-sample study. *Journal of Organizational Behavior: The International Journal of Industrial, Occupational and Organizational Psychology and Behavior*, 25(3), 293-315.
- Sergiovanni, T. J. (1990). Adding value to leadership gets extraordinary results. *Educational Leadership*, 47(8), 23-27.
- Shao, H., Fu, H., Ge, Y., Jia, W., Li, Z., & Wang, J. (2022). Moderating effects of transformational leadership, affective commitment, job performance, and job insecurity. *Frontiers in Psychology*, 13, 847147.
- Shen, Z., Han, N., Yang, X., Gu, J., & Liu, J. (2018). 胜任力对全科医生工作满意度的影响:工作绩效和组织认同的链式中介作用 [Effects of competency on general doctor's job satisfaction: A chain mediating model]. *Chinese Journal of Clinical Psychology*, 26(05), 1021-1025.
- Shi, K., Song, X., Zhou, R., & Guo, H. (2022). 变革型领导对员工工作幸福感的影响机制:工作重塑的中介作用与领导成员交换的调节作用 [The influence mechanism of transformational leadership on employees' jobwell-being:The mediating role of job crafting and the moderating role of leader-member exchange]. *Psychological Research*, 15(06), 526-535.
- Shin, K. (2003). *Job engagement and job burnout in a South Korean sample*. Kansas State University.
- Si, S., & Wei, F. (2012). Transformational and transactional leaderships, empowerment climate,

- p>and innovation performance: A multilevel analysis in the Chinese context.
- European Journal of Work and Organizational Psychology*
- , 21(2), 299-320.
- Singh, J., Goolsby, J. R., & Rhoads, G. K. (1994). Behavioral and psychological consequences of boundary spanning burnout for customer service representatives. *Journal of Marketing Research*, 31(4), 558-569.
- Song, J., Wang, X., Xu, J., Liu, J., & Huang, X. (2022). 2015—2019年公立中医院医疗收入分析——基于结构变动和灰色关联法 [Analysis of medical income of public traditional Chinese medicine hospitals from 2015 to 2019 - Based on the structural change degree and the greyrelevance method]. *Journal of Nanjing Medical University (Social Sciences)*, 22(01), 82-87.
- Sui, Y., Wang, H., Yue, Y., & Luthans, F. (2012). 变革型领导对员工绩效和满意度的影响:心理资本的中介作用及程序公平的调节作用 [The effect of transformational leadership on follower performance and satisfaction: The mediating role of psychological capital and the moderating role of procedural justice]. *Acta Psychologica Sinica*, 44(09), 1217-1230.
- Tang, Y. (2021). *The influence mechanism of psychological capital, work engagement and knowledge sharing on employees' innovative behavior* [Doctoral dissertation]. University of Electronic Science and technology.
- Taris, T. W. (2006). Is there a relationship between burnout and objective performance? A critical review of 16 studies. *Work & Stress*, 20(4), 316-334.
- Thun, S., & Bakker, A. B. (2018). Empowering leadership and job crafting: The role of employee optimism. *Stress and Health*, 34(4), 573-581.
- Tian, J., Zhang, W., Mao, Y., & Gurr, D. (2022). The impact of transformational leadership on teachers' job burnout: the mediating role of social-emotional competence and student-teacher relationship. *Journal of Educational Administration*, 60(4), 369-385.
- Tummers, L. G., & Bakker, A. B. (2021). Leadership and job demands-resources theory: A systematic review. *Frontiers in Psychology*, 12, 722080.
- Van Den Assem, B., & Dulewicz, V. (2015). Doctors' trustworthiness, practice orientation, performance and patient satisfaction. *International Journal of Health Care Quality Assurance*, 28(1), 82-95.
- Van den Broeck, A., De Cuyper, N., De Witte, H., & Vansteenkiste, M. (2010). Not all job demands are equal: Differentiating job hindrances and job challenges in the Job Demands-Resources model. *European Journal of Work and Organizational Psychology*, 19(6), 735-759.
- Van den Broeck, A., Vansteenkiste, M., De Witte, H., Soenens, B., & Lens, W. (2010). Capturing autonomy, competence, and relatedness at work: Construction and initial validation of the Work-related Basic Need Satisfaction scale. *Journal of Occupational and Organizational Psychology*, 83(4), 981-1002.
- Van Knippenberg, D., & Sitkin, S. B. (2013). A critical assessment of charismatic—transformational leadership research: Back to the drawing board? *Academy of Management Annals*, 7(1), 1-60.
- Viotti, S., Gilardi, S., Guglielmetti, C., & Converso, D. (2015). Verbal aggression from care recipients as a risk factor among nursing staff: a study on burnout in the JD-R model perspective. *Biomed Research International*, 2015, 215267.
- Viswesvaran, C., & Ones, D. S. (2000). Perspectives on models of job performance. *International Journal of Selection and Assessment*, 8(4), 216-226.
- Wang, N., Zhu, Y., Wang, X., & Li, W. (2013). 变革型领导行为与员工绩效研究的国内外文献综述 [Literature review of studies on transformational leadership and employee performance at home and abroad]. *Business & Economy*, (15), 60-61.

