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The Effects of Employee's Holistic Health on Job Performance- Mechanisms and Boundary Conditions

PENG Wei

Doctor of Management

Supervisor:
PhD Nelson Antonio, Professor,
ISCTE University Institute of Lisbon

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BUSINESS
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Abstract

Previous studies only examined the effect of one certain kind of health on job performance, failing to get a comprehensive understanding of how different kinds of health influence job performance. More importantly, the mechanisms and boundary conditions of the relationship between health and job performance are still unclear. The current research proposed the concept of employee's holistic health, which includes physical, sleep, mental, co-worker relationship, and family relationship health. The final optimal integration model obtained based on statistics is a moderated dual-mediation model: the physical health affects the job performance through job engagement, and the proactive personality moderates the mediating effect between physical health and job engagement; the sleep health affects the job performance through psychological capital, and the proactive personality moderates the mediating effect in the path between sleep health and psychological capital; the mental health affects the job performance through psychological capital; the proactive personality moderates the mediating effect of co-worker relationship health on job performance through psychological capital, and the moderation occurs in the path between co-worker relationship health and psychological capital; the family relationship health directly affects job performance through two mediating variables—job engagement and psychological capital. These findings suggest that the five kinds of health do affect job performance, and that they appear in different forms by different mechanisms.

Keywords: Employee's holistic health; job performance; psychological capital; job engagement; proactive personality; co-worker relationship health

JEL: J24; M54

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Resumo

Em nossa opinião os estudos anteriores sobre este tema examinaram apenas o efeito de um determinado tipo de saúde no desempenho do trabalho, não conseguindo, por isso, obter uma compreensão abrangente de como diferentes tipos de saúde influenciam o desempenho do trabalho. Deste modo os mecanismos e as condições-limite da relação entre saúde e desempenho no trabalho ainda não são claros. Esta estudo propõe o conceito de saúde holística dos trabalhadores, que inclui saúde física, saúde do sono, saúde mental, saúde das relações de trabalho e saúde das relações familiares e o modelo de integração obtido nas estatísticas finais é um modelo moderado de dupla mediação. A saúde física afeta o desempenho do trabalho através do envolvimento no trabalho, e a personalidade proactiva modera este efeito mediador da saúde física e do envolvimento no trabalho. A saúde do sono afeta o desempenho do trabalho através do capital psicológico, e a personalidade proactiva modera este efeito mediador da saúde do sono e do capital psicológico. Por sua vez a saúde mental afeta o desempenho no trabalho através do capital psicológico; a personalidade proactiva modera o efeito mediador da saúde na relação de trabalho através do capital psicológico, e o efeito moderador ocorreu na relação entre a saúde e o capital psicológico. A saúde da relação familiar afeta o desempenho no trabalho através de duas variáveis mediadoras, o envolvimento no trabalho e o capital psicológico, e a saúde da relação familiar tem um efeito direto no desempenho no trabalho. Estas conclusões sugerem que os cinco tipos de saúde afetam o desempenho no trabalho, e que aparecem sob diferentes formas e através de diferentes mecanismos.

Palavras-chave: Saúde holística dos trabalhadores; desempenho no trabalho; capital psicológico; envolvimento no trabalho; personalidade proactive; saúde da relação de trabalho
JEL: J24; M54

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摘 要

以往的研究只考察了某一种健康状况对工作绩效的影响，未能全面了解不同健康状况如何影响工作绩效。更重要的是，健康和工作绩效之间的关系的机制和边界条件仍然不清楚。本研究提出了员工整体健康（Employee's Holistic Health）的概念，包括身体健康、睡眠健康、心理健康、同事关系健康和家庭关系健康。最终统计获得的最优整合模型是一个带调节的双中介模型，身体健康通过工作投入影响工作绩效，主动性人格在身体健康和工作投入的路径中调节这一中介效应。睡眠健康通过心理资本影响工作绩效，主动性人格调节了睡眠健康和心理资本之间的中介效应。心理健康通过心理资本影响工作绩效；主动性人格通过心理资本调节同事关系健康对工作绩效的中介作用，并且这种调节作用发生在同事关系健康与心理资本的关系路径上。家庭关系健康通过工作投入和心理资本两个中介变量影响工作绩效，家庭关系健康对工作绩效有直接影响。这些发现表明，五种健康状况确实会影响工作表现，而且它们通过不同的机制以不同的形式出现。

关键词：员工整体健康；工作绩效；心理资本；工作投入；主动性人格；同事关系健康

JEL: J24; M54

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Acknowledgements

A wish has brought me into contact with ISCTE University Institute of Lisbon in Portugal and China Southern Medical University, allowing me to build invaluable friendships with my professors and classmates, and benefit tremendously from their wisdom and experience.

In the 21st century, the eye & vision health industry to which I have devoted all my life has become an integral part of health management for all. In order to serve this glorious mission of our time, I made the decision to delve further into the studies of public health management and improve myself both in theory and in practice. For me, this is a natural and courageous choice: to go back to university and study for a doctorate in management.

However, courage alone is not enough. The academic pursuit also requires high level of perseverance. From the interview, course learning, thesis proposal, literature review, investigation and data collection, mid-term report, more investigation and data collection, to thesis writing and completion of the final version, the whole process is just like the Long March filled with both hesitation and hope. The more endeavors I make, the more light I see before the sun finally rises, and the more strength I gain to reach the finish line of this marathon. During the journey, self-efficacy, optimism, resilience, and hope constitute the four cylinders of my powerful engine, bringing me to the success of this study.

The long process of study and research has deepened my understanding of the word research. To me, research means continuous learning and persistent exploration.

I remember that during the interview, Dean Wang Dong's affirmation of my learning purpose formed a strong Psychological Capital to me; my supervisor Professor Nelson Antonio, a truly erudite and committed scholar, gave me comprehensive and systematic instructions, encouraged me to jump for the higher hanging fruits, and taught me to balance work and study by improving my dynamic management ability; the legendary and charismatic Professor Virginia Trigo helped me grasp the essence of research during the whole learning process; Professor Zhang Chichen, who is always full of passion, mobilized my Proactive Personality and inspired me to rise up to challenges; Professor Xu Dong enlightened me about the correct methods for research. Words cannot express my gratitude to all my professors!

Thank you, Miss Ou, Miss Wang, and Miss Jiang, for your enthusiasm and dedication.

Thanks to my classmates, colleagues and friends who supported my studies.

Thanks to my family. It is your love and support that make my wish come true!

致 谢

一个心愿，让我与南方医科大学和葡萄牙里斯本大学管理学院结下了缘分，与各位导师、教授、老师结下了师生情，和同学们结下了友谊！

进入21世纪后，我毕生所从事的视力健康产业成为全面健康管理和全民健康管理一个有机的组成部分。为了不负时代赋予的光荣使命，我立志在全民健康管理方面加强学习，从理论上提升自己，从实践上增强才干。因此，选择到大学进一步深造，拿下管理博士学位是一个自然但需要勇气的选择！

光有勇气不够，还需坚持的韧性！从面试、学习课程、开题报告、中期报告、论文写作和最终论文的完成，整个过程是一次彷徨和希望相伴的长征。每完成一步，都是在坚持中迎来曙光。自我效能、乐观、弹性和希望是我强大引擎的四个汽缸，它驱动我奔向学习的成功。

漫长的学习研究让我终于领会了“研究”二字。“研”是由石字旁和开字旁合为一个字，表达精诚所致，金石为开。“究”是由上面一个“穴”字下面一个“九”字组成，表示深挖奥秘，探索穷尽。

曾记得，面试时，王冬院长对我学习目的的肯定，赋予我强大的心理资本（Psychological Capital）；难忘记，严谨、博学的Nelson Antonio教授，我的导师，给予我全面、系统的指导和严格的要求，并教会我平衡工作和学习的动态管理能力（Dynamic Managerial Capabilities）；传奇又有领袖魅力的Virginia Trigo教授让我在整个研究学习过程当中明白了什么是Research；总是充满激情的张持晨教授的每次评点，调动了我的主动性人格（Proactive Personality），增添了战胜困难的勇气；治学先进的徐东教授每次指点，为我运用正确的研究方法指明了方向。衷心感谢各位恩师！

感谢欧老师、王老师、江老师，你们待人热情、工作认真负责。

感谢支持我学习的同学们、同事们、朋友们。

感谢家人，一直以来，你们的爱与支持让我如愿以偿！

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Chapter 1: Introduction

1.1 Research background

The Novel Coronavirus (COVID-19), the cause of an outbreak of respiratory disease first detected in 2019, continues to spread to this day. According to Johns Hopkins University (2022), as of 12 June 2022, globally, more than 535 million people have been infected and more than 6.3 million people have died from the disease. COVID-19 has become one of the biggest international issues of our time, profoundly affecting every human behavior, including obviously the behavior and art of management. For example, how to deal with crisis, how to improve the dynamic management ability of the enterprise, how to improve the organizational mobilization ability of employees, and how to motivate employees to navigate difficult times together.

COVID-19 has triggered a lot of management thinking, and scholars have carried out investigations and studies from various perspectives, one of which is that managers are beginning to re-examine the significance of health to management. Should enterprises carry out health management of employees? Is employee health management important to the enterprise and why? These questions, placed in front of scholars and practitioners urgently require explanation supported by scientific theory and evidence of production practice. COVID-19 is a major crisis for the whole world, but it is also an opportunity for management to innovate, especially in the field of health management. Human beings should withstand the test, greatly improve the level of organizational health management, as well as develop and improve the existing management theory and practical application means. For example, health management is brought into the theoretical category of total quality management and lean management, and staff health status is brought into the monitoring system in production practice.

1.2 Research problem

1.2.1 Dilemma

Facing the contradiction between increasing employee health needs and declining employee health status quo, it is difficult for managers to improve employee performance.

Employee’s health, as an indispensable part of employee’s happiness, has been paid more and more attention by the country, the government, enterprises, and employees themselves. Governments and companies have stepped up human, material, and financial investments to improve the health of workers. Even so, the health picture for manufacturing workers remains grim.

The health status analysis of employees in Chinese enterprises takes Vitality Age as an indicator. Vitality age is a measure of whether an individual is older or younger than the biological age based on his or her health and lifestyle risk factors. The result shows that signs of aging are common among employees, and 98.5% of employees have vitality age that exceeds the biological age. According to the Ping An National Health Research Report, the health status of employees in Chinese companies is grave: the average vitality age is 5.7 years older than the actual biological age; only 1.5% of employees are younger than their biological age, and the healthiest are only 0.7 years younger. The middle-aged management employees show the most severe aging signs, with male management employees aging more (by 7.0 years) than females (by4.5 years). Age difference also varies with industry, the manufacturing/instrumentation industry is more aged (6.7 years older), followed by real estate (6.6 years older) and logistics (6.0 years older). Research on employees shows that 28.4% and 27.6% of the employees surveyed admitted to suffering from cervical spondylosis, insomnia, and other work-related conditions; and in the survey on corporate HR, 49.7% and 32.3% of the respondents believe that employees in their companies suffer from cervical spondylosis and lumbar muscle strain. In addition to insomnia, cervical spondylosis, lumbar strain, and hypertension are also common in the manufacturing and transportation industries.

For manufacturing managers, how to resolve the contradiction between the increasing demand of employees for better health and the deteriorating health condition of manufacturing employees to maintain and improve employee performance has become an urgent need for more research.

1.2.2 The reason of the contradiction: managers' outdated health concept

Managers' awareness of health affects the quality of enterprise health management. As the managers’ mindset fall behind the development of new era while people's cognition of comprehensive health improves in scope and depth, the constantly updated concept of health management and the outdated cognition of managers are the reason for the contradiction, which demands more research and immediate solutions from managers in manufacturing industry.

1.2.3 How to improve managers' awareness of health

What is the value of health management for employees? Is employee health management important to a company and why? How do managers view employee's health, as a cost and burden or as an investment in human capital? Is there a relationship between employee health and corporate performance, and are healthy employees also productive employees? If so, why, what are the principles and the applicable conditions? What elements should health include? How to define and evaluate health? Besides traditional physical health, should employee health include mental health and interpersonal relationship health?

For most managers, including scholars, these questions are important but have no immediate answers due to the lack of scientific theories and the scarcity of data support. Therefore, it is necessary to carry out investigation and research on these questions to obtain real data so as to improve scientific theories and better guide production practice.

Employee performance is one of the key elements to ensure the operational efficiency of enterprises. Starting from the employee performance which managers are most concerned about, efforts were made to prove the significant relationship between employee's health and their performance through the research. Therefore, the research findings can arouse managers' attention, enhance managers' awareness of health management, actively strengthen employee health management, and continuously improve employee performance and operational efficiency.

1.3. Research questions

1.3.1 What is the concept of Employee's Holistic Health?

Health in the narrow sense refers to physical health. World Health Organization (WTO) has included mental health in the category of health, and more types of health will be included as human beings' awareness of health improves with the progress of time.

Employee's holistic health is a global concept based on technology development, social needs, and changes in disease spectrum. Under the guidance of the concept of comprehensive care for the whole life process, holistic health brings attention to all kinds of risk factors, misunderstandings that affect health, promotes self-health management, and pursues not only individual physical health, but also comprehensive health in mental, psychological, physiological, social, environmental, and moral aspects.

At the beginning of this study, efforts were made to incorporate the contents of physical

health, mental health, and interpersonal health into the holistic health system, which was a creative design on the health research. As the research progressed, it was discovered that these three modules were not enough to form a complete employee's holistic health system. So, co-worker relationship health, family relationship health and sleep health, instead of interpersonal health, were introduced to the employee's holistic health system for a comprehensive and in-depth research. It is another innovative concept and creative progress for health research.

At present, there is no authoritative survey tool for employee's holistic health measurement, but each of the five modules involved in this study has mature research tools already in academic literatures. The concept and measurement methods of employee's holistic health were integrated using the existing research tools.

1.3.2 What is the relationship between employee's holistic health and job performance?

Based on the literature review below, a positive correlation was assumed to exist between the employee's holistic health and their performance. On the one hand, holistic health is an important premise and guarantee for employees to work efficiently. If employees have health problems, the work capability will be affected, reducing the work efficiency. On the other hand, health is also the physiological guarantee of employee's work. Based on the Hierarchy of Needs theory, when the physiological needs and safety needs are met, the pursuit of self-realization at work will come naturally. Finally, employee's holistic health was hypothesized as a more accurate predictor of performance than a single health indicator such as physical health, because employee's holistic health is a more comprehensive and detailed measure of employee health.

1.3.3 Why can employee's holistic health promote performance and what is the mediating mechanism?

Although there have been some previous studies on the relationship between health and performance, little is known about the mechanism, that is, the mediating mechanism. Based on the literature review in Chapter 2, two potential mediating variables were proposed from the perspectives of individuals and organizations.

Based on the literature review, Psychological Capital may be an important mediator. Psychological capital is defined as "a positive psychological state of an individual in the process of growth and development", which includes four core components: self-efficacy, optimism, resilience, and hope. Because healthy employees have higher level of self-efficacy, optimism, resilience, and hope, all of which effectively promote performance, psychological capital is

likely to be an important individual-level mediator.

Based on the literature review, job engagement may be another important mediating variable. Job engagement, also known as engagement, can be described as the positive feelings and sense of accomplishment that come from working. The current situation of the manufacturing employees is that the unhealthy employees regard the company as the enemy that causes their health problems, and they will be unwilling to devote themselves to work by "trading health for salary", thus showing the negative behavior at work and reducing their performance. In contrast, healthy employees who are free of physical, mental, and interpersonal disorders, have more opportunities to channel their energy into hard work and improve performance. Therefore, job engagement is likely to be an important organizational mediating mechanism.

1.3.4 What are the applicable conditions for employee's holistic health to promote performance?

While employee's holistic health can improve employee's performance by improving their psychological capital and job engagement, it is not necessarily applicable to every employee and every team. Individual and leadership differences will affect the situation. Therefore, boundary conditions, that is, moderating variables, are of great theoretical and practical significance to the study. Based on the literature review, two potential moderating variables were proposed from the perspectives of individuals and organizations.

At the individual level, it is suggested that Proactive Personality may be an important moderating variable. Proactive personality is defined as "People who are not restricted by situational forces and can influence environmental changes will look for opportunities, show initiative, take actions, and persevere until they bring about changes." Healthy and active employees are "willing and capable" to promote performance. Healthy but passive employees are "capable but unwilling". As unhealthy employees are "incapable", it is difficult for them to improve performance regardless of "willingness". Therefore, proactive personality is likely to be an important moderating variable at the personal level.

At the organizational level, the Leader-Member Exchange (LMX) may be an important moderating variable. LMX is defined as "the partnership established between superiors and subordinates". As is known to all, leaders need employees to achieve organizational goals and employees need leaders' support to accomplish individual tasks. The quality of interaction between leaders and employees will have a profound impact on performance. Only when healthy employees are matched with high quality LMX can their performance be guaranteed.

On the other hand, if the LMX quality is low, employees still face the dilemma of "no leader support" even though they are healthy and capable to improve performance. Therefore, LMX is likely to be an important organizational-level moderating variable.

1.4 Research purposes

1.4.1 To examine the relationship between employee employee's holistic health and job performance in manufacturing industry

Through the investigation and data collection in manufacturing enterprises, this study examines the relationship between employee's holistic health and job performance, so that enterprise managers can pay more active attention to employee's health, recognize the importance of employee's holistic health from the perspective of sustainable development of enterprises, and fully realize that they should not only care about employee's physical and mental health, but also pay attention to the quality of enterprise working environment and employee's health level.

1.4.2 To examine the mediating mechanism and boundary conditions of the relationship between employee's holistic health and job performance

Through investigation and data collection in manufacturing enterprises, the relationship between employee's holistic health and job performance in manufacturing enterprises is further analyzed, and the mediating mechanism and boundary conditions of the relationship between employee's holistic health and job performance are identified. Employee's holistic health not only needs help, but also can be helped. Employee's holistic health management is a crucial part of the daily work of enterprises. If the health level of employees is high, the performance level of enterprises will be high. The mediating and moderating variables can better improve employee's health level and job performance.

Chapter 2: Literature Review

Based on the aforementioned research problem, questions, and purposes in Chapter 1, a comprehensive study and literature review have been conducted.

2.1 Physical health

2.1.1 Definition of physical health

Belloc and Breslow (1972) developed a physical health spectrum from answers to questions about disability, chronic illnesses, impairment, symptoms, and energy levels. People who report difficulties in eating, dressing, climbing stairs, outdoor activities or being unable to work for 6 months or more are classified as the first category of severe disability. Those who only have their working hours or types of work changed, or other activities reduced are considered as the second category of minor disabilities. Individuals who do not have disabilities and report two or more impairments or chronic conditions in the previous 12 months, and those with only one chronic condition, make up the third and fourth categories. Category five reports no disability or chronic illness but do have at least one symptom in the previous year. Others who did not respond are divided into category six and seven based on their answers to four questions about their energy levels.

Ford et al. (2011) classified physical health problems into three categories. The first is physical discomfort or symptoms, such as gastrointestinal problems and various forms of physical stress, as well as physical pain or discomfort of mental or emotional origin; the second and third categories, high blood pressure and obesity, reflect aspects of physical health that are not necessarily associated with discomfort.

2.1.2 Physical health measurement

The evaluation contents of physical health mainly include the degree of disability, degree of injury, and degree of action disorder. Some are used for clinical evaluation, and some are auxiliary to disease screening. For example: Barthel Index (Mahoney & Barthel, 1965), Instrumental Activities of Daily Living Scale (Morrow, 1999), Physical Self-maintenance Scale (Lawton & Brody, 1988), OECD Long Term Disability Questionnaire (McWhinnie, 1981), and

Rapid Disability Rating Scale (Linn, 1967).

The 36 Simple Health Survey (SF-36) (Ware, 1993) is a short self-administered and health questionnaire scoring on eight health dimensions, including physiological functions, role limitation resulted from physiological problems, body pain, general health, vitality, social functions, role limitation resulted from emotional problems, psychological health, and a single project scale on health change, which evaluates changes in overall health in the past year. The scale has been widely used in quality-of-life measurement, clinical trial effect assessment, disease burden assessment and health policy assessment of the general population.

To assess physical health, Adamczyk et al. (2021) in the study had participants complete the SF-12 Health Survey (Ware et al., 1995), a simplified version of the universal standard scale widely used to measure health status as well as a modified and simplified version of the SF-36 simple health survey. SF-12v2 included both physical health and mental health (PCS and MCS) measurement. The Body Health Segment (PCS) includes the areas of body functions, body role, body pain and general health. The SF-12v2 health survey consisted of 12 items in which participants were asked to provide answers using Likert 5-point scales (ranging from 1 to 5, using different words) (except for item 3, which used Likert 3-point scale). For example: "In general, would you say your health is excellent, very good, good, fair, or poor?" The total score for physical health was calculated based on the average of the scores for each physical health part of the scale.

Two other rating scales of self-reported physical health are also widely used. To study the relationship between the quality of social support and physical health, Vandervoort (1999) also used two scales to measure the symptoms related to physical health. The first scale used to measure Physical Symptoms is the Physical Symptoms Checklist (PSC), which measures the occurrence and frequency of 90 Physical Symptoms, such as colds, flu, headaches, and infections on a scale of 0 to 5 (0=none, 5=several times a week). Another physical health index uses the Health Problems Scale (HPS), which measures a variety of major Health Problems (such as heart attack) and chronic conditions (such as high blood pressure, diabetes, asthma). The subjects were asked if their doctors had told them they had any of the listed diseases. Thus, there are five physical health indicators: (1) Number of recent physical symptoms (PSC recent); (2) Frequency of recent physical symptoms (FPSC recent); (3) Number of chronic physical symptoms (PSC chronic); (4) Frequency of chronic somatic symptoms (FPSC chronic); (5) Number of current health problems or chronic conditions.

In this study, the physical discomfort symptoms and sleep problems were selected as the two dimensions of physical health investigation. The corresponding measurement tools were

Physical Well-being Scale (Spector & Jex, 1998) and Sleep Problems Scale (Jenkins et al., 1988).

2.1.3 Influencing factors of physical health

2.1.3.1 Antecedent variables of physical health

The underlying mechanism of the link between positive emotions and physical health remains a mystery. To investigate the association between positive emotions and physical health, and the moderating role of people's perception of their positive social relationships, Kok et al. (2013) conducted a field experiment and randomly assigned subjects to an intervention group or a waiting list control group that generated positive emotions through love and kindness meditation compared with a control group. Participants in the intervention group reported an increase in positive mood, an effect that was moderated by baseline vagal tension, a proxy for physical health. An increase in positive emotion, in turn, leads to an increase in vagal tension, an effect modulated by an increase in the perception of social connection. This experimental evidence shows that positive emotions have a positive impact on physical health through the perception of social connections.

Previous studies showed that low Socioeconomic Status (SES) was related to physical health. Rasmussen et al. (2009) examined the strength of the association between optimism and physical health by incorporating the results of 83 studies through a meta-analysis review using a random-effects model, which showed that optimism was a significant predictor of positive physical health outcomes.

Inadequate and poor-quality sleep can have adverse consequences for people's physical health, subjective well-being, and cognitive function. For example, too little sleep (as well as too much sleep) is considered a risk factor for common chronic diseases such as obesity, type 2 diabetes, and hypertension (Buxton & Marcelli, 2010; Gangwisch et al., 2006; Sabanayagam & Shankar, 2010). Sleep deprivation is further associated with impaired cognitive function, mood instability, and lower levels of optimism, positive emotions, and life goals (Gohar et al., 2009; Haack & Mullington, 2005; Harrison & Horne, 2000; Ram et al., 2010; Steptoe et al., 2008; Stickgold, 2001).

Work stress can lead to diseases such as cardiovascular disease, gastrointestinal disease, musculoskeletal pain, and mental disorders, which can affect the Quality of life and thus the Quality of Work Life (QWL) of individuals (Carayon et al., 1999).