- Wang, S., Xie, F., Shi, Y., Meng, D., Zhang, S., Wang, J., Qiao, Z., & Yang, Y. (2017). 临床医生工作要求—资源量表编制及对工作—家庭冲突的影响 [Development of the job demand-resource scale for physicians and its impact on work-family conflict]. *Chinese Hospital Management*, 37(06), 63-65.
- Wang, X., Chontawan, R., & Nantsupawat, R. (2012). Transformational leadership: effect on the job satisfaction of Registered Nurses in a hospital in China. *Journal of Advanced Nursing*, 68(2), 444-451.
- Wang, X., & Gan, Y. (2003). 国外关于工作倦怠研究的现状述评 [Review of foreign studies on what causes burnout]. *Advances in Psychological Science*, (05), 567-572.
- Wang, X. F., & Howell, J. M. (2010). Exploring the dual-level effects of transformational leadership on followers. *Journal of Applied Psychology*, 95(6), 1134.
- Wang, Y., Zheng, X., Dong, X., Zhou, W., Wan, Q., & Shang, S. (2022). 变革型领导风格、结构授权对医护合作影响的结构方程模型研究 [Structural equation model of the impact of transformational leadership style and structural empowerment on nurse-physician collaboration]. *Journal of Nursing Administration*, 22(02), 77-82.
- Wang, Z., Chen, L., & Li, X. (2015). 变革型领导与工作投入:基于情感视角的调节中介模型 [Transformational leadership and work engagement: An affect perspective]. *Management Review*, 27(09), 120-129.
- Weiss, H. M., & Cropanzano, R. (1996). Affective events theory. *Research in Organizational Behavior*, 18(1), 1-74.
- Weng, Q., & McElroy, J. C. (2012). Organizational career growth, affective occupational commitment and turnover intentions. *Journal of Vocational Behavior*, 80(2), 256-265.
- Xia, F., & Lin, Z. (2013). 工作特征压力模型:理论述评及其应用 [Job Characteristics Stress Model:Theory Review and Its Application]. *Human Resources Development of China*, (03), 100-105.
- Xia, F., & Lu, X. (2014). 工作要求-资源理论研究的新进展 [New progress in research on the Job Demands-Resources theory]. *Special Zone Economy*, (03), 77-78.
- Xu, Y., & Lin, X. (2021). 职场孤独感如何影响员工绩效?——基于工作要求和资源理论的视角 [How does workplace loneliness affect employee performance? From the perspective of JD-R theory]. *Business and Management Journal*, 43(06), 69-83.
- Yammarino, F. J., & Dubinsky, A. J. (1994). Transformational leadership theory: Using levels of analysis to determine boundary conditions. *Personnel Psychology*, 47(4), 787-811.
- Yan, W., Sun, X., Wang, Z., Zhang, X., Huang, S., & Li, L. (2019). 基于工作要求-资源模型的黑龙江省三级公立医院医生离职倾向及其影响因素 [Study on the turnover intention and its influencing factors of doctors in third-grade public hospitals in Heilongjiang Province based on Job Demands-Resources Model]. *Medicine and Society*, 32(11), 78-81.
- Yang, F., Xie, J., Long, S., & Xu, G. (2023). 怀化市三甲医院临床医生职业倦怠现状及其情绪状态的相关性 [Correlation between burnout status and emotional state of clinicians in Huaihua Grade-A tertiary Hospitals]. *Psychologies Magazine*, 18(22), 15-18.
- Yang, J., Liu, H., & Gu, J. (2017). A multi-level study of servant leadership on creativity: The roles of self-efficacy and power distance. *Leadership & Organization Development Journal*, 38(5), 610-629.
- Yang, J., Wu, Y., & Zhang, Y. (2017). 医护人员工作投入、工作倦怠对离职倾向与任务绩效的预测 [Correlation analysis of work engagement, burnout, turnover intention and task performance among medical staffs]. *Chinese Health Service Management*, 34(01), 60-64.
- Yao, Z., Luo, J., & Zhang, X. (2020). Gossip is a fearful thing: the impact of negative workplace gossip on knowledge hiding. *Journal of Knowledge Management*, 24(7), 1755-1775.
- Yin, D. (2013). *Analysis and countermeasures on the development of traditional Chinese*