Previous studies have suggested that work-family conflict is associated with chronic health

(Allen & Armstrong, 2006). In a longitudinal study, Frone et al. (1997) found a 4-year association between work-family conflict and hypertension. Thomas and Ganster (1995) reported a small but significant cross-sectional relationship between work-family conflict and diastolic blood pressure. Some studies that did not directly measure work-family conflict but examined the effects of multiple roles also suggested that the stress of juggling work and family responsibilities can be physically damaging (Allen & Armstrong, 2006). Goldstein et al. (1999) found that women without children had a significantly greater drop-in heart rate from day to night than women with children. Brisson et al. (1999) found that white-collar women who combined high-stress jobs with child-rearing responsibilities had a higher incidence of hypertension.

It is increasingly recognized that relationship factors, in addition to relationship status, play an important role in the mental and physical health of young people. Adamczyk et al. (2021) investigated the link between relationship status, relationship satisfaction, relationship status satisfaction, and different health dimensions by conducting a questionnaire survey among young people in Poland and the United States. Data were collected in three different time periods, with a one-year interval between each measurement. The analysis showed that individuals in romantic relationships reported better health, especially if they were in high-quality relationships. Relationship quality is a better predictor of health than relationship status. In addition, partner status was more strongly correlated with depression, emotional well-being, relationship satisfaction and mental health among young Poles than their American counterparts.

2.1.3.2 Outcome variables of physical health

To study the relationship between physical health and happiness, Wang and Huang (2014) conducted an Urban Happiness Index Questionnaire (UWIQ) survey among 5165 non-school students from 31 provinces in China and conducted a self-questionnaire assessment of their physical health and religious beliefs. The results show that there is a significant negative correlation between poor physical health and happiness, and religious belief moderates the negative influence of physical health on happiness.

2.1.4 The relationship between physical health and job performance

In an increasingly competitive global economy, organizations need healthier and more engaged employees. To this end, organizations implemented various plans to promote employee health and performance. Physical health plays a core role in absenteeism and is directly related to job performance because of a clear indicator of absenteeism (Merrill et al., 2013). Research by

Ybema et al. (2011) shows that physical and mental health affect job satisfaction and job performance, and that workplace-based health and wellness programs can improve employee nutrition and physical vitality, thereby enhancing physical and mental health as well as improving employee performance and productivity.

Previous studies have found that physical disorders may reduce optimal performance by diverting working memory and information processing from work tasks to physical problems, such as pain or discomfort. Self-regulating activities such as evaluation, rumination and distraction may occur in response to physical discomfort and interfere with an individual's cognitive resources and executive ability (Beal et al., 2005). These symptoms may also reduce the importance of job performance relative to individual well-being and affect their motivation to perform. There is some evidence to support the relationship between physical discomfort and performance, but the research results are different. For example, Jacobs et al. (2007) found that the correlation between physical discomfort and self-rated productivity was 0.26, while Matteson et al. (1984) found no significant correlation between physical discomfort and sales performance. So, there are inconsistent results in previous studies on the relationship between physical health and job performance.

2.2 Sleep health

2.2.1 Definition of sleep health

Sleep problems are common in modern civilization and have brought great burden to the healthcare system (Jenkins et al., 1988). In people's daily life, sleep problems have also become an important dimension of physical health condition evaluation.

Buysse (2014) defined sleep health as a multidimensional sleep-wake mode that can promote physical and mental health at the same time, and it adapts to the needs of individuals, society and the environment. The characteristics of good sleep health include subjective satisfaction, the right amount of time, adequate duration, high efficiency, and constant alertness. Further sleep health consists of five dimensions: 1. Sleep duration: the total amount of sleep obtained every 24 hours; 2. Sleep continuity or efficiency: how easy it is to fall asleep and fall back asleep; 3. Time arrangement: sleep arrangement within 24 hours; 4. Alertness/sleepiness: the ability to stay focused; 5. Satisfaction/Quality: subjective assessment of "good" or "poor" sleep.

2.2.2 Measurement of sleep health

There are several ways to measure sleep. One is objective measurement with a pulse meter worn on the wrist for seven days and seven nights at each point in time. A pulse meter is a small, unobtrusive, watch-size device that is useful for assessing sleep-wake patterns in a natural setting (i.e., not in a night sleep lab). In general, wrist activity below a defined threshold was interpreted as sleep; High wrist activity is interpreted as arousal. Analysis of wrist activity is useful for assessing sleep and has been widely used among the elderly (Ancoli-Israel et al., 2015). Sleep efficiency (the percentage of total time spent asleep while lying in bed) was calculated from behavioral data, using daily bedtimes and wake times reported in sleep diaries collected simultaneously to determine bedtimes. Automatic sleep scoring algorithms in device-specific software were used to determine sleep and wakefulness.

The other is subjective sleep measurements using a daily sleep diary. For seven days, participants wore a wrist actigraphy every morning to complete a sleep diary based on the American Academy of Sleep Medicine consensus sleep diary (Carney et al., 2012). Sleep efficiency and wake up time after sleep has started (that is, the total time after sleep has started and before waking up) were calculated from information provided in the diary (bedtime, wake up time, sleep onset latency, and wake up time after sleep has started).

Other sleep-related questionnaires assessed sleep quality, insomnia, and daytime symptoms. The Pittsburgh Sleep Quality Index (PSQI) is an 18-item questionnaire with total score of >5 indicating poor Sleep Quality. Three components of the PSQI were assessed: subjective sleep quality ("How would you rate your sleep quality during the past month?", using a 4-point rating scale: 1- very good, 2- fairly good, 3- fairly poor, 4- very poor); sleep duration ("How many hours of actual sleep did you get at night in the past month?- This may differ from the number of hours you spend in bed," according to the following 4-point rating scale:>7 hours, 6-7 hours, 5-6 hours, and<5 hours -- including 7>=1, 6-7=2, 5-6=3, and 5=4); and daytime dysfunction ("In the past month, how many times have you had difficulty staying awake while driving, eating, or engaging in social activities?", measured by the following scoring criteria: 1- None at all in the past month; 2- Less than once a week; 3- Once or twice a week; 4- Three or more times a week. “How much of a problem has it been for you to stay motivated enough to get things done over the past month?” Measured by the following grades. 1- No problem at all; 2- Just a little problem; 3- There is a problem; And 4- Very big questions).

The other is the seven-item Insomnia Severity Index (ISI), which measure symptoms and severity of insomnia. ISI scores range from 0 to 28, with higher scores indicating worse

insomnia. The Epworth Sleepiness Scale (ESS) (Johns, 1991) is an 8-item questionnaire that asks subjects on a 4-point scale (0-3) about how often they fall asleep or fall asleep while engaging in eight different activities. The scores range from 0 to 24, with higher scores indicating more sleepiness during the day.

2.2.3 Influencing factors of sleep health

2.2.3.1 Antecedent variables of sleep health

The relationship between excessive debt and two aspects of well-being—life satisfaction and emotional well-being—has implications for health and sleep quality. The results show that consumers with excessive debt (compared to those without) are negatively correlated with life satisfaction and emotional well-being, as well as with health and sleep quality (Ferreira et al., 2021).

In the study of the relationship between sleep intelligence and sleep health behavior, academic achievement, and behavioral well-being by using social learning model, the seventh-grade students from two urban middle schools were randomly assigned to the experimental group and a control group of an 8-section sleep intelligence plan according to different schools. Measurements include sleep patterns, sleep hygiene and sleep health efficacy, academic performance, and health status. Compared with the control group, the subjects in the experimental group experienced greater sleep health effects, improved physiological and emotional sleep hygiene, and went to bed earlier. The results show that the preventive intervention program has a positive impact on sleep health, sleep hygiene and bedtime (Wolfson et al., 2015).

2.2.3.2 Outcome variables of sleep health

Inadequate and poor-quality sleep can have adverse consequences for people's physical health, subjective well-being, and cognitive function. For example, too little sleep (as well as too much sleep) is considered a risk factor for common chronic diseases such as obesity, type 2 diabetes, and hypertension (Buxton & Marcelli, 2010; Gangwisch et al., 2006; Sabanayagam & Shankar, 2010). Sleep deprivation is further associated with impaired cognitive function, mood instability, and lower levels of optimism, positive emotions, and life goals (Gohar et al., 2009; Haack & Mullington, 2005; Harrison & Horne, 2000; Ram et al., 2010; Steptoe et al., 2008; Stickgold, 2001).

2.2.4 Relationship between sleep health and job performance

To investigate the relationship between sleep disorders, burnout, and job performance among nurses working in shifts, Giorgi et al. (2018) surveyed 315 shift nurses in 39 wards of 7 central hospitals in Italy, using the Pittsburgh Sleep Quality Index to detect the presence of sleep disorders. The Copenhagen Burnout Scale, used to detect the existence of any possible burnout types, and the Job Performance Scale, used to measure job performance, showed a positive correlation between sleep quality and job burnout among nurses who worked shifts. Female gender and sleep quality of shift nurses were positively correlated with job burnout. There is a significant negative correlation between job burnout and job performance. Therefore, shift work is directly and positively correlated with sleep quality and burnout, and indirectly affects job performance.

In the research on the relationship of employee's natural sleep-wake cycles (chronotypes) and work-start times with self-reports of performance, job satisfaction, and absenteeism, and the mediating role of sleep deprivation in this relationship (Tomaka, 2015). The results indicated that earlier work-start times were significantly associated with higher job satisfaction and more sleep hours. And later work-start times were significantly associated with lower performance and fewer sleep. The number of sleep hours was associated positively with performance, job satisfaction but negatively with absences.

2.3 Family health relationships

2.3.1 Definition of family relationship health

The concept of family health relationships is often used interchangeably with family functioning, healthy families, resilient families, and balanced families (Alderfer, 2011; McGoldrick et al., 2008; Walsh, 2011). Family researchers define family health as a highly adaptable family with a good balance of cohesion and adaptability formed through good communication (Smith et al., 2009). The definition of a family health by family therapy usually emphasizes the best family function and freedom from psychopathological symptoms (Goldenberg & Goldenberg, 2007; McGoldrick et al., 2008).

According to Black and Lobo (2008), family health is best described by interactive features to achieve optimal growth, functions, and well-being for the entire family. The characteristics of healthy families include family unity, commitment, shared time, flexibility, positive communication, mental health, appreciation, and affection (Kim-Godwin & Bomar, 2014;

Olson & DeFrain, 2000).

Hanson (2001) defines family health as a dynamic state of relative well-being, including biological, psychological, spiritual, sociological, and cultural factors of the family system. In summary, family health is a complex process of negotiating and resolving the events and crises of daily family life and providing a high quality of life for its members.

Based to motivation research methods, family involvement is defined as a unidimensional cognitive or belief state of psychological identification with family situations. The individual's psychological identification with the family environment depends on the individual's significant needs and expectations for the potential fulfillment of the environment.

In organizations, the definition of unhealthy family, the opposite of family health, can be understood from Work-Family Conflict (WFC), which includes two directions: Work Interfering with the Family (WIF) and Family Interfering with the Work (FIW). It is a two-way construction. WIF is a form of inter-role conflict, that is, the general requirements of work, the time invested, and the pressure caused interfere with the performance of family-related responsibilities, while FIW is also a form of inter-role conflict, that is, the general requirements of family, the time invested and the pressure caused interfere with the performance of work-related responsibilities (Netemeyer et al., 1996).

2.3.2 Measurement of family relationship health

The family support subscale of the Multidimensional Scale of Perceived Social Support (MSPSS) (Zimet et al., 1990) was also used to assess social support from family members. MSPSS assessed how much social support individuals perceived from family, friends, and others. It consists of 12 items in total, and each subscale has 4 items. All items were rated on a 5-point Likert scale (1=strongly disagree, 5=strongly agree). The sum of the scores for the four items in each subscale is the final score for perceived levels of social support from different sources.

The Employee Family Support Scale of King et al. (1995) was used to measure family social support. It included a 29-item emotional support subscale and a 15-item instrumental assistance subscale. Sample items on the Emotional support subscale were: "When I feel insecure about my job, someone in my family helps me feel better" and "If I need to discuss my job, my family members always seem to make time for me." Sample items of the Instrumental Assistance Subscale are: "If my job is demanding, someone in the family will take on additional family responsibilities" and "My family members are willing to take care of the house when it is needed".

For the measurement of work-family conflict, Netemeyer et al. (1996) proposed the Work-Family Conflict (WFC) scale. The scale has two sub-dimensions, namely work interfering with the family (WIF) and family interfering with the work (FIW). It consists of five items, including "My work demands interfere with my home life" as a sample item in this subdimension. FIW also consists of five items. One sample item was "My family or spouse/partner's demands interfere with work-related activities". The WFC scale is a 6-point Likert scale (1=never, 6=always).

2.3.3 Influencing factors of family relationship health

To investigate the mechanism of family support's impact on social alienation and positive mental health attitudes during the COVID-19 pandemic, Li and Xu (2022) conducted an online questionnaire survey among 1,547 Chinese people. The results show that strong family support is positively correlated with positive social distance attitudes and maintaining positive mental health, meaning that the more family support, the more likely it is to maintain social distance and positive mental health family.

In a study on the influence of family participation in employee's burnout through interviews and questionnaires with 1046 employees from 30 Dutch organizations, the results show that having young children and doing more housework are positively correlated with burnout, while having children is negatively correlated with employee's burnout, and family life is negatively correlated with job-related burnout (Ten Brummelhuis et al., 2008).

In order to study the relationship between work and family bidirectional conflict (WIF and FIW), family instrumental and emotional social support, work and family involvement, work and life satisfaction, Adams et al. (1996) conducted a questionnaire survey among 163 employees who lived together with at least one family member, and the results showed that the relationship between work and family has a significant impact on job and life satisfaction, and the extent to which employees participate in their work and family roles is related to this relationship. The results also suggested that the relationship between work and family can be characterized by both conflict and support. The degree of work interference to family was negatively correlated with the level of family emotional and instrumental support. Higher levels of family emotional and instrumental support were associated with lower levels of family intervention work.

Work-family conflict affects employee's organizational commitment, work stress and job performance. In the study on the impact of work-family conflict on teachers' work stress,

organizational commitment, and job performance, Nart and Batur (2014) conducted a questionnaire survey on teachers in Turkish public schools and found that work-family conflict was negatively correlated with work stress.

2.3.4 Relationship between family relationship health and job performance

Previous studies have shown that employees who can not balance their work and family roles due to heavy workload will feel emotionally exhausted and their work performance will decline. To study the relationship between work-family conflict (WIF and FIW) and job performance, Zainal et al. (2021) conducted a questionnaire survey among 250 employees working in the service industry in Malaysia. The results showed that work interfering with family and family interfering with work negatively correlated with employee's job performance. In addition, the social support received from superiors and family members can significantly regulate the respective relationships between work interference, family interference and employee's job performance.

Most professional women bear both family responsibilities and work responsibilities. Therefore, work-family conflict (WFC) is an important problem faced by professional women. Wang and Tsai (2014) discussed the relationship between work-family conflict (WFC) and job performance and the moderating effect of different social support sources. Through a questionnaire survey of nurses in five hospitals in Taiwan Province, the results showed that family interference with work (FIW) is negatively correlated with job performance, while family interference with work (WIF) is not significantly correlated with job performance.

2.4 Co-worker relationship health

2.4.1 Definition of co-worker relationship health

Co-worker relationship is a widely studied category of interpersonal relationship in the workplace or within an organization. "Interpersonal relationship" refers to the psychological distance and behavioral tendency formed between an individual with an independent self and another individual with an independent self (Yang, 1995).

There are many forms of workplace relationship, such as teacher-apprentice relationship, exchange relationship among leaders, exchange relationship among team members, and romantic relationship. However, research generally focuses on two main types: the vertical superior-subordinate relationship and the horizontal co-worker relationship. This study focuses

on the relationship between horizontal colleagues.

Interpersonal relationships within organizations, including colleagues' relationships, have become an important field of management psychology research. The specific issues studied include the quality of colleagues' relationship, team members' exchange relationship, colleagues' friendship, colleagues' support, and colleagues' trust (Y. K. Zhou & Chen, 2021).

Seers (1989) believed that team member exchange relationship, namely co-worker relationship, was the perception of individual members on the overall exchange relationship between themselves and the peer group. McAllister (1995) further confirmed that colleague trust in an organization includes two dimensions of cognitive trust and emotional trust.

Through interview analysis, Sias and Cahill (1998) studied the transformation mode of establishing different types of friendship between colleagues. From colleagues to friends, and then to close or almost best friends, the transformation of different relationship types is progressive and interactive in mechanism. During periods of transition or transformation, communication between colleagues to develop friendships becomes more intimate, extensive, and unguarded.

As for the definition of colleague support, Zhou and George (2001) believe that it is divided into instrumental support by sharing information and professional knowledge and emotional support by providing encouragement and support to help colleagues in need.

Colbert et al. (2016) proposed that co-worker relationship is the perceived relationship between individuals and colleagues without formal authority connection in an organization.

2.4.2 Measurement of co-worker relationship health

The three-dimensional co-worker relationship proposed by Kram and Isabella (1985) has been widely recognized and applied: (1) Information-based co-worker relationship: the typical characteristics focuses on information exchange, occasional emotional support, little work-related feedback, and low level of self-exposure and trust. (2) Collaborative co-worker relationship: the typical characteristics are moderate trust and self-disclosure. Through increasing emotional support and feedback from work, friendships become intimate, and communication becomes more extensive. (3) Special co-worker relationship: the typical characteristics is high self-exposure and trust. Emotion, work feedback and friendship become deeper, with the breadth and depth of content advancing to the highest.

Tse and Dasborough (2008) used qualitative research methods to find out that the co-worker relationship under team member exchange can be divided into task-oriented exchange and relationship-oriented exchange. Task-oriented exchange relationships refer to idea sharing,

feedback, and information and knowledge sharing. Relationship-oriented exchange relationships include help, care, support, similar values and standards, intimacy, personal sharing, friendship, and encouragement.

Through a series of qualitative and quantitative studies, Colbert et al. (2016) believe that positive co-worker relationship includes six functions or dimensions: task assistance, career development, emotional support, personal growth, friendship and giving to others.

The co-worker relationship scale designed by May et al. (2004) contains 10 items. One of these items measures whether colleagues value a person's input. One example item is "Communication between my co-worker and me is beneficial". One item evaluates their value as individuals. One example is "My co-worker values my opinions". Another item assesses whether they trust each other, e.g. "I trust my co-workers". Participants answered according to Likert's 5-point scale, ranging from 1 (strongly disagree) to 5 (strongly agree).

Co-worker relationship is also often measured using Sias's (2005) scale on the quality of co-worker relationship based on the three-dimensional classification of co-worker relationship by Kram and Isabella (1985). It consists of 10 items and is divided into three dimensions: (1) Informational co-worker relationship. An example item is "We share the information necessary to get the job done". (2) Collaborative co-worker relationships, an example of the item "It seems necessary that we help each other". (3) Special co-worker relationship. An example item is "We work together to provide emotional support for each other". The results are rated using a 5-point Likert scale of "1 (strongly disagree)" to "5 (strongly agree)."

2.4.3 Influencing factors of co-worker relationship health

Workplace friendship is an informal interpersonal relationship formed spontaneously among employees in an organization. Chen et al. (2013) conducted a questionnaire survey on full-time employees from several private and public institutions in Taiwan to study the relationship between interactive justice and workplace friendship and assumed the mediating role of leader-member exchange. The results showed that interactive justice was positively correlated with workplace friendship. LMX plays a significant mediating role in the positive correlation.

Perfectionism has been described as a common personality trait that sets high standards and seeks to be flawless. To study the relationship within perfectionism, innovation behavior and job burnout in the workplace, Chang et al. (2016) conducted an effective matching sample study on 112 team groups (112 supervisors and 437 members) by distinguishing perfectionism into healthy perfectionism (perfectionism effort) and unhealthy perfectionism (perfectionism concern) to examine the moderating effect of group workplace friendships. The results showed

that healthy perfectionism was positively correlated with innovation behavior, while unhealthy perfectionism was positively correlated with job burnout. High team friendship enhanced the positive relationship between healthy perfectionism and innovative behavior and weakened the positive relationship between unhealthy perfectionism and job burnout.

Personality, shared tasks, and perceived similarity were the most important factors influencing the initiation of co-worker friendships, while physical distance became less important for workplace friendships in workplaces where information communication technology (ICT) was becoming more prevalent. To study the dynamics of workplace friendships in ICT-led organizations, Sias et al. (2012) conducted a questionnaire survey of full-time employees from different organizations, and the results confirmed that face-to-face interactions were positively correlated with the establishment and maintenance of workplace friendships. Email, phone calls and text messages were also positively correlated with workplace friendships. Telecommuting hours can interfere with the formation and communication of workplace friendships. Finally, the differences between aged people and young people are found in internet-based communication.

To study the gender differences between workplace friendship and its related organizational results, Morrison (2007) measured the popularity and opportunities of workplace friendship, working group cohesion, job satisfaction, organizational commitment, and turnover intention through a questionnaire among 445 interviewees. It is found that there is a stronger correlation between friendship at work and job satisfaction of men. Compared with men, women are more inclined to describe the benefits of workplace friendship in terms of social and emotional support, while men are more inclined to pay attention to the benefits that friends bring them in their careers, or the functional aspects of "getting the job done".

Work attributes is a form of work structure, which affects the assignment of jobs and tasks in an organization. Lin et al. (2008) conducted questionnaire survey among employees from both the Mainland and Taiwan of China to study how the five different work attributes (such as marketing, finance, human resources, research and development, and manufacture) impact workplace friendships. The results showed that the five job attributes have significant positive correlation with workplace friendships. It also proved that different regions (the Mainland and Taiwan of China) have important influence on the relationship between job attributes and workplace friendship.

By introducing gender similarity as the background antecedent of co-workers' support. Koseoglu et al. (2020) studied the mediating role of colleague support between gender similarity and work attitude. In addition, it also discusses how creative demand, as a

professional characteristic, affects the relationship between colleagues' support and work attitude, besides the roles of supervisor support and organizational support. Based on the research results of 975 full-time employees in different occupations and industries, it is shown that the level of creative needs of occupations will affect the relationship between gender similarity and job satisfaction, and colleagues support to act as intermediaries in this relationship. When employees are in occupations that require higher creativity, they seem to appreciate the help from colleagues more than those in occupations that require lower creativity.

As older workers make up a growing share of the labor force, there is a growing correlation between age and job happiness. The curving relationships between age and job satisfaction and age and emotional exhaustion have been well documented in the literature. Based on role theory, Zacher et al. (2014) conducted a questionnaire survey among employees in the Australian construction industry to investigate the mediating roles of time pressure, work-family conflict, and colleague support between age and job satisfaction, and age and emotional exhaustion. The results showed that workers in their 20s to early 40s report lower job satisfaction and greater emotional exhaustion than younger and older workers.

Based on the theory of emotional events, to explore the influence of job insecurity on the employee’s extra-role behaviors, as well as test negative emotion’s intermediary role and the moderating effect of workplace friendship, Yu et al. (2021) conducted a questionnaire survey on employees of four Chinese financial institutions. The results showed that job insecurity had significant negative effects on employee’s extra-role behaviors. Negative emotions play a mediating role in the relationship between job insecurity and extra-role behaviors. The relationship between job insecurity and negative emotion, job insecurity and extra-role behaviors were moderated by workplace friendship. Workplace friendship also moderates the mediating effect of negative emotions on job insecurity and extra-role behaviors. The higher the degree of workplace friendship is, the weaker the mediating effect is.