- medicine hospitals in China* [Doctoral dissertation]. Fudan University.
- Zablah, A. R., Chonko, L. B., Bettencourt, L. A., Allen, G., & Haas, A. (2012). A job demands-resources (JD-R) perspective on new product selling: A framework for future research. *Journal of Personal Selling & Sales Management*, 32(1), 73-87.
- Zeng, W., Ma, S., Callan, V. J., & Wu, L. (2022). Exploring the doctor-patient relationship as a challenge job demand: application of the job demands-resources model in a Chinese public hospital. *Psychology, Health & Medicine*, 27(8), 1661-1671.
- Zeng, W., Ma, S., & Gou, L. (2018). 中国医患关系量表的开发与有效性验证 [Development and validation of doctor-patient relationship scale in China]. *Chinese Health Quality Management*, 25(06), 57-61.
- Zhang, W., & Wang, D. (2017). 挑战—抑制性压力对工作投入与反生产力行为的影响——领导方式的调节作用 [Linking challenge-hindrance stressor to work engagement and counterproductive work behavior-the moderating effects of leadership styles]. *Soft Science*, 31(11), 75-78.
- Zhao, D. (2020). *The antecedents of leader-member exchange differentiation and its impact on employee creativity* [Doctoral dissertation]. University of Science and Technology of China.
- Zhao, Z., Liu, C., Ren, J., & Yan, W. (2019). 护士长多元领导风格与护士工作满意度相关性研究 [Research of correlation between multiple leadership styles of head nurses and job satisfaction of nurses]. *Chinese Hospital Management*, 39(06), 64-66.
- Zhou, X., Cheng, S., Zhu, W., Cheng, J., Jin, Y., & Pan, J. (2022). 公立医院变革型领导对团队效能建设的实证研究 [An empirical study of transformational leadership on team effectiveness in public hospitals]. *Modern Hospitals*, 22(02), 257-258.
- Zhu, C., Chen, Z., Zhou, D., & Song, B. (2019). 基层卫生人才队伍建设路径探索 [Path exploration of grass roots health personnel team construction: Based on human resource management perspective]. *Medicine and Society*, 32(09), 24-27.

## Annex A: Summary of Hypothesis Testing Results

Table a.1 Summary of hypothesis testing results

Code	Hypothesis	Results
H1-a	Salary level is positively associated with work engagement.	Supported
H1-b	Promotion opportunity is positively associated with work engagement.	Supported
H2-a	Workload is positively associated with burnout.	Supported
H2-b	Emotional demands is positively associated with burnout.	Supported
H3-a	Work engagement mediates the relationship between salary level and job performance.	Supported
H3-b	Work engagement mediates the relationship between promotion opportunity and job performance.	Supported
H4-a	Burnout mediates the relationship between workload and job performance.	Supported
H4-b	Burnout mediates the relationship between emotional demands and job performance.	Supported
H5-a	Transformational leadership accentuates the positive relationship between salary level and work engagement.	Supported
H5-b	Transformational leadership accentuates the positive relationship between promotion opportunity and work engagement.	Supported
H5-c	Transformational leadership accentuates the mediation effect of work engagement between salary level and job performance.	Supported
H5-d	Transformational leadership accentuates the mediation effect of work engagement between promotion opportunity and job performance.	Supported
H6-a	Transformational leadership mitigates the positive relationship between workload and burnout.	Not supported
H6-b	Transformational leadership mitigates the positive relationship between emotional demands and burnout.	Not supported
H6-c	Transformational leadership mitigates the mediation effect of burnout between workload and job performance.	Not supported
H6-d	Transformational leadership mitigates the mediation effect of burnout between emotional demands and job performance.	Not supported
H7-a	Transactional leadership accentuates the positive relationship between salary level and work engagement.	Not supported
H7-b	Transactional leadership accentuates the positive relationship between promotion opportunity and work engagement.	Not supported
H7-c	Transactional leadership accentuates the mediation effect of work engagement between salary level and job performance.	Not supported
H7-d	Transactional leadership accentuates the mediation effect of work engagement between promotion opportunity and job performance.	Not supported
H8-a	Transactional leadership accentuates the positive relationship between workload and burnout.	Not supported
H8-b	Transactional leadership accentuates the positive relationship between emotional demands and burnout.	Not supported
H8-c	Transactional leadership accentuates the mediation effect of burnout between workload and job performance.	Not supported
H8-d	Transactional leadership accentuates the mediation effect of burnout between emotional demands and job performance.	Not supported