Simon et al. (2010) found that co-worker satisfaction was positively correlated with job and life satisfaction. In addition, job satisfaction partially moderated the relationship between daily co-worker satisfaction and life satisfaction. Agreeableness in the Big Five Theory of Personality moderates the relationship between co-worker satisfaction and job and life satisfaction.

Karatepe et al. (2010) studied the mediating effect of core self-evaluation on the relationship between co-worker support and job engagement. The results showed that core self-evaluation partially moderated the effect of co-worker support on job vitality, while it completely moderated the relationship between co-worker support and job dedication.

2.4.4 Relationship between co-worker relationship health and job performance

The high degree of trust of colleagues is positively related to good work performance. The interpersonal trust among colleagues determines the level of team performance (Golembiewski & McConkie, 1975). Expectation is positively related to trust, because trust can improve the motivation of cooperation and joint work (C. Larson & LaFasto, 1989). As trust reduces the need for control (such as rules and monitoring) and improves the ability to face implementation problems, it is expected that efficiency will be improved. This helps to make the best use of the resources of the group (Bromiley & Cummings, 1995; C. Larson & LaFasto, 1989).

Previous studies believe that co-workers are the most likely and important source of emotional and instrumental support for employees, mainly because colleagues have knowledge and understanding of work experience that external resources do not have. In addition, colleagues also act as the second "eyes and ears", sharing important organizational information and gossip, which can not be obtained under other circumstances. Kirby and Krone (2002) noticed that colleagues have a strong influence on each other in terms of attitudes and behaviors in the workplace. Therefore, the relationship between colleagues has an important impact on the operation of the organization. In the same organization, employees subjectively perceive the care and goodwill of colleagues, which will lead to behaviors such as mutual adaptation to the needs of exchange partners (co-workers), which will promote cooperation and support, help employees to complete their own jobs, and then produce positive job performance.

2.5 Mental health

2.5.1 Definition of mental health

As for the definition of mental health, different scholars have different views. H.B. English and A.C. English (1958) considered that in any case the person concerned is well adapted, has the vitality of life, and can fully develop his/her physical and mental potential. This is a positive and abundant status free from mental illness. Allport (1961) believed that mental health should have good interpersonal relations, objective perception, broad self-awareness, stable emotions, unified internal values, various skills and maintaining focus on work. The Subjective Well-being (SWB) school proposed that mental health should include life satisfaction and positive emotion, positive emotion and negative emotion are the two dimensions of mental health, and life satisfaction is a supplement to happiness as well as one of the cognitive components (Albert & Stones, 1980). According to the definition of Testa and Simonson (1996), the psychological

component of health reflects a person's emotional experience. This experience interacts with relevant cognitive states, processes, and judgments about one's life, self, and future (Lawton & Brody, 1988) (Beck et al., 1987; Haaga et al., 1991). Overall, mental health includes three aspects: first, normal physical and psychological function, no physical and psychological discomfort; second, they can actively mediate their own psychological state, actively deal with the relationship between themselves and the outside world, and effectively improve their personal life; the third is to be able to develop within the scope allowed by itself and the environmental conditions into the situation of best psychological function, that is, a status full of happiness and satisfaction.

2.5.2 Measurement of mental health

The evaluation content of mental health mainly includes anxiety/depression degree, cognitive ability, behavioral disorder degree. Some are used for clinical diagnosis of specific mental diseases, and some are used to measure the level of mental disorders in the general population. There are also many tools that can be used to evaluate mental health, such as Symptom Self-Rating Scale (Derogatis et al., 1973), Cornell Medical Index (Brodman et al., 1951), Beck Anxiety Inventory (Beck et al., 1988), and Beck Depression Inventory (Beck et al., 1961). This study used workplace anxiety as an indicator to measure the mental health status of employees, as well as the workplace anxiety scale developed by McCarthy et al. (2016).

2.5.3 Influencing factors of mental health

Learning on the job can improve economic benefits, such as employability and income, as well as non-economic factors, including self-efficacy, autonomy, social competence, civic engagement and a sense of control over personal life outcomes, which, according to Field (2009), are closely related to employee health. In fact, learning opportunities have been proved to predict subjective health status (Mikkelsen et al., 1999) and health maintaining (Field, 2009). Employees who have experienced learning are more likely to report that work has had a positive impact on their mental and physical health (Ettner & Grzywacz, 2001). According to Ryan and Frederick (1997), vitality is related to physical (such as illness) and psychological (such as fatigue) states. Employees with a sense of vitality have also been shown to be less likely to feel anxious and more likely to be mentally healthy (Keyes, 2002). In addition, feelings of vitality make people more resilient to physical adversity and illness (Cohn et al., 2009; Zautra et al., 2005). Finally, it was found that enthusiasm at work was positively correlated with subjective

health (Porath et al., 2012; Walumbwa et al., 2018).

Burnout is characterized by prolonged periods of work stress, including feelings of exhaustion, cynicism, and reduction (Maslach et al., 2001). Vitality constitutes a resource that provides employees with the necessary energy to effectively deal with the challenges of their jobs, leading to reduced burnout (Demerouti et al., 2001). Employees learn and acquire knowledge on the job to cope with job demands and prevent emotional exhaustion (Stewart & Ruckdeschel, 1998). In fact, feelings of learning and vitality are thought to counteract the development of burnout (Spreitzer et al., 2012), while vitality at work has been shown to be negatively correlated with burnout (Hildenbrand et al., 2018; Niessen et al., 2017).

As a stressor in the work environment (Greenhalgh & Rosenblatt, 1984), job insecurity has a variety of negative effects on workers' happiness and mental health (Cheng & Chan, 2008; De Witte et al., 2016; C. Lee et al., 2018; Llosa et al., 2018), such as depression (Blom et al., 2015; Kim et al., 2017) and anxiety (Boya et al., 2008). It also affects physical health, such as general physical well-being (Henseke, 2018) or heart disease (Schnall et al., 2016). Menéndez-Espina et al. (2019) showed that job insecurity is a direct predictor of an individual's health; specifically, job insecurity explained 4% to 8% of the variation in physical symptoms, anxiety, and social dysfunction in men and 2% to 5% of the variation in these three areas in women.

Numerous previous studies have found that gender discrimination in the workplace has a negative impact on mental health and job satisfaction (Manuel et al., 2017; Sojo et al., 2016; Szymanski & Feltman, 2015). Rubin et al. (2019) found that in male-dominated work environments, organizational and interpersonal sexism independently had negative effects on women's mental health.

Poorer sense of belonging and social connectedness have been found to be associated with poorer mental health (Rubin & Kelly, 2015; Rubin et al., 2017; Saeri et al., 2018). Rubin et al. (2019) found that belonging positively predicted mental health and belonging mediated the relationship between organizational gender discrimination and mental health and job satisfaction.

Previous studies have demonstrated a correlation between work engagement, health levels, and job performance (Freeney & Fellenz, 2013; Havens et al., 2013), the relationship between work engagement and health in Spanish nurses has been explored in previous studies, with low levels of stress and social dysfunction shown to be predictors of the vitality and dedication structure of work engagement (Jenaro et al., 2011). Other researchers have also found that high levels of job engagement are associated with low levels of depression, depression, and psychosomatic discomfort (Schaufeli & Bakker, 2004).

2.5.4 Relationship between mental health and job performance

The relationship between health and performance issues is of growing concern among business and science communities. Ford et al. (2011) showed that mental health (including psychological well-being, depression, general anxiety, and life satisfaction) was moderately to strongly correlated with job performance through meta-analysis of 111 independent samples obtained from a literature search.

There is evidence that poor mental health can lead to cognitive deficits related to job performance. These include deficits in working, episodic, and autobiographical memory, recognition and recall, learning, and executive functions (Austin et al., 2001; Burt et al., 1995; Dalgleish et al., 2007; Eysenck & Calvo, 1992; Hayes et al., 2008). Irrelevant negative information is more likely to interfere with the working memory of depressed individuals (Joormann & Gotlib, 2008), while negative emotional state and poor mental health lead to memory bias towards negative events (Blaney, 1986). The negative experience filled with depression and anxiety can also take cognitive resources away from work tasks, leading individuals to assess their emotional state, ruminate, and attempt to regulate their emotions (Beal et al., 2005). A person's regulation of emotions may also inhibit his or her self-control over subsequent tasks (Muraven & Baumeister, 2000). Fatigue, characterized by feeling tired, weak and lacking vitality and energy (Sonnentag & Zijlstra, 2006), is also associated with cognitive difficulties (Jones & Fletcher, 1996) and may reduce the resources a person has available for work. These cognitive abilities and resources are clearly important for task performance, but they are also correlated with contextual performance, which depends in part on one's available knowledge and skills (Dudley & Cortina, 2008; Motowidlo & Van Scotter, 1994).

Mental health may also influence employee’s motivation to perform tasks and background work behaviors. Affective states can influence the judgment of self-efficacy, positive emotions, good mental health, and lead to more positive self-efficacy beliefs (Mitchell et al., 1994). Positive emotions have also been shown to increase task persistence through more positive valence, instrumentality, and expectation beliefs, and by setting higher goals for oneself (Erez & Isen, 2002). Field studies on job-specific emotions have found that positive emotions and organizational citizenship behavior (K. Lee & Allen, 2002), personal work performance (Taris, 2006; Wright et al., 2002) and organizational performance (Taris & Schreurs, 2009). These results suggest that positive mental health leads to higher work motivation. Depression and anxiety are also associated with an over cognitive evaluation of danger and reduced self-worth

(Beck et al., 1987), which can lead to irrational choices and lower effort. Life satisfaction has also been shown to be highly correlated with core self-evaluation (Judge et al., 2003), which consists of states such as self-efficacy and locus of control, which may be related to motivation (Erez & Isen, 2002). Thus, mental health seems to affect performance through motivational mechanisms.

2.6 Job engagement

2.6.1 Definition of job engagement

Job engagement, also known as engagement, can be described as the positive feelings and sense of accomplishment that come from working. It contains vigor, dedication, and absorption (Schaufeli, Martinez, et al., 2002). Vigor refers to the state of being energetic, flexible, and eager to work, showing perseverance and indefatigability. A dedicated person feels that their work is meaningful, challenging, inspiring, and is passionate about it. When a dedicated person is fully engaged in work, it feels like time passes so quickly that he or she forgets everything else and finds it difficult to withdraw from work (Pienaar & Willemse, 2008). Job engagement is also sometimes described as a universal state that is not temporarily and explicitly focused on any one event, object, or person (Schaufeli, Martinez, et al., 2002).

It is common for managers to realize that employees who are highly engaged in their work bring a competitive advantage to the development of the enterprise. Kahn (1990) initially described job engagement as a unique and important motivational concept: utilizing the employee's entire physical, cognitive, and emotional self to accomplish job role performance. This concept has already implied a link between job engagement and job performance, so job engagement may provide a more comprehensive explanation of the factors and mechanisms that influence job performance (Rich et al., 2010). Predecessors' study of job performance tends to focus on the cognition, emotion, motive, behavior, and the influence of such factors. However, these factors do not focus on the individual can choose to their emotional, cognitive, and physical energy into the character at the same time. The more comprehensive self into a person's behavior, the role of itself might have an impact the result of the work.

Kahn (1990) divided work engagement into physical, cognitive, and emotional involvement activities in the definition of work engagement. That is, in the process of work involvement, individuals make full use of their ego by putting energy into physical, cognitive, and emotional work and actively complete work role performance. An engaged individual can

be described as someone who, while at work, is fully engaged, attentive, connected to the work. Those individuals have closely aligned with the work and focused on the performance of his or her role. Employees engaged in work always keep an open mind to themselves and their colleagues and connect themselves closely with their work and colleagues. They fully commit themselves to the given role of the organization (Kahn, 1992). Therefore, individuals not only need physical input, but also need to bring cognition and emotion into the work tasks to complete the work of serving the organization.

Job engagement is defined as motivational, which involves the allocation, intensity, and persistence of individual resources in the role performance of work (Kanfer, 1990). Kahn (1992) believed that in the process of job engagement, individuals put their body, cognition, and emotion into a specific task to meet their job role requirements and at the same time continuously increase the depth of themselves. Therefore, from Kahn's perspective, job engagement is a multidimensional concept of motivation, which reflects the joint effect of individual physical, cognitive and emotional energy.

2.6.2 Measurement of job engagement

Many existing scales on job engagement do not fully reflect Kahn's classic definition of this concept, namely, the investment of individual physical, cognitive and emotional energy (Newman & Harrison, 2008). The Utrecht Job Engagement Scale, developed by Schaufeli et al. (2002), is widely used at present. Schaufeli believes that job engagement is a positive, fulfilling, more lasting and universal emotional/cognitive state. It consists of three factors, including vigor, dedication, and focus. Vigor refers to high energy level and mental resilience at work, that is, willingness to work hard and persistence in the face of difficulties. Dedication means being deeply involved in your work and fully experiencing the sense of meaning, passion, motivation, pride, and challenge of your work. Concentration means being completely focused on your work and unable to separate it. Therefore, the scale contains 17 items in three dimensions, namely, 6 items of vigor, such as "I feel strong and energetic at work". There are five items of dedication, e.g. "I feel the work I do is purposeful and meaningful". Six items of absorption, such as "Time always flies when I am working". Although this scale is widely used, the division of dimensions and some items are not consistent with Kahn's definition, and the setting of some items also makes use of subjects' perception of work significance and challenge level (Rich et al., 2010). Therefore, the researcher gave up using this scale after careful consideration in the selection of the scale.

Rich et al. (2010) developed a job engagement scale based on Kahn (1990)'s definition of

job engagement, which contains 18 items in three dimensions, including 6 items of physical engagement such as "I try my best to do a good job". Emotional engagement comprises 6 items, such as "I am confident in my work". Cognitive engagement also contains 6 items, such as "in work, I am fully engaged".

Shirom (2003) expressed inconsistent views on Schaufeli et al. (2002) model setting of job engagement. He believed that job engagement is only about vitality, that is, vitality is the only construct that completely fits with work engagement, and dedication and concentration have too many overlapping or other factors mixed in it. For example, the importance of work to an individual's self-image. Therefore, Shirom proposed a single dimension vitality model of job engagement. Wefald and Downey (2009) believe that both single-dimension and three-dimension models are reasonable. However, confirmatory factor analysis finds that in the three-factor model, there is a high correlation between the three factors, so the single-factor model can better express the construct of job engagement.

2.6.3 Influencing factors of job engagement

2.6.3.1 Job engagement and health

Individual health has attracted more and more attention from enterprise managers. The health status of employees often affects the smooth progress of their work and the sustainable development of employee’s careers. As a positive personal working state, job engagement contains a perfect state of continuous and positive emotional motivation, and is characterized by vitality, dedication, and absorption. Pienaar and Willemse (2008) studied the relationship between job engagement and health level of employees in the service industry and found that the three dimensions of job engagement were all related to the overall health of employees, and individuals with higher job engagement tended to have higher health level.

Schaufeli and Bakker (2004) pointed out that burnout and job engagement can be regarded as both negative and positive outcomes of emotional labor, so burnout and job engagement constructs can well measure the mental health of employees within an organization. The two then proposed a model of happiness at work based on previous studies. Thus, the correlation between job engagement and health-related factors was re-examined.

While many previous studies have focused on the predictive role of organizational environment and individual differences on job engagement, Barber et al. (2012) turned to sleep hygiene as an important antecedent variable to explore its impact on job engagement. Barber used a sample of 328 workers living in the United States to establish a multi-mediator model in

which sleep health predicts job engagement through resource consumption of two mediators, psychological stress, and self-control. The results showed that individuals with chronic bad sleep had lower self-regulation ability and experienced higher subjective mental loss, thus reducing their job engagement. This research result is also consistent with the view of self-regulation theory. That is individuals can provide limited resources to meet external demands and the consumption of these resources will lead to increased pressure and decreased self-regulation function for other demands. Poor sleep impairs the post-work self-recovery process and leads to less self-regulatory resources for performing tasks, which in turn affects job engagement.

The impact of stress on physical and mental health has been discussed in many studies, but the role of job engagement in this relationship has been relatively little discussed. Britt et al. (2005) selected 176 soldiers in the United States as research samples and adopted longitudinal tracking research method to explore the influence of individual high job engagement level on the final health report results under different stressors. It was found that soldiers with high job engagement were cushioned under the stress of long working hours and reported fewer negative outcomes. However, soldiers with high job engagement reported more negative results of physical and mental health under the pressure of workload overload. That is, there is a correlation between job engagement and individual health.

2.6.3.2 Job engagement and depression, life satisfaction

Hakanen and Schaufeli (2012) conducted a 7-year longitudinal follow-up study of 3,255 dentists in Finland since 2003. The study was divided into 3 periods, and researchers found that job engagement had a significant negative effect on depressive symptoms while a significant positive effect on life satisfaction. This result may be explained by the fact that job engagement represents a high level of individual's cognitive, emotional, and behavioral investment in work. High job engagement predicts a high level of individual satisfaction and job-related happiness, which will spill over and affect the individual's own state.

The relationship between job engagement and positive work attitude and behavior has been discussed by many scholars, and its relationship with work-family related issues has been increasingly concerned by scholars. Culbertson et al. (2012) conducted a longitudinal study in which they surveyed a sample twice daily for two weeks and found that daily job engagement had a positive impact on family life. Job engagement promotes the development of work-family relationship in a better direction by encouraging individuals to produce positive emotions.

2.6.3.3 Job engagement and job burnout

Job engagement and burnout are often discussed together, as Schaufeli et al. (2002) pointed out in their study that burnout and job engagement are two related but distinct mindsets, with burnout associated with exhaustion of work, and job engagement associated with high levels of vitality and dedication to work. Therefore, job burnout is related to job engagement, but a low level of job burnout cannot predict a high level of job engagement, it may also be affected by individual factors. Bakker et al. (2006) study found that in the control of the work characteristics and the team's level of job burnout and job engagement will affect the level of individual job engagement and job burnout, the findings seem to emphasize the role of individuals in the development of burnout and job engagement, especially the team level of burnout of individual job engagement.

2.6.3.4 Job engagement and psychological climate

Psychological climate, also known as psychological atmosphere, refers to the social and psychological environment that restricts and forms people's mutual relations in groups. A good psychological atmosphere has an impact on an individual's ability to move in a group, which is embodied in the individual's attitude and behavior. Kataria et al. (2013) took Indian IT industry workers as samples to explore the relationship between psychological climate and job engagement and organizational citizenship behavior. In this study, 278 employees from 13 Indian IT companies were collected by questionnaire and analyzed by structural equation model. IT was found that job engagement partially mediates the relationship between supportive management of psychological climate, self-expression and job challenge dimensions and organizational citizenship behavior. That is, employee’s perception of work environment has a significant predictive effect on their job engagement.

2.6.3.5 Job engagement and positive emotion/mood

Bledow et al. (2011), a software developer from the country of Belgium, studied the influence of emotion on job engagement and found that when employees were in a negative state in the morning, the induction of positive emotion or positive mood had a positive effect on their job engagement. When Ouweneel et al. (2012) studied the relationship between hope and job engagement with a diary study of 59 university staff in the Netherlands, they found that positive emotional experience had an indirect positive impact on the three dimensions of job engagement (vitality, dedication, and concentration).

2.6.3.6 Job engagement and optimism

Cotter and Fouad (2012) carried out a research project on which factors will improve the level of job engagement of individuals when the external environment is not friendly to them. They selected 203 workers in the United States who had experienced layoffs in the past year but were lucky enough to be retained. The study took these individuals as samples to explore the influence of those factors on job burnout and job engagement. The results of the study showed that the optimistic (optimism) relationship with employee job engagement in many factors that the highest significance. It means individual level of optimism can effectively predict the job engagement level for employees in adverse environment.

2.6.3.7 Job engagement and self-efficacy

According to social cognitive theory, the change of self-efficacy may affect individual cognition, motivation, and behavior. Ouweneel et al. (2013), based on a sample of 345 American students to study by creating natural observation and self-efficacy group, two groups of college students' learning and performance test, found that over time, the students' self-efficacy to increase or decrease and they are learning to increase or decrease of input and task performance. Therefore, the hypothesis that the change of students' self-efficacy level is consistent with the change of their investment degree and performance is verified.

2.6.3.8 Job engagement and satisfaction

Locke (1976) believes that job satisfaction is a happy and positive emotional state, which comes from the rewards/incentives obtained by individuals from work or the satisfaction of personal needs. However, job engagement includes not only positive feelings, but also positive cognitive and behavioral experiences. Therefore, in previous studies, job satisfaction is often discussed as the outcome variable of job engagement. Many previous studies have also verified the predictive effect of job engagement on job satisfaction (Alarcon & Edwards, 2011; Saks, 2006).

Saks (2006), based on the social exchange theory, took 102 workers in different positions in Canada as samples to explore the antecedent variables and outcome variables of job engagement. The results showed that job engagement was positively correlated with job satisfaction and organizational commitment, and negatively correlated with turnover intention. Further research found that job engagement could effectively predict these three factors.

2.6.3.9 Job engagement and work ability and income

Airila et al. (2012) pointed out in the study on the relationship between lifestyle, work-related

factors, and individual work ability that job engagement plays an important role in improving individual work ability. Airila took 403 firefighters in Finland as research samples and adopted a questionnaire survey. Through stepwise regression analysis, it was found that a healthy lifestyle, such as exercise, good sleep, and no smoking, played an important role in maintaining an individual's working ability. High job engagement can also precisely predict higher level of working ability. There is not necessarily a causal relationship between job engagement and work ability but encouraging employees to maintain high job engagement may have a favorable impact on the maintenance and improvement of individual work ability, and thus promote the realization of individual goals and organizational goals. Xanthopoulou et al. (2009) also confirmed this point of view in the study of employees in the Dutch fast-food industry and found that employees with high job engagement had higher income levels.

2.6.4 Relationship between job engagement and job performance

Kanungo (1982) pointed out that Job engagement refers to the proportion of employee's participation in work in their total life. Therefore, an employee with high job engagement will show more work-related behaviors and thinking even after working hours. Brown and Leigh (1996) argue that job engagement is influenced by organizational characteristics, managerial behavior, and individual differences, while other previous studies have suggested that job engagement may predict job performance because individuals who identify most strongly with their work focus their thoughts on the job. And the individual will produce more behaviors that meet the requirements of the job role (Hillman et al., 2008; Kreiner et al., 2006).

Previous theories and studies have pointed out that people generally have a kind of intrinsic motivation, which refers to the need to perceive their own ability and maintain their autonomy and sense of control over things. Under the influence of such intrinsic motivation, people can generate energy to focus on a specific task. This intrinsic motivation is defined as the desire to put effort into a task without external constraints or strings attached (Deci & Ryan, 1985c). This kind of intrinsic motivation is affected by the work environment and individual differences. It is believed to affect work performance because the satisfaction of the needs of individual ability, autonomy and sense of control is conducive to individual self-motivation, thus realizing the effective implementation of the aligned organizational value goals (Baard et al., 2004).

Many previous studies have tested each concept related to job performance, trying to explain why individuals choose to integrate into their job roles from different aspects. Job participation focuses on the cognitive energy invested by individuals to maintain the connection between themselves and work. Job satisfaction is about emotional responses. Intrinsic

motivation is concerned with the energy invested by an individual to maintain a sense of autonomy and control. And the combination of these together explains job performance. This complex includes physical, cognitive, and emotional input, which more often shows the individual's comprehensive and independent choice. Therefore, Kahn (1990) defined work input as covering various energies generated simultaneously when an individual is engaged in work, which is a more reasonable explanation of work performance.

Rich et al. (2010) found that psychological factors such as value congruence between employees and organizations (work tasks), perceived organizational support and employee's core self-evaluation predict work engagement by researching the relationship between individual and organizational variables and work performance. That is, job engagement plays a mediating role in the relationship between these factors and job performance. Kahn (1990) once pointed out that individuals' ideas about the psychological state created by working environment and personal character directly affect their willingness to invest in work roles. These concepts include things like the sense of meaning and value of work, the perception of job stability and safety, the perception of physical and mental adaptability, and ability to work.

Bakker et al. (2012) selected 144 employees from Finland (distributed in different industries, such as chemical industry, consulting, communication, education) to study the relationship between job engagement and factors related to job performance. The study found that job engagement was significantly positively correlated with task performance, out-of-role behavior, and proactive learning behavior.

This study aims to further explore the role of job engagement in the relationship between job performance and health-related factors. In this study, we define job performance as the sum of a set of behaviors, i.e., in-role and out-of-role behaviors, that employees contribute directly or indirectly to organizational goals. Because job engagement is a concept reflecting human initiative, it is largely controlled by individual will, and the result of such control is specific behavior. So, the relationship between job engagement and job performance reflects the relationship between such initiative and its results.

In the study of the relationship between job engagement and job performance, prior researchers have put forward sufficient theoretical basis. Employees with high level of job engagement not only focus their physical energy on the goals required by their job roles, but also make cognitive and emotional efforts (Ashforth & Humphrey, 1995; Kahn, 1990). Specifically, putting physical energy into work roles can promote the achievement of organizational goals, because this behavior promotes the production of those behaviors encouraged by the organization (Kahn, 1990, 1992). Putting cognitive energy into work roles

has a positive impact on the achievement of organizational goals by improving individual concentration (Kahn, 1990). Employees who are emotionally involved in their work roles will feel more connected with their colleagues, because they share a common organizational goal, and thus promote the behavior of achieving organizational goals (Ashforth & Humphrey, 1995).

2.7 Psychological capital

2.7.1 Definition of psychological capital

The concept of psychological capital first appeared in economics, sociology and other fields (Goldsmith et al., 1998; Goldsmith et al., 1997), Luthans and Youssef (2004) put forward the concept of positive psychological capital with emphasis on people's positive psychological power as the core, based on the viewpoint and research framework of positive psychology and positive organizational behavior, and on the analysis of the characteristics and differences of economic capital, human capital and social capital, which prompted people to focus on the research of psychological capital and its influence on organizations, leaders and employees.

And in the field of psychological research, psychological capital has its roots in positive psychology, which in the late 1990s emphasized that people should pay more attention to what's right and what's positive, rather than focusing almost exclusively on people's mistakes for many years (Seligman & Csikszentmihalyi, 2000). This change in direction led to a focus on positivity and human strengths and virtues (C. Peterson & Seligman, 2004). In the last decade, the role of positive psychology in the field of organizational and human resource performance has received extensive attention from scholars, especially the influence on positive organizational relationship and positive organizational behavior. Confidence or self-efficacy is an important dimension of positive organizational behavior. It refers to an individual's ability to control his own motivation, cognitive resources and behaviors and his confidence in successfully completing tasks under a certain circumstance (Stajkovic & Luthans, 1998b). Meanwhile, self-efficacy is also one of the dimensions of psychological capital. The positive effect of self-efficacy on job-related performance via social persuasion, positive feedback, physiological and psychological arousal has been proved by previous studies (Stajkovic & Luthans, 1998a).

Goldsmith et al. (1998) believe that the influence of personality can be observed. As a kind of individual capital related to personality, employee’s psychological capital will also be concerned by managers about its influence on employee’s work. According to Goldsmith et al., psychological capital consists of a set of personal attributes that are expected to affect

productivity, and many of the characteristics of an individual's psychological capital are reflected in a person's self-perception or self-esteem. Therefore, Goldsmith et al. 's definition of psychological capital is more closely related to self-esteem. Walumbwa et al. (2011) believe that psychological capital is an open and developing "state theory", which is characterized by transience and polygon. Many previous studies also provide support for this view of developing state.

Under the framework of positive psychology and positive organizational behavior, Luthans and Youssef (2004) put forward the concept of positive psychological capital, referred to as psychological capital. Luthans et al. defined psychological capital as "a positive psychological state manifested by individuals in the process of growth and development", which includes four core components: self-efficacy, optimism, resilience, and hope. This definition and dimensional division of psychological capital is currently the most widely used.

Derived from Albert Bandura's extensive theory and research, self-efficacy refers to an individual's confidence in his or her ability to mobilize the motivation, cognitive resources, and course of action needed to perform a particular task in a particular situation. Self-efficacy (self-confidence) people who choose challenging tasks can inspire motivation and effort to successfully accomplish their goals and persevere in the face of obstacles (Luthans & Youssef, 2004).

Hope, derived from the work of positive psychologist Snyder, refers to a state of motivation based on the interaction between goals, actors, and paths. People are driven by their own agency to accomplish their goals, and that agency provides them with an internalized determination and willpower to devote the energy necessary to accomplish their goals. Those who are hopeful are motivated by this hope because they feel capable of getting what they want and form an effective path to their expectations (Luthans & Youssef, 2004).

Seligman et al. have studied and applied optimism in the positive psychology movement. Optimism refers to a positive interpretation that attributes positive events to internal, permanent, and universal causes, and negative events to external, temporary and context-specific causes (Luthans & Youssef, 2004). This allows individuals to take credit for the positive things in their lives, thereby boosting their self-esteem and morale. It also protects them from negative life events, depression, guilt, self-blame, and hopelessness. Thus, optimistic individuals have more mental energy when coping with life and work events, which contributes to their actual performance.

Resilience refers to the ability to recover from adversity, uncertainty, failure, and even positive but seemingly overwhelming changes such as increased responsibility (Luthans &

Youssef, 2004). Resilience enables personal and environment-psychological protection mechanisms to operate by enhancing assets and/or reducing risk factors in individuals and/or their environment.

2.7.2 Measurement of psychological capital

There are three main ways to measure psychological capital. The first method is the observation method, which is to observe and evaluate the respondents to help researchers obtain the relevant data of the sample's psychological capital status. This work needs the assistance of a third party, so it is also called the expert evaluation method. The second method is the result variable measurement method, according to the psychological capital status of different employees will have different results, can use reverse thinking to measure and analyze the result variable of psychological capital, to infer the psychological capital of employees. The third method is self-reporting, which collects data about employee's psychological capital status by issuing questionnaires. Many foreign scholars have developed their own scales, such as The Psychological Capital Scale by Goldsmith et al. (1997). Avey et al. (2006) psychological Capital State Scale; Judge and Bono (2001), The Core Self-evaluation Construct Scale; Luthans et al. (2007) PCQ-24 questionnaire.

In scale evaluation, a variety of scales were also used for different dimensions of psychological capital. For example, Bandura (1997) provided many theories and studies, arguing that self-efficacy should be measured by magnitude and intensity. The magnitude dimension of self-efficacy is the difficulty level of the task that the individual expects to be able to perform, which is measured by whether the respondent can complete the specific task at different levels. The intensity dimension of self-efficacy refers to the degree of certainty an individual has about his ability to perform at each difficulty level, which is measured by the percentage of confidence reported by the respondent (Bandura, 1997; Locke et al., 1984; Stajkovic & Luthans, 1998b). However, recent studies support the comparability between Likert-type continuous scales and scales that use the weight-intensity method to measure self-efficacy. The two types share similar factor structure, reliability, and validity (Maurer & Pierce, 1998). For example, Parker (1998) productivity tools used the workplace-related Likert scale.

Luthans et al. (2007) developed the 4-dimensional 24-item psychological capital scale, which is the most widely used and recognized scale. Its structure includes four dimensions of self-efficacy, hope, optimism, and resilience, with six items in each dimension. Self-efficacy items such as "I have the confidence to analyze a long-term problem, find solutions, hope items such as" At present, I am actively pursuing my work goals. ", optimistic items such as "I treat

the job attitude is there is always a bright side ", toughness items such as "I can survive the difficulties at work, because I had experienced difficulties".

Since observation method and outcome variable measurement method are difficult to operate in practice, and lack uniform standards and objectivity, this study will collect data of employee's psychological capital through questionnaires. Among them, the psychological capital questionnaire developed by Luthans et al. (2007) has high reliability and validity, including four dimensions of self-efficacy, hope, resilience, and optimism, and has been widely used in relevant studies. The researcher will also use the psychological capital scale for analysis.

2.7.3 Influencing factors of psychological capital

Psychological capital contains four core components, self-efficacy, optimism, resilience and hope, and is affected by these four variables. Luthans and Youssef (2004) believe that the most effective way to cultivate employee's sense of self-efficacy and confidence is to let them experience success. Bandura and other self-efficacy researchers call this experience the mastery experience. The improvement of performance can further improve employee confidence and self-efficacy. In addition, the power of vicarious learning or role models can increase self-efficacy. After proposing the definition of psychological capital, Luthans also proposed micro-intervention method, aiming to develop psychological capital from the perspective of hope, optimism, self-efficacy, and resilience (Luthans et al., 2010).

To cultivate the hope of managers and employees, it is necessary to enrich the target, agent, and pathway components of hope. In addition, breaking down complex, difficult, or long-term goals into manageable sub-goals (often referred to as "incremental") has been found to enhance hope. Hope is an important component of psychological capital. As a concept of positive psychology, hope includes willpower, initiative, and other factors. It is generally believed that hope is positively correlated with academic, sports and health-related outcome variables. S. J. Peterson and Luthans (2003) studied the relationship between leaders' different levels of hope and employee's job-related results and found that managers with higher levels of hope have more favorable working conditions for employees, leading to higher performance of the departments they manage and higher retention rate and job satisfaction of their subordinates. That is, the leader's hope has a positive impact on the employee's work results.

Optimism is influenced by personal explanatory style, for example, people with a pessimistic explanatory style often attribute good things in their lives to luck, help from others, or situational factors. These are external (out of control), temporary (one-time events), and specific (not generalizable to future situations) causes. These attributions prevent learning from

success, building mastery experiences (necessary for developing a sense of self-efficacy), and gaining a sense of agency and control (necessary for wanting to develop).

Optimism is an intrinsic aspect of human nature, and as a positive individual difference factor, optimism has been shown to be significantly associated with self-reported health and well-being as individual outcome variables such as good mood, perseverance, achievement, and physical health (C. Peterson, 2000). Brenes et al. (2002) conducted a study on the relationship between optimism and pessimism and daily activities in 480 community-based older adults with knee pain and found that, after controlling for demographic and health variables, optimism was significantly associated with performance on walking tasks. In other words, optimism may have a positive effect on individuals' physical performance.

To develop resilience, organizations adopt risk-centric strategies and reduce risks and stressors that may lead to unwanted outcomes. For example, wellness programs and employee assistance programs are provided to reduce the likelihood of physical and psychological risks. However, organizations cannot protect employees from all possible risk factors. Asset-concentration strategy can be introduced to mitigate impacts of adversity by abundant resources and effective leadership. Meanwhile, process-centric strategies can be used to mobilize the power of necessary adaptive systems, eventually enhancing an organization's readiness to respond to crises.

2.7.3.1 Psychological capital, organizational commitment, and job satisfaction

In the field of organization management, economic capital used to be one of the most important capitals, but with the development and expansion of organizations and the continuous renewal of new management technology, human capital and social capital are more valued by managers. M. Larson and Luthans (2006), taking manufacturing employees as samples, conducted a study aimed at exploring the relationship between psychological capital and employee’s job-related outcomes and found that psychological capital was significantly related to job satisfaction and organizational commitment, that is, psychological capital significantly promoted employee’s work attitude.

Numerous previous studies have pointed out that psychological capital is significantly correlated with employee’s attitude towards leaving or intention to stay on the job. Individuals with high psychological capital have positive expectations for future results and show higher faith in coping with challenges and difficulties at work. These positive psychological states motivate individuals to exert greater efforts and improve their job satisfaction (Luthans et al.,

2007).

The influence of psychological capital on employee's job satisfaction and dissatisfaction behavior was emphasized in the meta-analysis of Avey et al. (2011). For example, researchers found a positive correlation between psychological capital and out-of-role behavior. Individuals with high psychological capital will show a positive emotion when facing difficulties and solving problems, thus leading to positive behaviors.

2.7.3.2 Psychological capital and pressure

Based on the transactional theory of stress and coping, Darvishmotevali and Ali (2020) analyzed the buffering effect of psychological capital on the negative effects of stress factors such as job insecurity on subjective well-being and personal well-being. Darvishmotevali conducted a study on 250 employees working in 4-star and 5-star hotels in Iran about their subjective well-being through questionnaire survey. The results showed that job insecurity would reduce employee's subjective well-being. In this process, employees with higher level of psychological capital can better cope with work stress and reduce or eliminate the negative results of such stress stimulation.

2.7.3.3 Psychological capital and health

As a kind of personal resource, psychological capital may play a potential role in improving employee health and performance. Lupa and Vrg (2020), based on the job demand-resource theory, examined the relationship between job burnout and related job outcomes among 304 Romanian employees using self-reported data, and found that psychological capital moderated the relationship between job burnout and physical and mental health to some extent. The improvement of psychological capital can reduce job burnout and improve job happiness and job performance.

2.7.3.4 Psychological capital and emotion

Emotional intelligence refers to an individual's ability to monitor their own and others' emotions and emotions, and to recognize and use this information to guide their own thoughts and actions. Gong et al. (2019) focused on the effect and mechanism of emotional variables on psychological capital and job outcome variables and investigated the relationship between these variables by questionnaire survey with 450 employees as research samples. The results showed that

employee emotion positively predicts both psychological capital and job performance, while psychological capital negatively predicts job burnout and positively predicts job performance. Psychological capital plays a mediating role in the relationship between emotion, job burnout and job performance. In other words, for enterprise managers, improving employee's emotional health can help to improve their psychological capital level, which in turn has a positive promoting effect on job-related results, manifested in improving job performance and reducing job burnout.

As a higher-order psychological structure, the relationship between psychological capital and individual emotion and organizational achievement has always been concerned by scholars. Many previous studies have confirmed the relationship between psychological capital and positive emotion (M. Larson & Luthans, 2006; Luthans et al., 2007). Da et al. (2021) took 208 workers in Beijing as the research sample and conducted a three-period longitudinal study to investigate the relationship between these variables. They found that positive emotional psychological capital plays an intermediary role with organizational citizenship behavior (OCB), that is, employee psychological capital exerts an effect on organizational citizenship behavior (OCB) through positive emotion. Furthermore, the author found a reciprocal relationship between psychological capital and positive emotion.

2.7.3.5 Psychological capital, behavior, and ability

Lather and Kaur (2015) conducted a questionnaire survey of 150 employees from public and private schools to investigate the relationship between psychological capital, organizational commitment, and organizational citizenship behaviors. Through multiple regression analysis, they found that psychological capital could predict organizational commitment and organizational citizenship behavior of different types of schools. The theoretical framework of psychological capital can help researchers and managers better understand the influence of psychological capital on outcome variables related to work outcomes. Walumbwa et al. (2011) took 146 complete groups of a certain large financial institution as the research subjects and investigated the relationship between group psychological capital and outcome variables related to various jobs. They also found that there was a significant relationship between group psychological capital and group organizational trust and organizational citizenship behavior. This proves once again the relationship between psychological capital, trust and civic behavior.

There are a lot of research on psychological capital in the field of teachers. Scholars pay much attention to the influence of teachers' psychological capital on their work behavior and

results. Liu et al. (2021) to China's university teachers as the research sample, with the method of questionnaire investigation and research, to discuss the relationship between teachers' psychological capital and behavior and result, found that teachers' psychological capital and motivated work behavior is related (including task behavior and other related behavior), psychological capital have a significant impact on task work behavior and innovation work behavior. Furthermore, psychological capital tends to contribute to the job development of teachers by positively influencing their motivational work behavior, that is, the result.

The relationship between psychological capital and employee positive behavior has been discussed by many scholars, but the impact of psychological capital on employee creativity is also worthy of attention. Cai et al. (2018), based on the interactive perspective, applied the trait activation theory to investigate the effects of psychological competence and job characteristics on self-reported creativity of employees. Based on the questionnaire survey of 356 employees from different industries in China, Cai et al. (2018) investigated the effects of psychological competence and job characteristics on self-reported creativity of employees. We found that psychological capital positively predicted employee's self-reported creativity, and that leadership's support for employee's creativity and job characteristics moderated the relationship.

In addition, leadership, leadership spirit and other factors about the behavioral ability of leaders are also the research variables that scholars pay attention to. Jensen and Luthans (2006) used 76 founders of small businesses as research samples to explore entrepreneurs' leadership behaviors and their related advantages. The research results showed that there was a significant correlation between entrepreneurs' psychological capital and their self-perception of true leadership.

2.7.3.6 Mediating role of psychological capital

The role of psychological capital as a mediator has also attracted the attention of researchers from a variety of backgrounds and industries. Shang-Guan et al. (2017) carried out a study on the relationship between work pressure and job satisfaction of Chinese township cadres in Liaoning Province, China in 2015. The study adopted a cross-sectional survey and questionnaire survey among 1800 township cadres, and finally collected 1,525 questionnaires. The results show that psychological capital plays a mediating role in the relationship between job stress and job satisfaction. In other words, job stress predicts job satisfaction through psychological capital. By studying three different samples, Luthans et al. (2007) found that employee's psychological capital was positively correlated with job performance, job

satisfaction and organizational commitment, and psychological capital played an intermediary role in the relationship between supportive organizational climate and employee performance.

In the academic field, the researchers commonly focus on the important role grit plays in students' learning. The gritty individuals are more likely to practice consciously and keep promise in the face of setbacks. But the effect of grit on grades in the cognitive level, namely how grit influences student grades in the cognitive level still require further research. Luthans et al. (2010) examined the role of psychological capital in the relationship between perseverance and academic performance based on study of 176 business school students and found that psychological capital largely mediates the relationship between perseverance and academic performance. Factors such as hope, self-efficacy, resilience and optimism in psychological capital help drive resilient students to achieve more academic success.

2.7.3.7 The moderating effect of psychological capital

Although psychological capital is often studied as an independent variable or a mediating variable, some scholars have begun to pay attention to the mechanism of psychological capital as a moderating variable in recent years. A large number of previous studies have pointed out the direct relationship between psychological capital, organizational trust and organizational citizenship behavior (Lather & Kaur, 2015), but Yildiz (2019) uses psychological capital as a moderating variable to test its influence on the relationship between organizational trust and organizational citizenship behavior. Yildiz took 1100 employees from 7 hospitals in Istanbul as research samples and collected data through questionnaire survey. The research results showed that psychological capital moderated the positive correlation between organizational trust and organizational citizenship behavior, that is, when psychological capital was high, the relationship between the two was stronger.

Psychological capital not only plays a moderating role in the relationship between individual perception and behavior, but also has an impact on the relationship between superiors and subordinates. Y. Li et al. (2015) conducted a questionnaire survey on leaders and employees from 86 business teams by using the theory of conservation of resources, and found that abusive leaders and subordinates' psychological pain levels were positively correlated, that is, the higher the abusive level of leaders, the stronger the psychological pain of subordinates, and among them, employee's psychological capital would weaken the strength of this relationship, that is, compared with employees with high psychological capital levels, employees with low psychological capital levels and leaders.

2.7.4 Relationship between psychological capital and job performance

Psychological capital is defined as a kind of higher order. The motive and behavior associated with self-efficacy are classified as self-efficacy, hope, resilient and optimistic four components of the constituent part in nature. It is regarded as a "state" has high psychological capital employees tend to expect good things happen to them at work. It is further believed that they can create their own success, namely hope and self-efficacy, and be more determined and persistent in the face of challenges, namely resilience (Avey et al., 2011). Therefore, high levels of psychological capital are often discussed in conjunction with success and high levels of performance. Luthans believed that the positive emotions of human beings in the study of positive psychology could improve work performance, form the overall positive atmosphere of the enterprise, and promote the enterprise to develop in a better positive direction, such as reducing organizational absenteeism (Luthans & Youssef, 2004). F. Luthans and Avolio (2007) found that employee's psychological capital has a positive effect on their job performance. Avey et al. (2006) proved that psychological capital, hope, optimism, resilience, and self-efficacy were all negatively correlated with employee absenteeism.

The positive impact of self-efficacy, one of the components of psychological capital, on organizational environment has been supported by many studies. For example, Stajkovic and Luthans (1998b) found a correlation of 0.38 between self-efficacy and job performance in a meta-analysis of 114 studies. This has a greater impact on performance than many established performance enhancement measures (such as goal setting and behavior modification) or widely recognized personality traits (such as conscientiousness) and attitudes (such as job satisfaction). In addition, the recent research supports the relationship between self-efficacy and desired attitudinal performance, such as job satisfaction, organizational commitment, turnover intention, and perceived organizational effectiveness, in both American and cross-cultural work environments. In a cross-cultural study, Luthans and Youssef (2004) found that Chinese workers' hopes were related to their performance in state-owned enterprises. The results of this pilot study suggest the utility of positive psychological capital in promoting sustainable competitive advantage.

Human capital is the core capital for the success of any organization. It is for this reason that scholars spare no efforts to explore the effect of psychological capital on work results to optimize the ability and potential of employees. Ngwenya and Pelser (2020) investigated the effects of psychological capital on job engagement, job satisfaction, and performance with a sample of 257 employees from 15 Zimbabwe manufacturing companies. It was found that

psychological capital had a significant positive effect on the above variables. Alessandri et al. (2018) conducted a follow-up study on 420 white-collar employees of a large communication service company for two consecutive years and found through structural equation modeling analysis that an increase in the absolute level of psychological capital predicted the subsequent increase in job engagement, which in turn predicted the increase in job performance. That is, job engagement plays a mediating role between psychological capital and job performance. From the perspective of theoretical research, psychological capital has similar dynamic characteristics. The relationship between it and outcome variables related to various jobs is often studied through static analysis. So, the role of psychological capital as an intermediary mechanism has been largely ignored. Alessandri et al. 's research adopted longitudinal research method and tracked data for two years, and their research results more clearly indicated the predictive role of psychological capital on job performance. From a practical point of view, the research results of psychological capital, job engagement, job performance and other variables are very important to the operation and management of organizations, because they point out the importance of maintaining psychological capital on the motivation and behavior of employees in the organization.

Research on psychological capital does not stop at the individual level. Dawkins et al. (2018) adopted a multi-level research method to explore the relationship between psychological capital at the team level and results at the team and individual level. The results show that there is a significant correlation between team psychological capital level and outcome variables such as team performance, team satisfaction, and individual job satisfaction. Dawkins et al. further investigated to what extent the consensus of team members' cognition of psychological capital can regulate the above relationships and found that the consensus of team members' cognition of psychological capital has a significant impact on the prediction of most relationships. In other words, organizations should not only pay attention to the level of psychological capital at the individual level, but also pay attention to the cultivation of psychological enthusiasm at the team level, because the improvement of psychological capital level at the team level can have a positive impact on both the individual level and the team level. Such findings further emphasize the important role of psychological capital in organizations.

2.8 Proactive personality research

2.8.1 Definition of proactive personality

With the rapid development of organization, society and technology, employees should adapt to environmental changes and keep pace with the times. Personality characteristics, especially those that can reflect the willingness to change, are increasingly studied by scholars and considered to be the key factor driving individual success and bringing organizational competitive advantage (Seibert et al., 1999). It is widely accepted that personality affects success in working life, mainly for the following reasons: career is the product of behavioral tendencies, which accumulate over time; Careers are full of "adverse or distressing" situations in which personality plays a leading role in individual behavioral choices (Seibert et al., 1999).

Proactive personality is proposed by Bateman and Crant (1993) in the context of interaction theory and the stimulation of individual-environment theory research to study activities in organizations with proactive tendencies. Bateman and Crant (1993) first defined proactive behavior as an individual's tendency to be relatively stable in response to changes in environmental influences. In a study of 282 college students, unidimensional active behavior was found to have good psychometric characteristics. In a further study of 130 college students, the relationship between the active behavior scale and the dimensions of the Big Five Personality Theory was determined. Finally, Bateman and Crant took 148 MBA students as samples to evaluate the correlation between proactive behavior and the need for achievement, the need for dominance, the nature of civic activities and other indicators.