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## Annex B: Questionnaire on the Working Environment of Doctors in TCM Hospitals

Dear madam/sir,

Hello! This is a questionnaire about the working environment of doctors in traditional Chinese medicine (TCM) hospitals. The purpose is to understand the basic situations of doctors' working environment in TCM hospitals in order to provide a basis for formulating scientific management plans. This survey is for academic research purpose only. We will keep all the provided information confidential. There is no right or wrong answer. Please answer the questionnaire according to your actual experience.

**Thank you again for your support and cooperation!**

### Part I: Working environment

1. The following is a description of your job demands. Please tick “√” on the options that you think are most in line with your actual feelings.

Table b.1 Items of job demands

Item	1 = Totally disagree	2 = Disagree	3 = Slightly disagree	4 = Slightly agree	5 = Agree	6 = Totally agree
1. I have to hurry.	1	2	3	4	5	6
2. I have to work extra hard in order to complete something.	1	2	3	4	5	6
3. I have too much work to do.	1	2	3	4	5	6
4. My work demands a lot from me emotionally.	1	2	3	4	5	6
5. I my work, I have to show positive emotions to convince or persuade patients.	1	2	3	4	5	6
6. I am confronted with things that affect me personally in my work.	1	2	3	4	5	6
7. My work puts me in emotionally upsetting situations.	1	2	3	4	5	6
8. I have to give attention to patients' emotions in work.	1	2	3	4	5	6

2. The following is a description of your job resources. Please tick “√” on the options that you think are most in line with your actual feelings.

Table b.3 Items of job resources

Item	1 = Totally disagree	2 = Disagree	3 = Slightly disagree	4 = Slightly agree	5 = Agree	6 = Totally agree
1. Our hospital pays good salaries.	1	2	3	4	5	6
2. I think I am paid enough for the work	1	2	3	4	5	6

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that I do.						
3. I think I am fairly paid in comparison with other people in my department.	1	2	3	4	5	6
4. I can live comfortably on my pay.	1	2	3	4	5	6
5. Promotions are regular with our hospital.	1	2	3	4	5	6
6. There is a very good chance to get ahead with our hospital.	1	2	3	4	5	6
7. The practice of beginning at the bottom and working up is widespread with our hospital.	1	2	3	4	5	6
8. The practice of internal promotion is widespread with our hospital.	1	2	3	4	5	6
9. I have great opportunities for development in this hospital	1	2	3	4	5	6

3. The following is the description of your leader (the superior you directly report to). Please tick “√” on the options that you think are most in line with your actual feelings.

Table b.4 Items of leadership

Item	1 = Totally disagree	2 = Disagree	3 = Slightly disagree	4 = Slightly agree	5 = Agree	6 = Totally agree
1. My leader communicates a clear and positive vision of the future.	1	2	3	4	5	6
2. My leader treats staff as individuals, supports and encourages their development.	1	2	3	4	5	6
3. My leader gives encouragement and recognition to staff.	1	2	3	4	5	6
4. My leader fosters trust, involvement and cooperation among team members.	1	2	3	4	5	6
5. My leader encourages thinking about problems in new ways and questions assumptions.	1	2	3	4	5	6
6. My leader is clear about his/her values and practices which he/she preaches.	1	2	3	4	5	6
7. My leader instils pride and respect in others and inspires me by being highly competent.	1	2	3	4	5	6
8. When employees reach the goal, my leader will express satisfaction.	1	2	3	4	5	6
9. My leader clearly states what the employees can get after achieving the goal.	1	2	3	4	5	6
10. My leader negotiates which employees will complete the performance objectives in a specific way.	1	2	3	4	5	6
11. My leader offers help in exchange for employees' hard work.	1	2	3	4	5	6
12. My leader focuses on exceptions and deviations.	1	2	3	4	5	6
13. My leader reminds me not to make mistakes.	1	2	3	4	5	6
14. My leaders spends a lot of energy on	1	2	3	4	5	6