A proactive personality, as conceived by Bateman and Crant (1993), is a person who is relatively unconstrained by situational forces and can influence changes in the environment. Proactive people look for opportunities, show initiative, act, and persevere until they bring about change. They are trailblazers (Leavitt, 1988) who change the mission of their organization or identify and solve problems. They take responsibility for making an impact on the world around them.

Crant (1995) also pointed out that proactive personality aims to capture a behavioral tendency, that is, to implement or change one's environment. The archetype of proactive personality is described as "a person who is relatively unconstrained by situational forces and influences changes in the environment" Crant (1995). In the field of psychology and organizational behavior, interaction theory holds that behavior is controlled by internal factors and external environment, and the relationship between people and environment is a dynamic

interactive process of mutual causation. Context is the function of people, while human behavior is the function of context" (Bowers, 1973). Consistent with this concept, Buss and Finn (1977) also emphasized in a personality study that people are not passive recipients of the environment, and individuals also affect the environment, that is, people interact with the environment. Social cognition theory (Bandura, 1986) holds that people, environment and behavior constantly influence each other. All these theories and viewpoints point to the research direction of the interaction between individuals and the environment, and proactive personality is put forward under such a research framework, which is an individual personality tendency that can affect the environment.

Later, Campbell (2000), based on the results of previous studies, pointed out that individuals with proactive personality showed the following five core characteristics: (1) they had a high professional level and the ability to identify and solve problems; (2) outstanding interpersonal skills and relationship maintenance skills; (3) have a high degree of organizational commitment and sense of accomplishment, as well as a positive work attitude and values; (4) have positive and progressive characteristics; (5) integrity and long-term vision.

Scholars have devoted a lot of research energy to employee initiative. Although active behavior may be caused by a variety of factors, we focus on the influence of personality factors. Some scholars have found that there are differences in people's initiative level at the level of personality, which is reflected in the level of proactive personality (Bateman & Crant, 1993). Individuals with high proactive personality tend to actively shape the environment around them and try to make the environment change according to their wishes. Conversely, people with low initiative tend to rely on others to make change happen. Empirical studies have found that, at the individual level, highly proactive employees have better performance and career achievements (Jr & Marler, 2009). At the team level, high proactive personality is conducive to improving the innovation atmosphere (Xu et al., 2019).

Hough (2003) believes that proactive personality is an emergent or "compound" personality trait. "Complex personality traits are composed of basic personality traits, but these basic personality traits are not all covariant" (Hough & Schneider, 1996), and are often related to multiple dimensions of the Big Five personality traits (Hough & Oswald, 2000). Compound personality traits arise when researchers construct scales that predict specific standard constructs. For example, ambition is a composite personality trait consisting of both conscientiousness and extraversion (Hough & Oswald, 2000; Ones, 2005); Major et al. (2006) point out that proactive personality has been associated with conscientiousness and extraversion, while other studies have found it to be associated with openness to experience and neuroticism

(Crant & Bateman, 2000; Major et al., 2006).

Based on the above definitions of proactive personality, it can be inferred that individuals must be proactive if they want to be successful. Therefore, people are more and more interested in the relationship between proactive personality and the relevant configuration of career success. Seibert et al. (2001) believed that proactive people aim to "choose, create and influence the work environment to increase the likelihood of career success". Some studies have shown that proactive personality is positively correlated with subjective career success results such as career satisfaction and job satisfaction (Seibert et al., 1999). Other studies showed that proactive personality is positively correlated with objective career success results (Byrne et al., 2008). A meta-analysis by Ng et al. (2005) found that personality predictors of career success were more strongly correlated with subjective career success than objective career success.

Due to the rapid development of science and technology, the deepening of the degree of internationalization and the gradual intensification of competition, enterprises are facing a significant increase in uncertainty in the process of operation and management. To better cope with challenges and seize opportunities, enterprise management gradually shifted from emphasizing obedience to stimulating employee initiative (Griffin et al., 2007). And proactive personality is that proactive aspect that reflect individual personality characteristics. Griffin and Parker (2007) took employees from 32 organizations as research samples and obtained employee’s proactive self-evaluation and supervisors' evaluation of their proactive behavior through questionnaire survey. The results showed that self-reported initiative of employees was positively correlated with external evaluation of proactive behavior. This reveals the correlation between proactive personality and proactive behavior.

From the above summary, Bateman and Crant (1993) gave the most direct and clear definition of proactive personality, with more essence and depth in connotation, which was the earliest and most classic conceptual explanation. Subsequent studies basically followed this conceptual definition.

2.8.2 Measurement of proactive personality

The measurement construct of proactive personality is mainly based on the prototype of proactive personality proposed by Bateman and Crant (1993). In the early stage, they developed a scale containing 47 items to measure proactive behavior based on the concept of active behavior, and then selected the most representative 27 items to form the original questionnaire. Later, Crant (1995) developed proactive personality scale (PPS) based on previous research results and the result of factor analysis to measure this construct through a single dimension

with 17 items. The scale uses 7-point Likert scale, with 1 representing "strongly disagree" and 7 representing "strongly agree". The scores of these items are added up to obtain the score of proactive personality. The higher the test subjects score on the options, the more typical proactive personality characteristics they have. Specific items include "Be good at spotting opportunities" and "No matter what obstacles I encounter, if I believe, I will make it happen. "The scale has good performance in both reliability and validity.

After that, many scholars continuously adapted and optimized the scale based on Crant (1995) and developed various simplified forms of PPS (developed proactive personality scale), including 10-item, 6-item, 5-item, 4-item and even 2-item versions. Currently widely used scales, such as the 10-item short version of proactive Personality Inventory revised and completed by Seibert et al. (1999), “I am constantly on the lookout for new ways to improve my life”. "I can spot a good opportunity long before others can”. Jr and Marler (2009) pointed out in their meta-analysis of proactive personality that the 17-item and 10-item short-board proactive personality scale had good internal consistency.

2.8.3 Influential factors of proactive personality

According to existing studies, proactive personality has a positive impact on many individual and organization-related outcome variables, including job performance, career success, leadership, team performance, and creativity.

2.8.3.1 Proactive personality and career success and job satisfaction

Seibert et al. (1999) defined career success as the positive psychological feelings and job-related achievements gradually accumulated and acquired by individuals during their work experience. According to this concept, researchers divided career success into objective career success and subjective career success. Objective career success refers to the observable results obtained from work, such as salary level, promotion times. Subjective career success refers more to the individual's subjective evaluation and feelings, such as job satisfaction. Seibert and his colleagues, based on study of 496 employees in different organizations to test the relationship between proactive personality and career in the city, the study found that proactive personality for objective career success (such as wages and promotion frequency) by the positive influence, and proactive personality on subjective career success (i.e., job satisfaction) also has a positive effect. When further testing the influence of proactive personality, it was found that proactive personality has a significant predictive effect on career success (Seibert et al., 1999).

Erdogan and Bauer (2005) found in a study on the relationship between personality and organizational environment consistency, personality and work consistency, and career success that proactive personality was significantly positively correlated with job satisfaction when individual personality and organizational consistency were high. Individuals with proactive personality, whose values are consistent with the organization and whose abilities can meet the needs of the organization, have a significant correlation with career success.

2.8.3.2 Proactive personality and leadership style, leadership

Bateman and Crant (1993) found in a study of MBA schools that individuals with high scores in the Proactive Personality Scale were also those individuals considered by their peers to be transformational leaders. That is, an individual's proactive personality level may affect others' evaluation of his leadership style and leadership ability. Crant and Bateman (2000) took 156 managers and their direct superiors as research samples to explore the relationship between proactive personality and charismatic leadership. The results showed that the higher the self-report score of proactive personality, the higher the superiors' evaluation of charismatic leadership. The results of hierarchical regression showed that the variation revealed by proactive personality was greater than that revealed by other additional factors, such as the Big Five personality factors.

2.8.3.3 Proactive personality and health

From the perspective of occupational health, proactive personality has the potential to benefit individuals directly. More specifically, the controlling tendencies of proactive people may help individuals successfully deal with occupational stressors. A proactive person will direct their behavior or eliminate ambiguity in each situation through a certain form of control in the work environment (Crant & Bateman, 2000). This tendency to channel personal energy into active control may improve an individual's ability to manage multiple sources of occupational stress. In fact, studies have demonstrated a negative correlation between perceived control and stress-related negative outcomes at work (Troup & Dewe, 2002).

2.8.3.4 The moderating effect of proactive personality

In many previous studies, it is not difficult to find that proactive personality is often studied as an independent variable and a mediator variable. However, scholars often take personality

factors as moderating variables to investigate the relationship between psychology and behavior. Some scholars have studied the relationship between proactive personality and mental health. They took 133 university teachers as research samples to investigate the relationship between proactive personality and non-work stress and job satisfaction. It was found that proactive personality can regulate the relationship between work and non-work stressors (such as time-based work-family interference) and work/life satisfaction(Cunningham & De La Rosa, 2008).

2.8.4 Relationship between proactive personality and job performance

Job performance is one of the important factors to measure individual contribution to the organization in an enterprise. Both business owners and academic community pay much attention to the variables that can promote job performance. For a long time in the past, many scholars have been exploring the relationship between proactive personality and the variables related to job performance. Some scholars have pointed out that job performance may play a key role in career success. Proactive personalities tend to perform better than passive personalities because they "create situations and environments conducive to effective performance" (Crant, 1995). Studies have found that proactive personality can explain other differences in job performance except for the Big Five Personalities (Crant, 1995) and has been proved to predict overall performance (Chan, 2006), task performance (Thompson, 2005) and all aspects of performance (Crant, 1995).

Due to the widespread belief that individuals need to be proactive to succeed in occupations with unclear boundaries or low security, there has been a strong interest in the relationship between proactive personalities and structures related to career success. It is claimed that proactive individuals can "choose, create and influence work situations to increase the likelihood of career success" (Seibert et al., 2001) Studies show that proactive personality is positively correlated with subjective career success outcomes, such as career satisfaction and job satisfaction (Erdogan & Bauer, 2005; Seibert et al., 2001). Studies have also shown that proactive personality is positively correlated with objective career success outcomes (Byrne et al., 2008).

Jr and Marler (2009) conducted a comprehensive analysis of the relevant studies on proactive personality, taking career success as a broad organizational framework, and conducted a meta-analysis on the correlation of 313 out of 107 studies. The results show that proactive personality has significant positive correlation with objective and subjective career success. Further research suggests that sponsored mobility is associated with contest mobility, such as job performance, and sponsored mobility, such as being responsible for or advising on

certain activities. And these behaviors themselves are significantly correlated with individual career success. Therefore, the relationship between proactive personality and job performance is worthy of further attention and exploration by scholars. Jr and Marler (2009) also pointed out that the relationship between individual proactive personality and his evaluation of job performance is particularly noteworthy because it is stronger than any one of the five factors or the sum of the five factors. Proactive personality is positively correlated with various employability related variables (such as learning goal orientation, career self-efficacy) and four major trait factors (extraversion, openness to experience, conscientiousness, and neuroticism), but has nothing to do with social idealism.

A fundamental explanation for why proactive personality is positively correlated with career success lies in its basic concept, that is, people with proactive personality are likely to engage in proactive behaviors (Seibert et al., 2001). Empirical support for this concept is not surprising given that proactive personality is "a stable tendency to take personal initiative in a wide range of activities and situations" (Seibert et al., 2001) and that active behavior includes "actively improving the current environment or creating new ones" (Crant & Bateman, 2000). In short, proactive people create their environment through proactive behavior. Studies have shown that activating highly proactive employees can help enhance team self-management ability (H. M. Williams et al., 2010), thus improving team performance.

In recent years, studies on individual performance and employee job performance have also found that proactive personality influences various performance-related variables. Li et al. (2020) based on the theory of resource conservation to 27, 346 employees of China's high-tech enterprises and their supervisor has launched a three-stage questionnaire research, the results of the study showed that proactive personality and creative performance was significantly positively related to employees. Proactive employees can take advantage of their personality to build their work tasks, relationship, and cognition. This in turn promotes creative expression. Ng et al. (2019), in a project aimed at exploring the influence of psychological capital and proactive personality on college students' academic performance, took 390 college students from private universities in Malaysia as research objects and conducted a questionnaire survey. They found that psychological capital and proactive personality were positively correlated with students' academic performance. In addition, some studies have shown that leaders with high initiative led to better team performance compared with those with low initiative (Huang et al., 2020).

Based on the above research results, it is not difficult for us to conclude that proactive personality, as a standard for recruitment or employee selection, can help improve the

competitiveness of enterprises in uncertain environment (Crant, 1995). The positive impact of proactive personality on individual performance, especially in enterprises, is obvious in promoting employee's work performance.

2.9 Leader-member exchange (LMX) research

2.9.1 Definition of leader-member exchange

In the early study of traditional leadership theory, scholars mainly focused on leadership characteristics, leadership behaviors and situational factors, and formed leadership trait theory, leadership behavior theory and leadership situational theory. Fiedler's contingency model in leadership situation theory is representative. The theory believes that the effectiveness of leadership is related to the interaction of the leader, the led and the environment. For the first time, the relationship between superiors and subordinates is regarded as an important factor affecting leadership. The early leadership theory is a kind of homogeneity theory, scholars generally believe that the relationship between leaders and different subordinates is the same.

However, with the continuous development of organizational behavioral science, scholars gradually find that material and social exchanges are common between leaders and members (Dulebohn et al., 2012), and such exchanges predict the changes in the relationship between leaders and members. In 1970s, Dansereau et al. (1975) proposed the Vertical Dyad Linkage (VDL) theory for this situation, which is the basis of the LMX theory and holds that the leadership relationship occurs on the one-to-one relationship between the superior and the subordinate. It is no longer considered that leaders treat all subordinates the same, and the specific relationship formed between leaders and each subordinate is the most basic unit in research (J. Dansereau et al., 1975).

Leader-Member Exchange (LMX) is a construct proposed by Western scholars from the perspective of vertical duality theory between leaders and subordinates. Once proposed, this construct has attracted extensive attention of the academic world. Dansereau et al. (1975) theorized that in the process of communication between leaders and subordinates, due to the pressure of limited time and resources, leaders treat subordinates in different ways, and leaders will establish different intimate relationships with their subordinates, and divide them into "in-group" and "out-group". "In-group" gets more benefit, support and has higher quality exchange relations. Based on self-determination theory, the individual engaged in a particular activity is by the will of its own. Because the leaders have higher level of concern and trust on followers

from "in-group", when the leader-employee relationship has high quality, employees will get more work resources such as support, reward, and sense of security, which can help employees to work better. At the same time, this external motivation has a natural tendency to transform into internal motivation. As a result, followers with high-quality LMX relationship will have more internal motivation, love their work, take their work seriously, and be more willing to actively invest a lot of energy and time to solve problems in their work and promote the improvement of employee's work involvement. Members of "out-group" on the other hand, are seen as pure employees, and their relationships with leaders are established on a formal hierarchy of power.

Thus, Dienesch and Liden (1986) in their study described the definition of LMX as "the quality of the exchanged relationship between the superior and his subordinate employees". Due to the limitation of time and energy, leaders will allocate limited resources to employees differently based on their own cognition, so that both sides can establish communication relations at different levels at work.

Scandura (1986) believed that leader member exchange is (a) a system composed of members and their relationships (b) involving two members of the dyad (c) involving interdependent behavior patterns and (d) sharing mutual outcome means and (e) reproducing the concepts of environment, concept map and value.

Graen and Bien (1995) once again put forward the definition of LMX in their research: "the social exchange of psychological benefits or favors between leaders and members". They believed that the social exchange between leaders and subordinates was based on relationship, and this definition was widely recognized by many scholars. Graen and Bien (1995) believed that the research on leadership should be conducted from the three fields of leader, follower and the relationship between the two. On this basis, they believed that the leader member exchange absorbed the relations-based leadership method, which was operational, and its core concept was: Effective leadership is built on a partnership between leader and follower that benefits both.

F. Dansereau (1995) believes that leaders give followers a sense of self-worth, and followers may repay leaders by doing things in a way that satisfies leaders. In this process, followers not only satisfy leaders, but also satisfy their own sense of self-worth. For other individuals (non-followers), the leader does not provide them with a sense of self-worth, so non-followers' behavior will conflict with that of the leader. Graen's definition has been widely used, so this research adopts Graen's definition.

LMX describes the quality of the relationship between leaders and employees in an

organization. The development process of the theoretical model of LMX roughly goes through the following stages:

Graen and Cashman (1975) pointed out that work-to-work interaction would affect leaders' attitudes towards members, and relationship quality was the result of "negotiation process".

Dienesch and Liden (1986) believed that the process of leader member exchange needs to go through four stages: the first stage is initial communication, in which the leader makes attribution to the members; The second stage is the leadership authorization, through the task test subordinates; In the third stage, employees give feedback to leaders' authorization behavior; In the fourth stage, the leader explains the employee's behavior and determines the nature of the exchange relationship.

Since the theory of LMX was put forward, the academic circle has been enthusiastic about its research. And with the deepening of research, new constructs such as team-level LMX (TLMX), LMX Differentiation (DLMX), and Relative LMX (RLMX) have been derived.

2.9.2 Measurement of leader-member exchange

Different scholars have different understanding and research perspectives on the LMX, so they have also presented a variety of achievements in the development of measurement constructs and tools. From 2-item scale to 25-item scale, the measurement constructs and tools are very rich (Schriesheim et al., 1999). This study reviews and summarizes the measurement tools of LMX, and mainly introduces different measurement schemes of single dimension, two dimensions, three dimensions and four dimensions.

Unidimensional constructs. The unidimensional construct of LMX is based on role theory, according to which leaders test their subordinates by giving them a series of different job roles. The degree to which subordinates obey task requirements and show trustworthiness determines the type of LMX relationships. In turn, the type of LMX determines the degree to which leaders are rewarded in job-related resources such as information, challenging task assignment and autonomy (Graen & Scandura, 1987). The leader providing resources in exchange for the task behavior of the subordinates is a kind of exchange. According to Graen and his colleagues, these exchanges are limited to work-related goods. Therefore, LMX is one-dimensional, based on the work behavior of leaders and subordinates (Graen & Scandura, 1987; Graen & Uhl-Bien, 1995). Graen and Cashman (1975) also pointed out that work-to-work interaction would affect leaders' attitudes towards members, and relationship quality was the result of "negotiation process", that is, they believed that LMX was measured by the quality of leader-member working relationship, which was the only dimension. They developed the LMX 7-item scale,

which contains 7 large items and has different interpretations of specific scores under each item. In the unidimensional stage, as the definitions of LMX are constantly updated by various scholars, its measurement tools also undergo a series of developments, including: 2 item Leader member exchange scale (J. Dansereau et al., 1975), 4 item scale (Liden & Graen, 1980), 5 item scale (Graen, Liden, et al., 1982), The 7-item scale (Graen, Novak, et al., 1982), the 10-item scale, the 14-item scale, (Graen & Uhl-Bien, 1991), all these scales measure LMX based on the single-dimensional definition. However, the scale of Graen and Cashman (1975) is always the most respected.

Two dimensional constructs. Graen and Scandura (1987) proposed a two-dimensional construct for LMX, including the quality of leader-member relationship and unity. Unity refers to the willingness of the leader to allow subordinates to change their work and the leader to help employees solve problems. However, no mature measurement tool was proposed for this construct.

Three dimensional constructs. As implied in the exchange of leading members, social exchange theory is highly relevant to the study of leading member exchange (Sparrowe & Liden, 1997). Social exchange theory researchers have identified many material and immaterial goods that can be exchanged, such as suggestions, workflows, and friendships, which have been identified. Therefore, scholars believe that the exchange relationship between individuals should be multi-dimensional. When Graen and Uhl-Bien (1995) sorted out and analyzed the development of the theory of LMX in the past 25 years, they pointed out that leadership contains three main contents, namely leader, follower, and relationship, and discussed the LMX as the leadership method of relationship. Dienesch and Liden (1986) first questioned the single-dimensional construct of LMX and divided it into three dimensions, namely perceived contribution, loyalty and affect. Under their guidance, more scholars began to pay attention to the multidimensional division of LMX and devoted themselves to finding more factors. For example, the six-item scale of LMX (Schriesheim et al., 1999) contains three dimensions, loyalty, emotion, and contribution, with two items for each dimension.

Dienesch and Liden (1986) also put forward their views on whether the constructs of LMX are unidimensional or multi-dimensional. Based on the three-dimensional constructs, they proposed the hypothesis of four-dimensional constructs, arguing that LMX contains a fourth factor in addition to the three factors of emotion, loyalty, and contribution. Professional respect. Then, they took 302 in-service students as samples to analyze the four-dimensional constructs of LMX and formed scale items and tested the scale with 249 employees of two organizations. Finally, they developed a four-dimensional scale for measuring LMX, with a total of 11 items,

such as "personally, I like my boss very much "and" I respect my boss's knowledge and competence at work." Due to the high number of citations in the world and the relatively new content of the scale, this study adopted the scale to measure leader member exchange.

2.9.3 Influencing factors of leader-member exchange

2.9.3.1 Antecedent variables of leader-member exchange

Some researchers have pointed out that leaders determine the quality of LMX relations to a greater extent than members (Dienesch & Liden, 1986; Graen & Scandura, 1987). In high-quality relationships, leaders provide benefits to members, including consideration of members' needs, assistance with problems at work, emotional support, and formal and informal rewards (Gerstner & Day, 1997). Previous studies have examined transformational leadership (Pillai et al., 1999), trusted members of leaders (Gomez & Rosen, 2001), as well as other leaders, members, or interpersonal relationship characteristics (Dulebohn et al., 2012) that are prerequisites for the quality of the leader member exchange.

Some researchers have also pointed out the predictive effect of trust on LMX. Trust refers to a person's willingness to be hurt by another party whose actions are not under his or her control (Zand, 1972). As Liden and Graen (1980) pointed out, the degree to which leaders give preferential treatment to members depends on the degree to which leaders trust members. That is, leaders treat member trust well "to the extent that they can" (especially when not monitored by supervisors) (Liden & Graen, 1980). When leaders show trust in their subordinates, they signal that a high-quality relationship exists (Brower et al., 2000). Therefore, leader trust plays a crucial role in the development of enterprises and predicts higher quality leader-member relationships, because trust generates expectations of common concern or a sense of common destiny (Brower et al., 2000).

Based on the principle of reciprocity (Gouldner, 1960), the theory of LMX holds that positive evaluation of the quality of LMX leads to positive work behaviors and attitudes of members (Liden et al., 1997). In this case, some researchers hypothesized that leader's beneficial behavior would lead to positive evaluation of LMX. Leaders use their power to help members solve problems at work, support their actions and consider their needs, leading to members' positive evaluation of the quality of exchange between leading members (Scandura & Graen, 1984). This leadership treatment is akin to the kind of individualized consideration described in leadership type research. Personalized consideration refers to the degree to which leaders support members and pay attention to their needs (Bass, 1985). Through the process of

personal identity, leaders who provide more support and pay attention to the needs of their members can evoke a more positive view of the LMX among these members. As Deluga (1992) pointed out, transformational leadership may promote the formation of high-quality relationships and a sense of belonging and common destiny with individual subordinates.

2.9.3.2 Result variable of leader-member exchange

The core principle of LMX theory is that leaders treat each member differently, and the quality of LMX can be from low to high (Graen & Uhl-Bien, 1995; Liden et al., 1997). Social exchange theory is usually used to explain the positive effects of high-LMX. Blau (1964) defined social exchange as an indefinite obligation arising from a favor received. Because leaders initiate social communication by giving preferential treatment to some members (Graen & Uhl-Bien, 1995), members in turn feel that in return they must work harder to benefit the leader (Liden et al., 1997). Thus, a key tenet of the LMX theory is that members' working attitudes and behaviors depend on how their leaders treat them. Meta-analyses of early scholars focused on summarizing the outcomes of LMX and supported the outcome variables related to performance behaviors and attitudes (Gerstner & Day, 1997; Ilies et al., 2007) such as the positive correlation between job satisfaction, emotional and normative commitment, or turnover intention (Dulebohn et al., 2012).

LMX describes the quality of the relationship between leaders and employees in an organization (Graen & Uhl-Bien, 1995). Due to time and resource constraints, leaders and employees develop differentiated exchange relations. Employees who enjoy high-quality LMX can obtain more authorization, trust, and emotional support (Judge & Hurst, 2007), and their task performance and organizational citizenship performance are also better. Based on the social exchange theory, Zhang et al. (2015) found that LMX can positively drive employee’s active innovation behavior.

2.9.4 Relationship between leader-member exchange and job performance

Job performance is the most frequently studied concept associated with the variable of leader member exchange (Dulebohn et al., 2012), and it is clearly a key prerequisite and outcome variable associated with leader member exchange. Therefore, Job performance is often involved in discussions of theoretical models of LMX (Dienesch & Liden, 1986; Dulebohn et al., 2012; Liden et al., 1993), job performance has also been widely concerned due to its own dynamics (Sturman, 2007).

Scandura and Graen (1984) took 83 computer processing employees from a large service organization as samples to conduct an experimental study on the moderating effect of initial LMX status on Leadership Intervention. The hypothesis is that employees with low initial leader member exchange have a more positive response to leadership intervention than those with high initial leader member exchange. The results showed that, after leadership intervention, the employees with low level of initial LMX showed a significant increase in productivity, job satisfaction and leadership satisfaction. In addition, their member availability and support from leaders were significantly higher than those with high initial leader member exchange level. Therefore, the quality of initial LMX can modulate the effect of leadership intervention. The variable of leader member exchange has been used as a moderating variable to investigate its influence on the variable of work outcome after it was proposed.

Graen and Uhl-Bien (1995) pointed out that employee's self-expression is influenced by interpersonal relationship, and LMX is an important interpersonal relationship in the workplace. In high-quality LMX, leaders and subordinates trust and support each other, and continuously exchange material and non-material resources (Dulebohn et al., 2012). However, low-quality LMX is regarded as economic exchange based on formal contract (Sparrowe & Liden, 1997).

Kammeyer-mueller et al. (2013) believe that interpersonal interaction plays an important role in the process of employees, especially new employees, adapting to the environment. As the product of the initial interaction between the leader and subordinates, initial LMX is likely to play an important role in the socialization process of new employees. For example, Scandura and Graen (1984) pointed out in an empirical study that initial leader member exchange moderates the effect of leadership intervention, that is, the initial leader member exchange between the leader and the subordinate moderates the influence of the leader on employee behavior. With high-quality leader member exchange, employees will perceive stronger leader support, gain higher trust, and thus have greater space for self-expression (Scott & Bruce, 1994). Further, High-quality leader member exchange will also make employees feel more psychological security, so that they are more likely to make active adjustments and changes to the job, that is, to have an impact on the final job performance behavior.

Research shows that job performance does change over time and is influenced by both stable factors (e.g., cognitive ability, personality) and unstable factors (e.g., work knowledge, motivation, leadership) (Day et al., 2004; Dudley et al., 2006; Sturman, 2007). In the context of LMX relationship, the change of individual unstable factors (such as leadership) will promote the change of performance over time. As a result, both parties continue to develop other attitudes and behavioral factors, such as trust and support and subsequent performance

evaluations, alongside each other's work performance (Nahrgang et al., 2009). Therefore, previous studies have pointed out that subordinate's job performance is the main reason for the difference of LMX relationship in the early stage, and in turn will affect the LMX relationship in the later stage (Bauer & Green, 1996; Dienesch & Liden, 1986; Nahrgang et al., 2009). Considering that performance plays a key role in the relationship with leader member exchange, the development of leader member exchange over time must be understood in combination with the dynamic characteristics of job performance.

According to the theory of leader-member exchange, leaders will develop differentiated exchange relations with employees, and employees who enjoy high-quality LMX will get more encouragement, authorization, trust, and emotional support (Deng et al., 2017). In contrast, based on the view of relative deprivation of social comparison, low-quality LMX leads to less empowerment, trust and emotional support for employees. Therefore, LMX may be strongly correlated with employee's intrinsic motivation and behavioral performance (L. Zhou et al., 2012). In a three-period longitudinal study of 411 employees, Hussain and Arif (2018) pointed out that LMX played a mediating role in the relationship between organizational commitment and job performance, that is, organizational commitment positively predicts job performance through LMX. As for the impact of the quality difference of LMX on team performance, Manata (2019) pointed out that the quality difference of LMX has a significant impact on teamwork performance, and this impact relationship is moderated by task cohesion. However, some scholars have pointed out in the latest study that the influence of leader member exchange on performance is not linear, but an inverted U-shaped relationship (Lonescu & Lliescu, 2021). In the study, Lonescu and Lliescu took 42 leaders and 274 subordinates from different work environments as samples. In the form of questionnaire survey, leaders rate the performance of their direct subordinates, and subordinates rate the exchange of their leaders. The results of Hierarchical Linear Modeling show that when leaders have a high sense of interpersonal justice, The relationship between the affective dimension of leader member exchange and task performance was inverted U shape. In addition, this study also found that the professional respect dimension of LMX had an unmoderated nonlinear effect on task performance. The results show that moderate level of leader member exchange (i.e., slightly above average, especially the influence dimension of leader member exchange) maximizes subordinates' task performance, while high level of leader member exchange is preferable for leaders who are interpersonal fair.

2.10 Job performance

2.10.1 Definition of job performance

Viswesvaran and Ones (2000) believe that job performance refers to the actions, behaviors and results that can be performed by employees through personal participation or bringing, which are related to and conducive to the realization of organizational goals.

Borman and Motowidlo (1993) divided job performance into task performance and relationship performance. Task performance refers to the contributions made by employees to the technical core of the organization through direct production activities, materials and services, such as productivity and proficiency in completing career-oriented tasks, which may vary with the knowledge structure, work skills and work experience of employees. Relational performance is not a direct production and service activity but refers to the behavior that helps an organization maintain and improve the social and psychological background of its core business, such as voluntary behavior, pro-organization behavior. It is influenced by individual's work attitude and motivation and other personality variables. Relationship performance can not only promote communication within an organization, play a lubricating role in social interaction and reduce emotional responses of tension, but also promote task performance and improve organizational efficiency overall (Borman & Motowidlo, 1993).

Motowidlo and Van Scotter (1994) further divided relationship performance into interpersonal facilitation and job dedication. Interpersonal facilitation behavior mainly refers to all the behaviors taken by employees at work to promote the formation of harmonious interpersonal relationship to obtain higher work performance. Job dedication mainly emphasizes employee’s dedication behaviors, such as dedication, compliance with rules and innovation. Ford et al. (2011) believe that relational performance includes performance variables such as out-of-role behavior, citizenship behavior, assuming leadership roles not specified in individual job description, extra effort, altruism and conscientiousness, interpersonal performance, and promoting others' work. These dimensions differ from the behavior defined for the role.

Recently, many studies suggested that job performance should also include behaviors that are detrimental to organizational goals. Counter-productive work behavior (CWB) refers to activities aimed at harming the organization and/or various stakeholders of the organization, such as customers, colleagues, clients, and supervisors (Spector et al., 2006).

2.10.2 Measurement of job performance

The job performance scale developed by Williams and Anderson (1991) measures task performance and is a commonly used scale to measure task performance. It is a self-reported scale and is evaluated based on one's real performance at work. There are seven projects in total. Including role performance and organizational citizenship behavior two dimensions. In-role performance (task performance) refers to that employees complete the work within their job responsibilities according to the job description, while organizational citizenship behavior refers to that employee volunteer to do the work outside their job responsibilities that is conducive to the realization of organizational goals. The evaluator of this scale is the direct supervisor of the employee and adopts 7-point Likert scale. The problem of the example is that the employee can fully complete the task, the employee performs his/her duties well.

There are many scales to measure organizational citizenship behavior, each with different emphases. Mainly from single dimension to multi-dimension rich development; From foreign measurement to local development based on China's national conditions, the measurement of organizational citizenship behavior becomes more and more diversified.

Lee and Allen (2002) combined previous studies to select behavioral items that clearly benefit individuals and organizations. Including eight items reflecting interpersonal altruism (OCBI) and eight items reflecting organizational benefit (OCBO). Use a 7-point Likert scale, with 1 meaning "strongly disagree" and 7 meaning "strongly meaning". Typical questions include "offering to help an absent colleague," "going out of your way to make the new hire feel welcome on the team," "participating in activities that are not necessary but help the organization's image," and "keeping up with company developments." This scale is widely used and applied.

2.10.3 Factors affecting job performance

The research on job performance has always been an important research object in economics, management, psychology, and other fields. It is of great significance to explore the influencing factors of job performance and meet the needs of enterprises and employees to improve the competitiveness of enterprises and employee’s work. Through the review of domestic and foreign literature, it is concluded that the factors affecting job performance mainly include two levels: individual and organization.

2.10.3.1 Organization

In the current research, organization involves direct or indirect factors, including the relationship between superiors and subordinates, leadership style, organizational style.

Fu and Deshpande (2014) conducted a questionnaire survey on 476 employees of an insurance company in China, and studied the relationship between caring atmosphere, job satisfaction, organizational commitment, and job performance. The results show that caring atmosphere has a significant direct impact on job satisfaction, organizational ability, and job performance. Caring climate has a significant indirect impact on organizational commitment through the mediating role of job satisfaction and has a significant indirect impact on job performance through the mediating role of job satisfaction and organizational commitment. In addition, job satisfaction has a significant direct impact on organizational commitment, and through organizational commitment has a significant indirect impact on job performance. Finally, organizational commitment has a significant direct impact on job performance.

Many studies have proved that job design plays a crucial role in maximizing job performance. A well-designed job keeps employees engaged and satisfied, prompting them to devote all their energy to the job. Zareen et al. (2013), based on literature review and personal observation, elaborated the conceptual framework of job design from three aspects of job rotation, job enrichment and job enlargement, analyzed the impact of job design on employee performance, and assumed that the "psychological perception" of employees plays a moderating role in both. It is found that employee's psychological perception plays a significant moderating role in the relationship between job design and employee performance.

For the study of the influence on employee performance by the four key elements of organizational culture, namely organizational values, organizational climate, leadership style and workflow, Wambugu (2014) took 63 staff from different levels of an organization as samples and conducted questionnaire survey. The results showed that the organization values have more significant influence on employee's work performance, and workflow has a significant impact on employee performance.

McGregor's X/Y theory, one of the most famous theories in organizational behavior management, assumes that employees perform better under self-directed and self-motivated managers, although widely accepted, but has not been tested by empirical research. Lawter et al. (2015) conducted a scale survey on managers and subordinates in four for-profit institutions in the Northeast of the United States and confirmed that there was a significant correlation between managers' attitudes and behaviors and job performance, and that managers' behaviors

completely regulated the relationship between managers' attitudes and individual and organizational performance.

Job characteristics include skill diversity, task identification, task importance, autonomy, and feedback. To study the relationship between job characteristics and job performance and verify whether job engagement plays a mediating role in this relationship hypothesis, Johari and Yahya (2016) conducted a questionnaire survey on 256 civil servants in Malaysia and found that task importance and feedback had a significant impact on job performance. Job engagement plays a mediating role between them.

2.10.3.2 Individual

The research on the influencing factors on individual mainly focuses on motivation, emotional intelligence, job engagement, personality, core self-evaluation and other direct or indirect factors.

Previous studies believe that perceived job autonomy can lead to the improvement of intrinsic motivation level, then the improvement of job performance. Dysyik and Kuvaas (2011) proposed the hypothesis that intrinsic motivation moderates the relationship between perceived job autonomy and job performance. A questionnaire survey of 302 employees from different service organizations in Norway showed that intrinsic motivation moderates the relationship between perceived job autonomy and self-report and job performance evaluated by immediate supervisors.

The direct impact of emotional intelligence on health-related outcomes or performance has been extensively studied. Lindebaum (2013) attempted to explore the interactive influence of emotional intelligence on these variables and proposed the hypothesis that emotional intelligence regulates the relationship between mental health and job performance. Emotional intelligence partially moderates the relationship between mental health and job performance, according to a survey of British public sector workers and their line managers.

Although the relationship between personality and individual job performance has been well known, few studies have considered the impact of team-level personality on team performance. To study the influence of personality on team performance, O'Neill and Allen (2011) conducted a questionnaire survey among more than 500 engineering design team students and found that responsibility and its various aspects can predict team performance. Agreeableness, extraversion, and neuroticism had no significant effect on team performance, while openness was negatively correlated with team performance.

2.11 Model hypotheses of the research

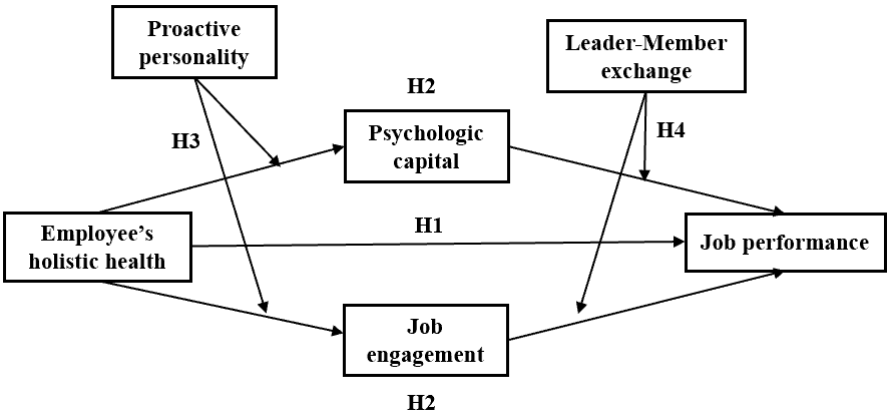


Figure 2.1 Model assumptions of the research

The model assumptions of this research are shown in the above figure:

Hypothesis 1: All dimensions of employee's holistic health positively predict job performance.

Hypothesis 2: Psychological capital and job engagement play a mediating role in the relationship between employee's holistic health and job performance.

Hypothesis 3: Proactive personality moderates the mediating role of psychological capital and job engagement in the relationship between employee's holistic health and job performance, and the moderating role occurs in the first half of the path of the model.

Hypothesis 4: LMX moderates the mediating role of psychological capital and job engagement in the relationship between employee's holistic health and job performance, and the moderating role takes place in the second half of the path of the model.

Chapter 3: Research Method

3.1 Research object

A total of 1410 employees of a manufacturing company in Guangdong province were included in this study.

3.2 Research methods

The research object of this study is employees, and it is divided into two assessments, which are conducted at T1 (June 2021) and T2 (November 2021). In this survey, with the support of the company's human resources department, employees were organized to fill out questionnaires in the canteen of the company. During the survey, each employee filled out the questionnaire independently and there was no communication and discussion among the employees.

The specific arrangement of study variables is shown in Table 3.1 below.

Table 3.1 Summary of Research Variables

Variable type	Variable name	Test time	
Control variables	Age, Gender	T1	
Independent variables	Employee's holistic health (physical health + mental health + co-worker relationship health + family relationship health + sleep health)	T1	
Moderating variables	Proactive personality, leader-member exchange	T1	
Mediating variables	Psychological capital, job engagement		T2
Dependent variable	Job performance		T2

3.3 Measuring tools

Unless otherwise noted, all variables were measured using a 5-point Likert scale (1=strongly disagree, 5=strongly agree).

3.3.1 Measurement of job performance

The self-rating scale of job performance developed by L. J. Williams and S. E. Anderson (1991) was adopted. The scale contained 21 questions, which were divided into two dimensions, in-duty behavior, and organizational citizenship behavior. Examples include "I can perform what is assigned to me" and "I do what is expected of me." To be filled in by the employee at T2. Please refer to Appendix 1 for details:

Objective performance, provided by the HR department of the company, was assessed in October 2021.

3.3.2 Measurement of employee's holistic health

The employee's holistic health measurement scale was divided into five dimensions including physical health, mental health, family relationship health, co-worker relationship health and sleep health. All were measured among employee at T1.

(1) Physical health scale adopts the physical well-being scale developed by Spector and Jex (1998), which contains 13 questions in total. Instructions "This section is a behavioral description of your physical condition. Please read each sentence carefully and evaluate each item based on the actual situation over the past month and on a 5-point scale: 1=never, 2=once or twice, 3=once or twice a week, 4=most of the time, 5=every day. Please refer to Appendix 2 for details.

(2) The mental health scale adopts the scale developed by McCarthy et al. (2016), which contains 8 items in total. Please refer to Appendix 3 for details:

(3) The family relationship health scale adopts the social Emotional Loneliness scale developed by DiTommaso and Spinner (1993), which contains 11 questions in total. Please refer to Appendix 4 for details.

(4) Co-worker Relationship Health Scale Adopts the co-worker relationship scale developed by May (2004), which contains 10 questions in total. Please refer to Appendix 5 for details.

(5) The sleep health scale adopts the sleep problems scale developed by Jenkins et al. (1988), which contains four questions in total. Instructions "This section is a behavioral description of your physical condition. Please read each sentence carefully and evaluate each item based on the actual situation over the past month and on a 5-point scale: 1=never, 2=once or twice, 3=once or twice a week, 4=most of the time, 5=every day. Please refer to Appendix 6 for details.

3.3.3 Measurement of psychological capital

Psychological capital uses the psychological capital scale developed by F. Luthans et al. (2007), which contains 24 items in total. It is divided into four dimensions: self-efficacy, hope, optimism, and resilience. All were measured among employees at T2. Please refer to Appendix 7 for details.

3.3.4 Measurement of job engagement

The job engagement scale developed by Rich et al. (2010) was adopted, which contained 18 items in total. All were measured among employees at T2. Please refer to Appendix 8 for details.

3.3.5 Measurement of leader-member exchange

Leader-member exchange uses the LMX scale developed by Liden and Maslyn (1998), which contains 11 questions in total. All were measured among employees at T1. Please refer to Appendix 9 for details.

3.3.6 Measurement of proactive personality

The active personality scale adopts the active personality scale developed by Bateman and Crant (1993), which contains 17 items in total. All were measured among employees at T1. Please refer to Appendix 10 for details.

3.4 Research logic and steps

The researcher conducted statistical analysis step by step, with the aim of checking out if the hypotheses are supported and figuring out a comprehensive mediating model with moderating. In the proposed model (Figure 2.1 Model assumptions of the research), the independent variable is employee's holistic health, the dependent variable is job performance, the mediating variables are psychological capital and job engagement, and the moderating variable is proactive personality and leader-member exchange, in which the moderating effect of proactive personality takes place on the path from independent variable to mediating variable, and the moderating effect of Leader-member exchange takes place on the path from mediating variable to dependent variable.

To explain the rationality and complexity of variables and their relationships for the final integration model, before testing the final overall model, report how to gradually develop from

a simple mediating model to a final complex integration model. Specifically, the steps are as follows:

The first step is to analyze the relationship between five different kinds of health and performance, that is, the main effect.

The second step is to analyze the mediating role of psychological capital and job engagement in the relationship between health and performance, that is, to introduce the mediating role based on the first step.

The third step is to analyze the moderating effect of proactive personality and Leadership-member exchange on mediation. Based on the second step, a mediating role with moderation is introduced.

The fourth step is to obtain the final optimal model.

Chapter 4: Research Results

4.1 Common method deviation test

This research adopts correlation method, and all data are from questionnaire survey off-line. Therefore, theoretically common method bias in the research data may exist. To control the common method bias, the research adopted some program-controlled methods, such as ensuring the subjects believe in the anonymity of the survey and reverse scoring of some survey items. After obtaining valid data, Harman single factor test was used to conduct exploratory factor analysis on the data. The results showed that in the case of no rotation, there were 27 factors with eigenvalues greater than 1, explaining 66.28% of the variance in total, and the variance explained by the first factor was 17.60%, far less than the critical standard of 40%. All the above results indicate that there is no serious common methodological bias in this study.

4.2 Descriptive statistics and correlation analysis

The correlation coefficients between variables and their mean values are calculated respectively, and the results are shown in Table 4.1. As it can be seen from Table 4.1, the relationship between employee job performance and holistic health (physical health: r=.09, *P*<.01; Sleep health: r=.09, *P*<.01; Co-worker relationship health: r=.26, *P*<.01; Family health: r=.25, *P*<.01; Mental health: r=.11, *P*<.01), Psychological capital (r=.64, *P*<.01), Job engagement (r=.69, *P*<.01), Leader-member exchange (r=.21, *P*<.01), Proactive personality (r=.30, *P*<.01) were significantly positively correlated. Psychological capital and holistic health (physical: r=.12, *P*<.01; Sleep: r=.12, *P*<.01; Co-worker: r=.31, *P*<.01; Family health: r=.19, *P*<.01; Mental health: r=.12, *P*<.01), job engagement (r=.70, *P*<.01), Leader-member exchange (r=.22, *P*<.01), Proactive personality (r=.37, *P*<.01) were significantly positively correlated. The relationship between job engagement and holistic health (health: r=.13, *P*<.01; Sleep: r=.11, *P*<.01;Colleague: r=.27, *P*<.01; Family health: r=.21, *P*<.01; Psychological health: r=.09, *P*<.01), psychological capital (r=.70, *P*<.01), leader member exchange (r=.24, *P*<.01), proactive personality (r=.31, *P*<.01) were significantly positively correlated.

Table 4.1 Descriptive statistics and correlation analysis results of each variable

variable	1	2	3	4	5	6	7	8	9	10	11	12
1. Gender	1											
2. Age	- .06*	1										
3. Physical health	.16**	.07**	1 (.90)									
4. Sleep health	.11**	. 02	.72**	1 (.91)								
5. Co-worker relationship health	. 02	. 08**	.16**	.17**	1 (.90)							
6. Family relationship health	-.00	.10**	.14**	.09**	.28**	1 (.85)						
7. Mental health	.05	.04	.29**	.27**	.11**	.14**	1 (.92)					
8. Psychological capital	. 08**	.08**	.12**	.12**	.31**	.19**	.12**	1 (.90)				
9. Job engagement	-.07 **	.16**	.13**	.11**	.27**	.21**	.09**	.70**	1 (.96)			
10. Leader-member exchange	.02	.02	.19**	.14**	. 39**	.23**	-.01	.22**	.24**	1 (. 88)		
11. Proactive personality	.08**	.08**	0.05	.06*	.46**	.31**	.02	.37**	.31**	.35**	1 (.87)	
12. Job performance	-.01	.10**	.09**	.09**	.26**	.25**	.11**	.64**	.69**	**.21****	.30**	1 (.89)
M	0.64	30.36	4.25	3.85	3.61	4.33	3.35	3.54	3.87	3.50	3.59	3.89
SD	0.48	6.52	0.58	0.93	0.54	0.50	0.88	0.49	0.62	0.58	0.44	0.48

Note: Cronbach's Alpha coefficient of each variable is shown in brackets. *P<.05, **P<.01. The same below.

4.3 Path analysis

4.3.1 Path analysis and the test of the mediating effect of psychological capital on the relationship between employee's holistic health and job performance

4.3.1.1 Path analysis and the test of the mediating effect of psychological capital on the relationship between physical health and job performance

After controlling gender and age, physical health was taken as the independent variable, job performance as the dependent variable, and psychological capital as the mediating variable to construct a mediating path model. The bootstrapping method was used to test the mediating effect. The sample number was set as 5000 and the confidence interval was set as 95%. Model results, as shown in Figure 4.1(a).