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dealing with errors and complaints in work						
15. My leader is very aware of the mistakes made by employees	1	2	3	4	5	6
16. My leader does not intervene until a problem becomes serious.	1	2	3	4	5	6
17. My leaders does not take action until something goes wrong.	1	2	3	4	5	6
18. My leader sticks to the concept of "Ignore it as long as it does not bring big trouble".	1	2	3	4	5	6
19. It often takes a long time for my leader to take action on problems.	1	2	3	4	5	6

4. The following is a description of your work status. Please tick "√" on the options that you think are most in line with your actual feelings.

Table b.5 Items of burnout

Item	1 = Totally disagree	2 = Disagree	3 = Slightly disagree	4 = Slightly agree	5 = Agree	6 = Totally agree
1. At my work, I feel bursting with energy.	1	2	3	4	5	6
2. At my job, I feel strong and vigorous.	1	2	3	4	5	6
3. I am enthusiastic about my job.	1	2	3	4	5	6
4. My job inspires me.	1	2	3	4	5	6
5. When I get up in the morning, I feel like going to work.	1	2	3	4	5	6
6. I feel happy when I am working intensely.	1	2	3	4	5	6
7. I am proud on the work that I do.	1	2	3	4	5	6
8. I am immersed in my work.	1	2	3	4	5	6
9. When I am working, I forget everything else around me.	1	2	3	4	5	6
10. I feel burned out from my work.	1	2	3	4	5	6
11. I feel used up at the end of the workday.	1	2	3	4	5	6
12. I feel fatigued when I get up in the morning and have to face another day on the job.	1	2	3	4	5	6
13. I feel like I'm at the end of my rope.	1	2	3	4	5	6
14. Working with people all day is really a strain for me.	1	2	3	4	5	6

5. The following is a description of your job outcomes. Please tick "√" on the options that you think are most in line with your actual feelings.

Table b.6 Items of job performance

Item	1 = Totally disagree	2 = Disagree	3 = Slightly disagree	4 = Slightly agree	5 = Agree	6 = Totally agree
1. I complete my work in the way I expect.	1	2	3	4	5	6
2. I can complete work tasks according to the requirements of formal performance appraisal.	1	2	3	4	5	6
3. I do some work that can directly affect my performance appraisal.	1	2	3	4	5	6

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4. I have strong oral communication skills.	1	2	3	4	5	6
5. I have good professional skills related to work.	1	2	3	4	5	6
6. Patients believe that I will put their diagnosis and treatment needs first.	1	2	3	4	5	6
7. Patients believe that the examination items I request are reasonable.	1	2	3	4	5	6
8. I often communicate with patients and family members repeatedly with patience.	1	2	3	4	5	6
9. Patients are willing to follow my suggested treatment plan	1	2	3	4	5	6
10. Patients trust the diagnosis and treatment plan I made for them.	1	2	3	4	5	6
11. I always carefully inform patients of the risks that may occur in their diagnosis and treatment.	1	2	3	4	5	6
12. I always seriously help patients and their families.	1	2	3	4	5	6
13. I often provide the most reasonable treatment plan for patients after comparing several options.	1	2	3	4	5	6
14. I am proud that my expertise can effectively help patients.	1	2	3	4	5	6
15. I am very happy to receive patients' follow-up visits.	1	2	3	4	5	6

Part II: Basic information

1. Gender: ① male ② female
2. Age: \_\_\_\_\_ years old
3. Years of working with the current superior: \_\_\_\_\_ years
4. Educational level: ① College or below ② Undergraduate ③ Master ④ Doctoral/postdoctoral
5. Professional Title: ① To be determined/junior ② Intermediate ③ Deputy senior ④ Senior