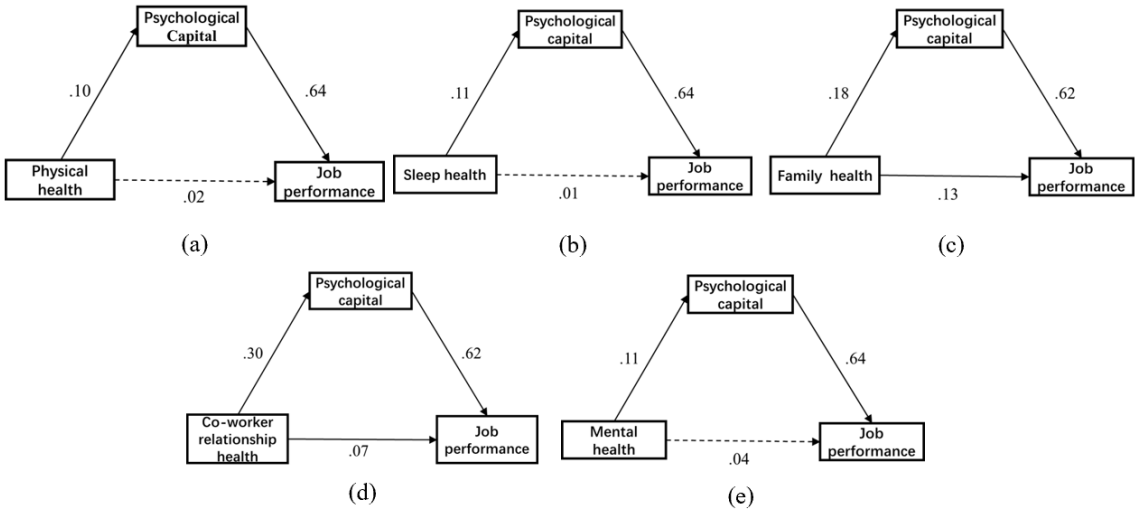


Figure 4.1 Path analysis and the test of the mediating effect of psychological capital on the relationship between employee's holistic health and job performance

Note: (a) Path model with physical health as independent variable and psychological capital as mediating variable; (b) Path model with sleep health as independent variable and psychological capital as mediating variable; (c) Path model with family health as independent variable and psychological capital as mediating variable; (d) Path model with co-worker health as the independent variable and psychological capital as the mediating variable; (e) Path model with mental health as independent variable and psychological capital as mediating variable.

Except for the path between physical health and job performance, the regression coefficients of all variables in the model were statistically significant (all $P<.05$), as shown in Table 4.2. Physical health can positively predict the occurrence of psychological capital, and psychological capital can positively predict the improvement of job performance. Physical health has both direct and indirect effects on job performance, but only the path of indirect effects has statistical significance ($P<.05$), indicating that psychological capital plays a complete mediating role in the influence of physical health on job performance, with the

mediating effect being 0.103*0.642=0.066, 95%CI [.031,.105]. If 0 is not included, this mediation effect is statistically significant.

Table 4.2 The test of the mediating effect of psychological capital on the relationship between physical health and job performance

The dependent variable	The independent variables	R2	B	t	95% confidence interval
Psychological capital	Physical health	.98	.10	3.56***	[.05. .16]
Job performance	Physical health	.58	.64	23.50***	[.59, .70]
	Psychological capital		.02	.26	[- .02, .07]

Note: Both predictive variables and dependent variables were standardized. $^{*}P<.05$, $^{**}P<.01$, $^{***}P<.001$.

The direct effect of physical health on job performance is.024, and the 95% confidence interval is [-.017,.064], including 0. The mediating effect of psychological capital is. 066, the 95% confidence interval is [.031,.105], excluding 0, indicating that only physical health has a statistically significant mediating effect on job performance.

4.3.1.2 Path analysis and the test of the mediating effect of psychological capital on the relationship between sleep health and job performance

After controlling gender and age, sleep health was taken as the independent variable, job performance as the dependent variable, and psychological capital as the mediating variable to construct a mediating path model. The bootstrapping method was used to test the mediating effect. The sample number was set as 5000 and the confidence interval was set as 95%. The model results are shown in Figure 4.1(b).

Except for the path from sleep health to job performance, the regression coefficients of all variables in the model were statistically significant (all $P<.05$), as shown in Table 4.3. Sleep health can positively predict the occurrence of psychological capital, and psychological capital can positively predict the improvement of job performance. Sleep health had both direct and indirect effects on job performance, but only the path of indirect effects was statistically significant ($P<.05$), indicating that psychological capital played a complete mediating role in the influence of sleep health on job performance, with the mediating effect being 0.112*0.643=0.072, 95%CI [.037, .110]. If 0 is not included, this mediation effect is statistically significant.

Table 4.3 The test of the mediating effect of psychological capital on the relationship between sleep health and job performance

The dependent variable	The independent variables	R^2	B	t	95% confidence interval
Psychological capital	Sleep health	.97	.11	3.95***	[.06, .17]
Job performance	Sleep health	.58	.01	.61	[-03, .05]
	Psychological capital		.64	23.15***	[.59, .70]

Note: Both predictive variables and dependent variables were standardized. *P<.05, **P<.01, ***P<.001.

The direct effect of sleep health on job performance is .012, and the 95% confidence interval is [-.028,.052], including 0, while the mediating effect of psychological capital is .072, and the 95% confidence interval is [.037,.110], excluding 0, indicating that only sleep health has a statistically significant mediating effect on job performance.

4.3.1.3 Path analysis and the test of the mediating effect of psychological capital on the relationship between family relationship health and job performance

After controlling gender and age, a path model with psychological capital as the mediating variable was constructed with family health as the independent variable, job performance as the dependent variable, and psychological capital as the mediating variable. The bootstrapping method was used to test the mediating effect. The sample number was set as 5000 and the confidence interval was set as 95%. The model results are shown in Figure 4.1 (c).

Regression coefficients between variables in the model were statistically significant (all P<.05), as shown in Table 4.4. Family relationship health can positively predict the occurrence of psychological capital, psychological capital can positively predict the improvement of job performance, and family relationship health can positively predict the improvement of job performance. Family relationship health had both direct and indirect effects on job performance, and the indirect and direct paths were statistically significant (P<.05), indicating that psychological capital played a partial mediating role in the effect of family relationship health on job performance, with the mediating effect being 0.182*0.621=0.113. The proportion of the mediating effect to the total effect was 0.113/0.242=46.7%, with 95%CI [.079,.150], excluding 0, indicating that the mediating effect was statistically significant.

Table 4.4 The test of the mediating effect of psychological capital on the relationship between family health and job performance

The dependent variable	The independent variables	R^2	B	t	95% confidence interval
Psychological capital	Family health	.95	.18	6.67***	[.13, .24]
Job performance	Family health	.56	.13	6.04***	[.09, .17]
	Psychological capital		.62	22.23***	[.57, .68]

Note: Both predictive variables and dependent variables were standardized. *P<.05, **P<.01, ***P<.001.

The direct effect of family relationship health on job performance is .129 (95% confidence interval [.088,.171], excluding 0), and the mediating effect of psychological capital is .113 (95% confidence interval [.080,.150], excluding 0). The mediating and direct effects of family health on job performance were statistically significant.

4.3.1.4 Path analysis and the test of the mediating effect of psychological capital on the relationship between co-worker relationship health and job performance

After controlling for gender and age, a path model was constructed with co-worker relations health as the independent variable, job performance as the dependent variable and psychological capital as the mediating variable. The bootstrapping method was used to test the mediating effect. The sample number was set as 5000 and the confidence interval was set as 95%. Model results, as shown in Figure 4.1 (d).

Regression coefficients between variables in the model were statistically significant (all P<.05), as shown in Table 4.5. Co-worker relationship health can positively predict the occurrence of psychological capital, psychological capital can positively predict the improvement of job performance, and co-worker relationship health can positively predict the improvement of job performance. There were both direct and indirect effects of co-worker relationship health on job performance, and the indirect and direct paths were statistically significant (P<.05), indicating that psychological capital played a partial mediating role in the effect of co-worker relationship health on job performance, and the mediating effect was 0.300*0.624=0.187. The proportion of the mediating effect in the total effect was 0.187/0.255=73.3%, with 95%CI [.150, .230], excluding 0, indicating that the mediating effect was statistically significant.

Table 4.5 The test of the mediating effect of psychological capital on the relationship between co-worker relationship health and job performance

The dependent variable	The independent variables	R^2	B	t	95% confidence interval
Psychological capital	Co-worker relationship health	.90	.30	9.81***	[.24, .36]
Job performance	Co-worker relationship health	.57	.07	2.91**	[.02, .11]
	Psychological capital		.62	21.77**	[.57, .68]

Note: Both predictive variables and dependent variables were standardized. *P<.05, **P<.01, ***P<.001.

The direct effect of co-worker health on job performance is.068, with 95% confidence interval [.022,.114] excluding 0, and the mediating effect of psychological capital is .187, with 95% confidence interval [.150, .230] excluding 0. The mediating effect and direct effect of co-worker relationship health on job performance were statistically significant. As shown in Table 4.5.

4.3.1.5 Path analysis and the test of mediating effect of psychological capital on the relationship between mental health and job performance

After controlling for gender and age, mental health was taken as the independent variable, job performance as the dependent variable, and psychological capital as the mediating variable to construct a mediating path model. The bootstrapping method was used to test the mediating effect. The sample number was set as 5000 and the confidence interval was set as 95%. Model results, as shown in Figure 4.1 (e).

Except for the path of mental health on job performance, the regression coefficients of all variables in the model were statistically significant (all P<.05), as shown in Table 4.6. Mental health can positively predict the occurrence of psychological capital, and psychological capital can positively predict the improvement of job performance. Mental health has both direct and indirect effects on job performance, and only indirect paths have statistical significance (P<.05), indicating that psychological capital plays a complete mediating role in the influence of mental health on job performance, with the mediating effect being 0.113*0.641=0.072, 95%CI [.035, .111], excluding 0, the mediating effect was statistically significant.

Table 4.6 The test of the mediating effect of psychological capital on the relationship between mental health and job performance

The dependent variable	The independent variables	R^2	B	t	95% confidence interval
Psychological capital	Mental health	.97	.11	3.74***	[.05, .17]
Job performance	Mental health	.58	.04	1.77	[- 00, 08]
	Psychological capital		.64	23.59***	[.59, .69]

Note: Both predictive variables and dependent variables were standardized. *P<.05, **P<.01, ***P<.001.

The direct effect of mental health on job performance is.036, and the 95% confidence interval is [-.003,.079], including 0. The mediating effect of psychological capital is.072, and the 95% confidence interval is [.035, .111], excluding 0, indicating that the mediating effect and direct effect of mental health on job performance are statistically significant. As shown in Table 4.6.

4.3.2 Path analysis and the test of mediating effect of job engagement on the relationship between employee's holistic health and job performance

4.3.2.1 Path analysis and the test of mediating effect of job engagement on the relationship between physical health and job performance

After controlling gender and age, physical health was taken as the independent variable, job performance was taken as the dependent variable, and job engagement was taken as the mediating variable to construct a path model. The bootstrapping method was used to test the mediating effect. The sample number was set as 5000 and the confidence interval was set as 95%. Model results, as shown in Figure 4.2(a).

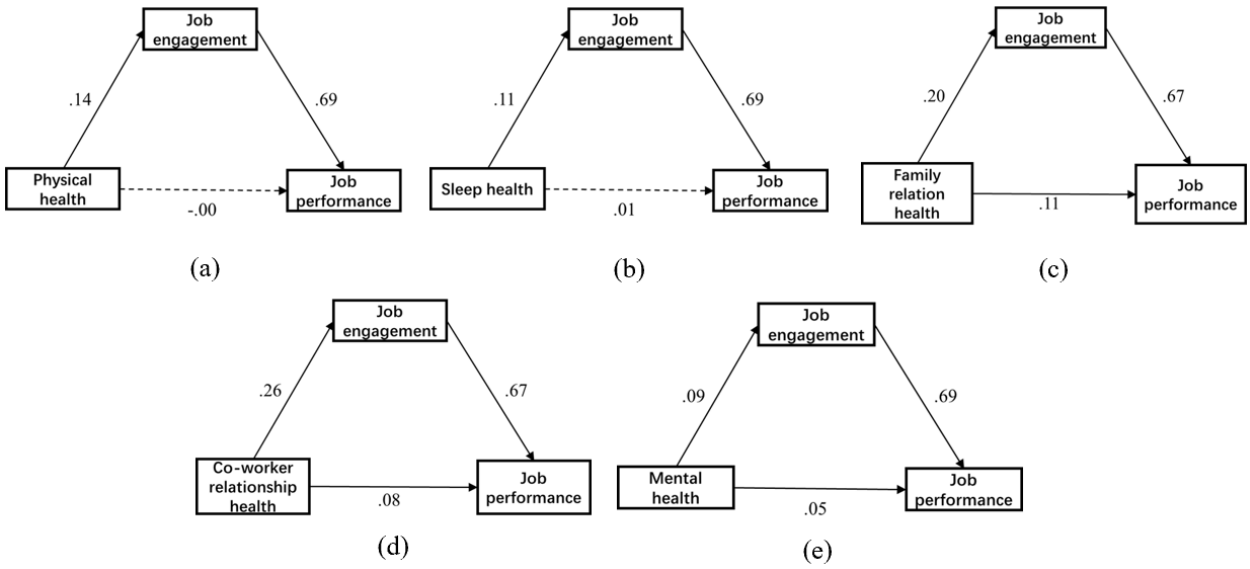


Figure 4.2 Path analysis and the test of the mediating effect of job engagement on the relationship between employee's holistic health and job performance

Note: (a) Path model with physical health as independent variable and job engagement as mediating variable; (b) Path model with sleep health as independent variable and job engagement as mediating variable; (c) Path model with family health as independent variable and job engagement as mediating variable; (d) Path model with co-worker health as the independent variable and job engagement as the mediating variable; (e) Path model with mental health as independent variable and job engagement as mediating variable.

Except for the path between physical health and job performance, the regression coefficients of all variables in the model were statistically significant (all $P<.05$), as shown in Table 4.7. Physical health can positively predict the occurrence of job engagement and job engagement can positively predict the improvement of job performance. Physical health has both direct and indirect effects on job performance, but only the path of indirect effects has statistical significance ($P<.05$), indicating that job engagement plays a complete mediating role in the influence of physical health on job performance, with the mediating effect being 0.137*0.691=0.094, 95%CI [.053,.139]. If 0 is not included, this mediation effect is statistically significant.

Table 4.7 The test of the mediating effect of job engagement on the relationship between physical health and job performance

The dependent variable	The independent variables	R^2	B	t	95% confidence interval
Job engagement	Physical health	.95	.14	4.29***	[.08, .20]
Job performance	Physical health	.53	-.00	-.18	[-.05, .04]
	Job engagement		.69	28.28***	[.64, .74]

Note: Both predictive variables and dependent variables were standardized. *$P<.05$, **$P<.01$, ***$P<.001$.

The direct effect of physical health on job performance is -.004, and the 95% confidence interval is [-.045,.038], including 0. The mediating effect of job engagement is.094, and the 95% confidence interval is [.053,.139], excluding 0, indicating that only physical health has a statistically significant mediating effect on job performance.

4.3.2.2 Path analysis and the test of the mediating effect of job engagement on the relationship between sleep health and job performance

After controlling for gender and age, sleep health was taken as the independent variable, job performance as the dependent variable, and job engagement as the mediating variable, to construct a path model with job engagement as the mediating variable. The bootstrapping method was used to test the mediating effect. The sample number was set as 5000 and the confidence interval was set as 95%. The model results are shown in Figure 4.2(b).

Except for the path from sleep health to job performance, the regression coefficients of all variables in the model were statistically significant (all $P<.05$), as shown in Table 4.8. Sleep health can positively predict the occurrence of job engagement. Job engagement can positively predict the improvement of job performance. Sleep health had both direct and indirect effects on job performance, but only the path of indirect effects was statistically significant ($P<.05$), indicating that job engagement played a complete mediating role in the influence of sleep health on job performance, with the mediating effect being 0.113*0.690=0.078, 95%CI [.040,.120]. If 0 is not included, this mediation effect is statistically significant.

Table 4.8 The test of the mediating effect of job engagement on the relationship between sleep health and job performance

The dependent variable	The independent variables	R^2	B	t	95% confidence interval
Job engagement	Sleep health	.96	.11	3.84***	[.06, .17]
Job performance	Sleep health	.53	.01	.34	[-03, .05]
	Job engagement		.69	28.35***	[.64, .74]

Note: Both predictive variables and dependent variables were standardized. *$P<.05$, **$P<.01$, ***$P<.001$.

The direct effect of sleep health on job performance is .007, and its 95% confidence interval is [-.033,.044], including 0. The mediating effect of job engagement is.078, and the 95% confidence interval is [.032,.139], excluding 0, indicating that only sleep health has a statistically significant mediating effect on job performance.

4.3.2.3 Path analysis and the test of mediating effect of job engagement on the relationship between family relationship health and job performance

After controlling gender and age, the path model was constructed with family health as the independent variable, job performance as the dependent variable, and job engagement as the mediating variable. The bootstrapping method was used to test the mediating effect. The sample number was set as 5000 and the confidence interval was set as 95%. Model results, as shown in Figure 4.2(c).

Regression coefficients between variables in the model were statistically significant (all $P<.05$), as shown in Table 4.9. Family relationship health can positively predict the occurrence

of job engagement and the improvement of job performance while job engagement can positively predict the improvement of job performance. Family relationship health had both direct and indirect effects on job performance, and the indirect and direct paths were statistically significant (P<.05), indicating that job engagement played a partial mediating role in the influence of family relationship health on job performance, with the mediating effect being 0.199*0.668=0.133. The proportion of the mediating effect to the total effect was 0.133/0.242=55.1%, with 95%CI [.097,.173], excluding 0, indicating that the mediating effect was statistically significant.

Table 4.9 The test of the mediating effect of job engagement on the relationship between family relationship health and job performance

The dependent variable	The independent variables	R^2	B	t	95% confidence interval
Job engagement	Family health	.93	.20	7.06***	[.14, .25]
Job performance	Family health	.51	.11	5.27***	[.07, .15]
	Job engagement		.67	26.67***	[.62, .72]

Note: Both predictive variables and dependent variables were standardized. *P<.05, **P<.01, ***P<.001.

The direct effect of family relationship health on job performance is .109 (95% confidence interval [.068,.149], excluding 0), and the mediating effect of job engagement is.133 (95% confidence interval [.097,.173], excluding 0. The mediating and direct effects of family relationship health on job performance were statistically significant.

4.3.2.4 The path analysis and the test of the mediating effect job engagement on the relationship between co-worker relationship health and job performance

After controlling gender and age, a path model was constructed with co-worker relationship health as the independent variable, job performance as the dependent variable, and job engagement as the mediating variable. The bootstrapping method was used to test the mediating effect. The sample number was set as 5000 and the confidence interval was set as 95%. Model results, as shown in Figure 4.2(d).

Regression coefficients between variables in the model were statistically significant (all P<.05), as shown in Table 4.10. Co-worker relationship health can positively predict the occurrence of job engagement and the improvement of job performance while job engagement can positively predict the improvement of job performance. There were both direct and indirect effects of co-worker relationship health on job performance, and both indirect and direct paths had statistical significance (P<.05), indicating that job engagement played a partial mediating role in the effect of co-worker relationship health on job performance, and the mediating effect was 0.263*0.669=0.176. The proportion of the mediating effect to the total effect was 0.176/0.255=69.0%, with 95%CI [.136,.221], excluding 0, indicating that the mediating effect

was statistically significant.

Table 4.10 The test of the mediating effect of job engagement on the relationship between co-worker relationship health and job performance

The dependent variable	The independent variables	R^2	B	t	95% confidence interval
Job engagement	Co-worker relationship health	.90	.26	8.11***	[.20, .33]
Job performance	Co-worker relationship health	.52	.08	3.60***	[.04, .12]
	Job engagement		.67	25.96***	[.62, .72]

Note: Both predictive variables and dependent variables were standardized. *P<.05, **P<.01, ***P<.001.

The direct effect of co-worker relationship health on job performance is .080, with 95% confidence interval [.036, .123] excluding 0, and the mediating effect of job engagement is.176, with 95% confidence interval [.136, .221] excluding 0. The mediating effect and direct effect of co-worker relationship health on job performance were statistically significant.

4.3.2.5 Path analysis and the test of mediating effect of job engagement on the relationship between mental health and job performance

After controlling gender and age, mental health was taken as the independent variable, job performance as the dependent variable, and job engagement as the mediating variable to construct a path model with job engagement as the mediating variable. The bootstrapping method was used to test the mediating effect. The sample number was set as 5000 and the confidence interval was set as 95%. Model results, as shown in Figure 4.2(e).

Regression coefficients between variables in the model were statistically significant (all P<.05), as shown in Table 4.11. Mental health can positively predict the occurrence of job engagement and the improvement of job performance while job engagement can positively predict the improvement of job performance. Mental health has both direct and indirect effects on job performance, and both indirect and direct paths have statistical significance (P<.05), indicating that job engagement plays a partial mediating role in the influence of mental health on job performance, and the mediating effect is 0.090*0.686=0.062. The proportion of the mediating effect to the total effect was 0.062/0.109=56.9%, with 95%CI [.021,.102], excluding 0, indicating that the mediating effect was statistically significant.

Table 4.11 The test of the mediating effect of job engagement on the relationship between mental health and job performance

The dependent variable	The independent variables	R^2	B	t	95% confidence interval
Job engagement	Mental health	.96	.09	2.99**	[.03, .15]
Job performance	Mental health	.52	.05	2.38*	[.01, .09]
	Job engagement		.69	27.52***	[.64, .74]

Note: Both predictive variables and dependent variables were standardized. *P<.05, **P<.01, ***P<.001.

The direct effect of mental health on job performance is.047, and the 95% confidence interval is [.009,.087], excluding 0. The mediating effect of job engagement is .02, and the 95% confidence interval is [.019, .104], excluding 0, indicating that both the mediating effect and direct effect of mental health on job performance are statistically significant.

4.3.3 Path analysis and the test of the moderating effect of leader-member exchange on the relationship between psychological capital and job performance

After controlling gender and age, a path model was constructed with psychological capital as independent variable, job performance as dependent variable, and LMX as moderating variable. The bootstrapping method was used to test the adjustment effect. The sample number was set as 5000 and the confidence interval was set as 95%. Model results, as shown in Figure 4.3(a).

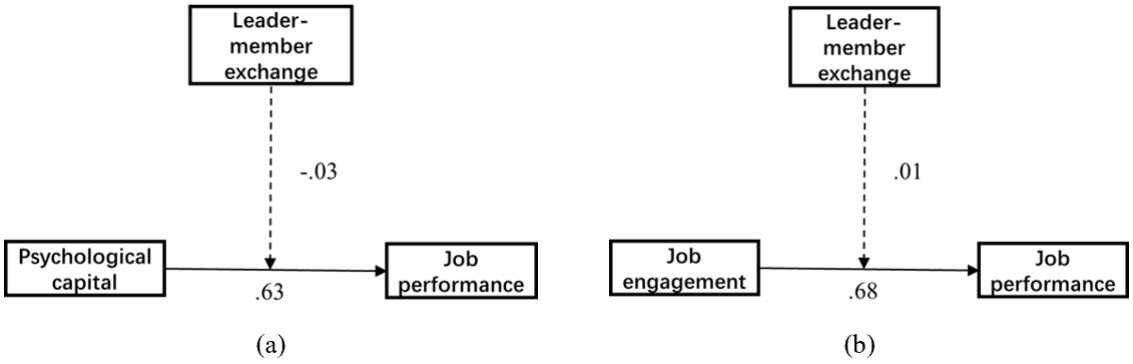


Figure 4.3 Path model diagram of psychological capital and job engagement as independent variable and leadership member as moderating variable

Note: (a) Path model diagram of psychological capital as independent variable and leadership-member exchange as moderating variable; (b) Path model diagram of job engagement as independent variable and leadership-member exchange as moderating variable.

Psychological capital positively predicted the improvement of job performance, while LMX positively predicted the improvement of job performance, but the interaction term between psychological capital and LMX had no significant predictive effect on the improvement of job performance (P>.05). This indicates that LMX has no significant moderating effect on the effect of psychological capital on job performance. As shown in Table 4.12.

Table 4.12 Regression weight analysis results among variables in the adjusting model

The dependent variable	The independent variables	R2	B	t	95% confidence interval
Job performance	Psychological capital	.57	.63	22.32 * * *	[.57, .68]
	Leader-member exchange		.07	3.18 * *	[.03, .12]
	PC * LMX		-.03	-1.42	[- .08, .01]
Job performance	Job engagement	.52	.68	26.24 * * *	[.63, .73]
	Leader-member exchange		.05	2.36 *	[.01, .10]
	JE * LMX		.01	.58	[-.03, .06]

Note: PC: Psychological capital, LMX: leader-member exchange, JE: Job engagement.
The interaction terms were normalized products, and the other predictive variables and dependent variables were normalized. *P<.05, **P<.01, ***P<.001.

4.3.4 Path analysis and the test of moderating effect of leader-member exchange on the relationship between job engagement and job performance

After controlling gender and age, the path model was constructed with job engagement as independent variable, job performance as dependent variable, and LMX as moderating variable. The bootstrapping method was used to test the adjustment effect. The sample number was set as 5000 and the confidence interval was set as 95%. Model results, as shown in Figure 4.3(b).

Job engagement and LMX positively predicted job performance, but the interaction between job engagement and LMX had no significant predictive effect on job performance (P>.05). This indicates that LMX has no significant moderating effect on the effect of job engagement on job performance. As shown in Table 4.12.

4.3.5 Path analysis and the test of the moderating effect of proactive personality on the relationship between employee's holistic health and psychological capital

4.3.5.1 Path analysis and the test of the moderating effect of proactive personality on the relationship between physical health and psychological capital

After controlling gender and age, the path model with proactive personality as the moderating variable was constructed with physical health as the independent variable, psychological capital as the dependent variable and proactive personality as the moderating variable. The bootstrapping method was used to test the adjustment effect. The sample number was set as 5000 and the confidence interval was set as 95%. Model results, as shown in Figure 4.4(a).

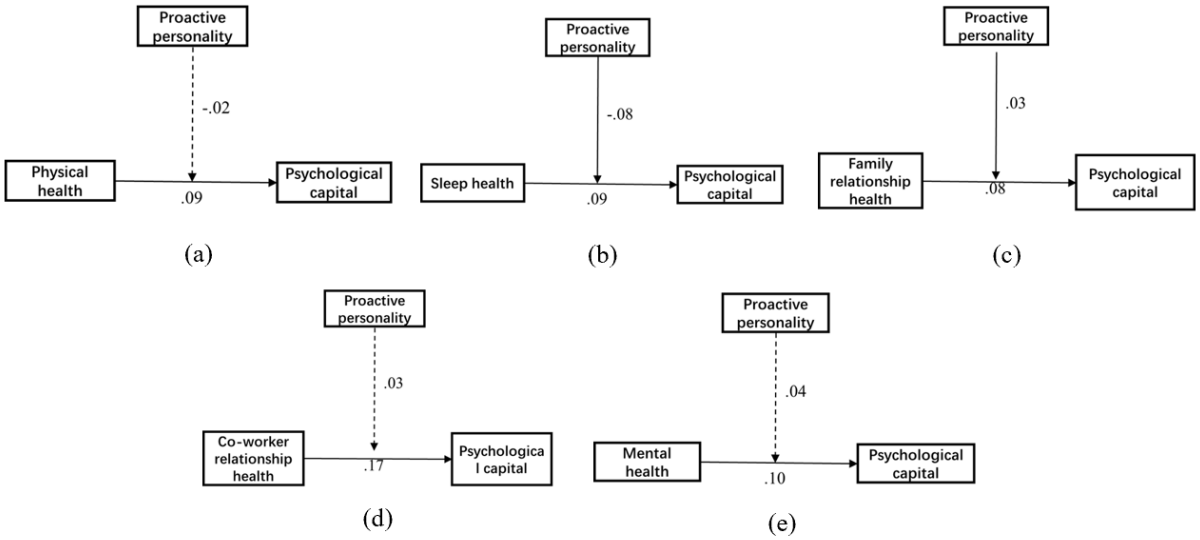


Figure 4.4 Path model with employee's holistic health as the independent variable, psychological capital as the dependent variable and proactive personality as the moderating variable

Note: (a) Path model with physical health as independent variable and proactive personality as moderating variable; (b) Path model with sleep health as independent variable and proactive personality as moderating variable; (c) Path model with family relationship health as independent variable and proactive personality as moderating variable; (d) Path model with co-worker relationship health as independent variable and proactive personality as moderating variable; (e) Path model with mental health as independent variable and proactive personality as moderating variable.

Physical health can positively predict the improvement of psychological capital, proactive personality can positively predict the improvement of psychological capital, but the interaction between physical health and proactive personality has no significant predictive effect on the improvement of psychological capital (P>.05). This indicates that proactive personality has no significant moderating effect on the influence of physical health on psychological capital. As shown in Table 4.13.

Table 4.13 Results of regression weight analysis among variables in the moderated model with employee's holistic health as the independent variable and proactive personality as the moderating variable

The dependent variable	The independent variables	R2	B	t	95% confidence interval
Psychological capital	A healthy body		.09	3.31**	[.04, .16]
	Proactive personality	.85	.36	11.99***	[.30, .42]
	PH * PP		-.02	- .69	[- .09, .03]
Psychological capital	Sleep health		.09	3.64***	[.04, .14]
	Proactive personality	.84	.35	12.19***	[.30, .41]
	SH * PP		-.08	-2.65**	[- .13, - .02]
Psychological capital	Family health		.08	3.24**	[.03, .13]
	Proactive personality	.85	.34	11.58***	[.28, .40]
	FH * PP		.03	1.12	[-.03, .08]
Psychological capital	Co-worker relationship health	.83	.17	5.58***	[.11, .23]
	Proactive personality		.29	9.32***	[.23, .36]
	CH * PP		.03	1.27	[-02, .08]
Psychological capital	Mental health	.84	.10	3.70***	[.05, .16]
	Proactive personality		.36	12.37***	[.30, .41]

MH * PP	.04	1.42	[-02, .09]

Note: PH: Physical health, SH: Sleep health, FH: Family relationship health, CH: co-worker relationship health, MH: mental health, PP: Proactive Personality.
The interaction terms were normalized products, and the other predictive variables and dependent variables were normalized. *P<.05, **P<.01, ***P<.001.

4.3.5.2 Path analysis and the test of the moderating effect of proactive personality on the relationship between sleep health and psychological capital

After controlling gender and age, sleep health was taken as the independent variable, psychological capital as the dependent variable, and proactive personality as the moderating variable, and the path model was constructed with proactive personality as the moderating variable. The bootstrapping method was used to test the adjustment effect. The sample number was set as 5000 and the confidence interval was set as 95%. Model results, as shown in Figure 4.4(b).

Sleep health can positively predict the improvement of psychological capital, proactive personality can positively predict the improvement of psychological capital, and the interaction between sleep health and proactive personality can positively predict the improvement of psychological capital. This indicates that proactive personality can significantly moderate the relationship between sleep health and psychological capital. As shown in Table 4.13.

The product term of proactive personality and sleep health has a significant negative predictive effect on psychological capital (B=-08, Z=-2.65, P<.01), indicating that proactive personality can moderate the predictive effect of sleep health on psychological capital. Further simple slope analysis (Figure 4.5) showed that, as shown in Figure 4.5, for subjects with low proactive personality level (M-1SD), sleep health had a significant positive predictive effect on psychological capital, B=.17, Z=4.31, P<.01; However, for the subjects with high proactive personality level (M+1SD), sleep health has no significant negative predictive effect on psychological capital (B=.02, Z=.39, P>.05), indicating that with the improvement of individual proactive personality level, the positive impact of sleep health on psychological capital may be weakened.

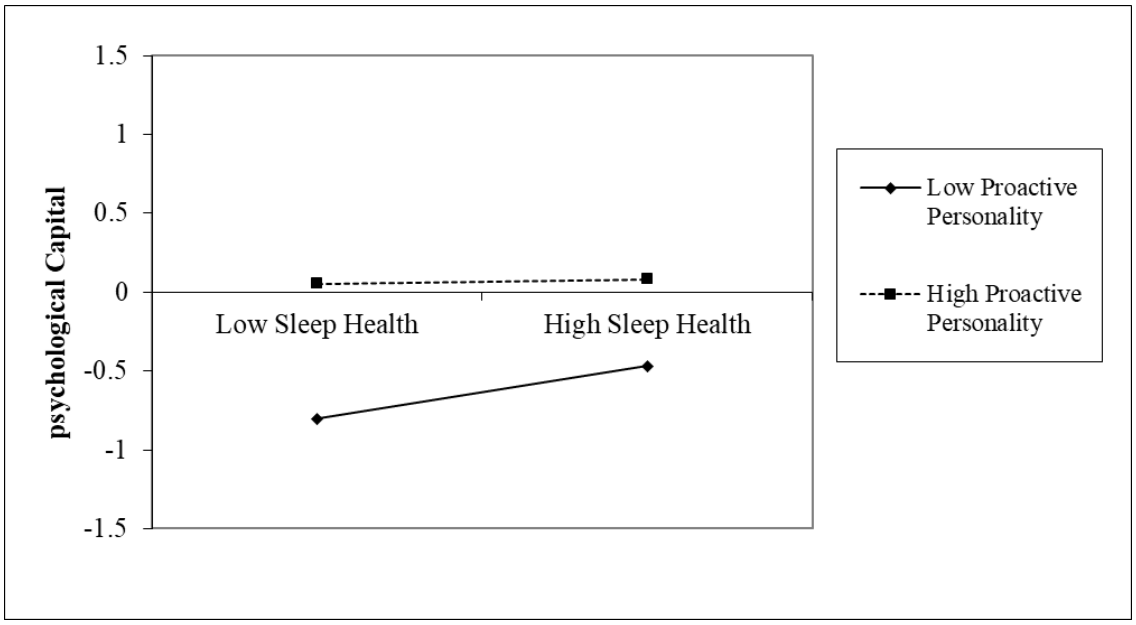


Figure 4.5 Moderating effect of proactive personality on the relationship between sleep health and psychological capital

4.3.5.3 Path analysis and moderating effect analysis of proactive personality in the influence of family relationship health on psychological capital

After controlling gender and age, family relationship health was taken as the independent variable, psychological capital as the dependent variable and proactive personality as the moderating variable to construct a path model with proactive personality as the moderating variable. The bootstrapping method was used to test the adjustment effect. The sample number was set as 5000 and the confidence interval was set as 95%. Model results, as shown in Figure 4.4(c).

Family relationship health can positively predict the improvement of psychological capital, proactive personality can positively predict the improvement of psychological capital, but the interaction between family relationship health and proactive personality has no significant predictive effect on the improvement of psychological capital (P>.05). This indicates that proactive personality has no significant moderating effect on the influence of family relationship health on psychological capital. As shown in Table 4.13.

4.3.5.4 Path analysis and the test of moderating effect of proactive personality on the relationship between co-worker relationship health and psychological capital

After controlling gender and age, the path model was constructed with co-worker relationship health as independent variable, psychological capital as dependent variable and proactive personality as moderating variable. The bootstrapping method was used to test the adjustment effect. The sample number was set as 5000 and the confidence interval was set as 95%. Model

results, as shown in Figure 4.4(d).

Co-worker relationship health can positively predict the improvement of psychological capital, proactive personality can positively predict the improvement of psychological capital, but the interaction between co-worker relationship health and proactive personality has no significant predictive effect on the improvement of psychological capital (P>.05). This indicates that proactive personality has no significant moderating effect on the effect of co-worker relationship health on psychological capital. As shown in Table 4.13.

4.3.5.5 Path analysis and the test of moderating effect of proactive personality one the relationship between mental health and psychological capital

After controlling gender and age, the path model was constructed with mental health as independent variable, psychological capital as dependent variable and proactive personality as moderating variable. The bootstrapping method was used to test the adjustment effect. The sample number was set as 5000 and the confidence interval was set as 95%. Model results, as shown in Figure 4.4(e).

Psychological health can positively predict the improvement of psychological capital, proactive personality can positively predict the improvement of psychological capital, but the interaction between mental health and proactive personality has no significant predictive effect on the improvement of psychological capital (P>.05). This indicates that proactive personality has no significant moderating effect on the influence of mental health on psychological capital. As shown in Table 4.13.

4.3.6 Path analysis and the test of the moderating effect of proactive personality on the relationship between employee's holistic health and job engagement

4.3.6.1 Path analysis and the test of the moderating effect of proactive personality on the relationship between physical health and job engagement

After controlling gender and age, taking physical health as the independent variable, job engagement as the dependent variable, and proactive personality as the moderating variable, the path model was constructed with proactive personality as the moderating variable. The bootstrapping method was used to test the adjustment effect. The sample number was set as 5000 and the confidence interval was set as 95%. Model results, as shown in Figure 4.6(a).

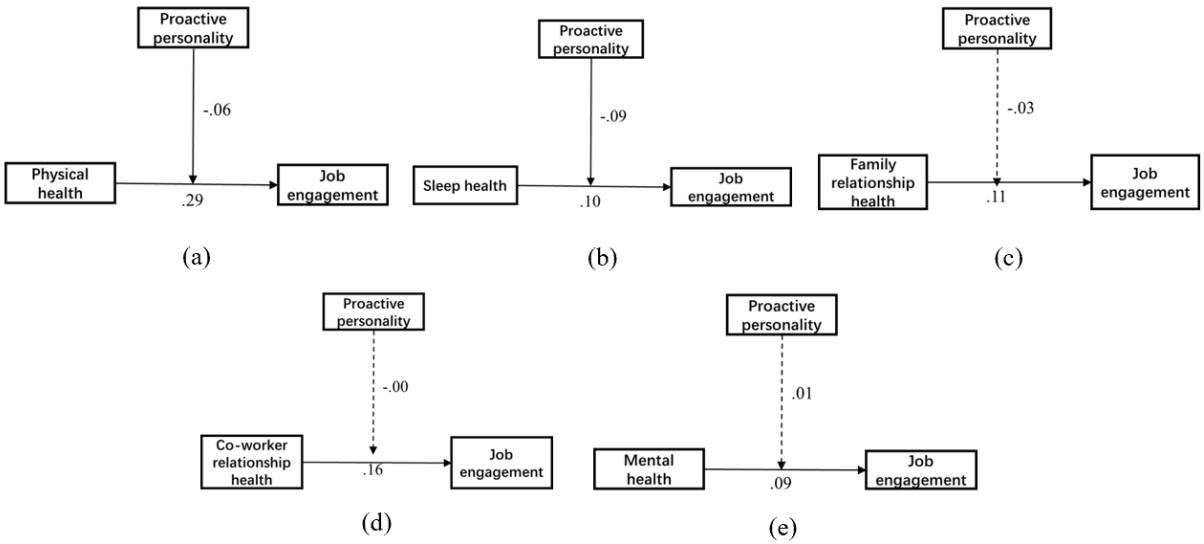


Figure 4.6 Path model with employee's holistic health as the independent variable, job engagement as the dependent variable and proactive personality as the moderating variable

Note: (a) Path model with physical health as independent variable and proactive personality as moderating variable; (b) Path model with sleep health as independent variable and proactive personality as moderating variable; (c) Path model with family relationship health as independent variable and proactive personality as moderating variable; (d) Path model with co-worker relationship health as independent variable and proactive personality as moderating variable; (e) Path model with mental health as independent variable and proactive personality as moderating variable.

Physical health can positively predict the improvement of job engagement, proactive personality can positively predict the improvement of job engagement, but physical health and proactive personality interaction can negatively predict the improvement of job engagement. This shows that proactive personality has a significant moderating effect on the impact of physical health on job engagement. As shown in Table 4.14.

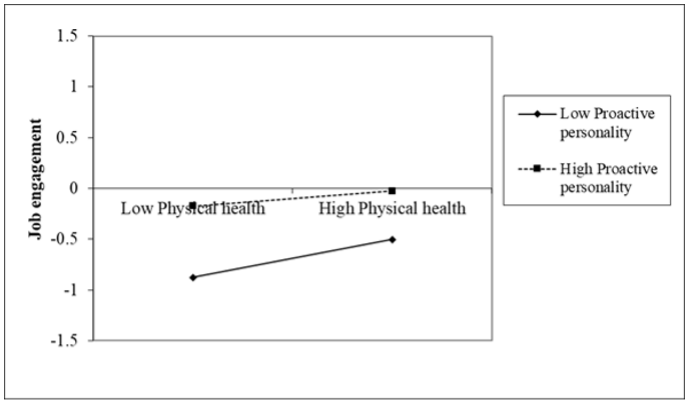
Table 4.14 Results of regression weight analysis among variables in the moderated model with employee's holistic health as the independent variable and proactive personality as the moderating variable

The dependent variable	The independent variables	R2	B	t	95% confidence interval
Job engagement	Physical body		.13	4.64***	[.08, .19]
	Proactive personality	.86	.29	10.40***	[.24, .35]
	PH * PP		- .06	-2.38*	[-.10, -.01]
Job engagement	Sleep health		.10	3.77***	[.05, .14]
	Proactive personality	.86	.29	10.64***	[.24, .35]
	SH * PP		-.09	3.97**	[-.14, -.05]
Job engagement	Family relationship health		.11	4.38***	[.06, .16]
	Proactive personality	.87	.27	8.81***	[.21, .33]
	FH *PP		-.03	-1.13	[-08, .03]
Job	Co-worker	.86	.16	4.90***	[.10, .22]

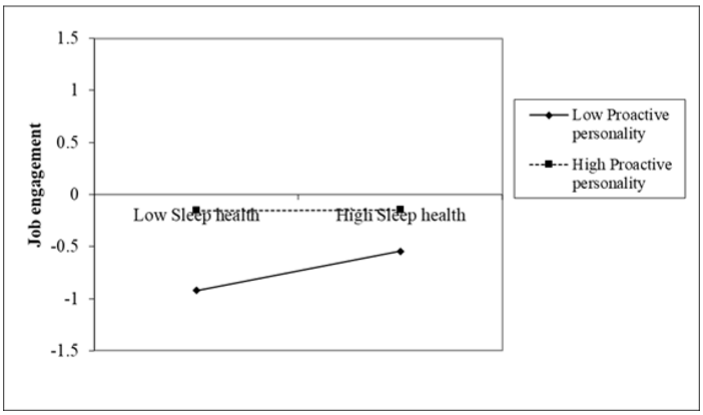
engagement	relationship health				
	Proactive personality		.23	7.17***	[.17, .30]
	CH * PP		-.00	-.13	[-.05, .05]
Job engagement	Mental health		.09	2.90**	[.03, .14]
	Proactive personality	.87	.30	9.74***	[.24, .36]
	MH * PP		.01	.33	[-.04, .07]

Note: PH: Physical health, SH: Sleep health, FH: Family relationship health, CH: co-worker relationship health, MH: mental health, PP: Proactive Personality.
The interaction terms were normalized products, and the other predictive variables and dependent variables were normalized. *P<.05, **P<.01, ***P<.001.

The product term of proactive personality and physical health has a significant negative predictive effect on job engagement (B=-.06, Z=-2.38, P<.05), indicating that proactive personality can regulate the predictive effect of physical health on job engagement. Further simple slope analysis (Figure 4.7(a)) showed that, for the subjects with low proactive personality level (M-1SD), physical health had a significant positive predictive effect on job engagement, B=.19, Z=5.40, P<.01; However, for the subjects with high proactive personality level (M+1SD), physical health has no significant negative predictive effect on job engagement (B=.07, Z=1.92, P>.05), indicating that with the improvement of individual proactive personality level, the positive impact of sleep health on job engagement may be weakened.



(a)



(b)

Figure 4.7 The moderating role of proactive personality in the relationship between employee's holistic health and job performance

Note: (a) Moderating effect of proactive personality on the relationship between physical health and job engagement; (b) Moderating effect of proactive personality on the relationship between sleep health and job engagement.

4.3.6.2 Path analysis and moderating effect of proactive personality on the relationship between sleep health and job engagement

After controlling gender and age, sleep health was taken as the independent variable, job engagement as the dependent variable, and proactive personality as the moderating variable, and the path model was constructed with proactive personality as the moderating variable. The bootstrapping method was used to test the adjustment effect. The sample number was set as 5000 and the confidence interval was set as 95%. Model results, as shown in Figure 4.6(b).

Sleep health positively predicted the improvement of job engagement, proactive personality positively predicted the improvement of job engagement, and the interaction between sleep health and proactive personality negatively predicted the improvement of job engagement. This indicates that proactive personality can significantly regulate the impact of sleep health on job engagement. As shown in Table 4.14.

The product term of proactive personality and sleep health has a significant negative

predictive effect on job engagement (B=-09, Z=-3.97, *P*<.01), indicating that proactive personality can regulate the predictive effect of sleep health on job engagement. Further simple slope analysis (Figure 4.7(b)) showed that, for the subjects with low proactive personality level (M-1SD), sleep health had a significant positive predictive effect on job engagement, B=.19, Z=5.54, *P*<.01; However, for subjects with high proactive personality level (M+1SD), sleep health has no significant negative predictive effect on job engagement (B=.00, Z=.07, *P*>.05), indicating that with the improvement of individual proactive personality level, the positive impact of sleep health on job engagement may be weakened.

4.3.6.3 Path analysis and the test of the moderating effect of proactive personality on the relationship of family relationship health and job engagement

After controlling gender and age, family health was taken as the independent variable, job engagement as the dependent variable, and proactive personality as the moderating variable, and the path model was constructed with proactive personality as the moderating variable. The bootstrapping method was used to test the adjustment effect. The sample number was set as 5000 and the confidence interval was set as 95%. Model results, as shown in Figure 4.6(c)

Family relationship health and proactive personality positively predicted the improvement of job engagement, but the interaction between family health and proactive personality had no significant predictive effect on the improvement of job engagement (*P*>.05). This indicates that proactive personality has no significant moderating effect on the impact of family health on job engagement. As shown in Table 4.14.

4.3.6.4 Path analysis and the test of the moderating effect of proactive personality on the relationship between co-worker relationship health on job engagement

After controlling gender and age, the path model was constructed with co-worker relationship health as independent variable, job engagement as dependent variable and proactive personality as moderating variable. The bootstrapping method was used to test the adjustment effect. The sample number was set as 5000 and the confidence interval was set as 95%. Model results, as shown in Figure 4.6(d).

Co-worker relationship health and proactive personality positively predicted the improvement of job engagement, but the interaction between co-worker health and proactive personality had no significant predictive effect on the improvement of job engagement (*P*>.05). This indicates that proactive personality has no significant moderating effect on the effect of co-worker relationship health on job engagement. As shown in Table 4.14.

4.3.6.5 Path analysis and the test of the moderating effect of proactive personality on the relationship between mental health and job engagement

After controlling for gender and age, the path model was constructed with mental health as independent variable, job engagement as dependent variable and proactive personality as moderating variable. The bootstrapping method was used to test the adjustment effect. The sample number was set as 5000 and the confidence interval was set as 95%. Model results, as shown in Figure 4.6(e).

Mental health and proactive personality can positively predict the improvement of job engagement, but the interaction between mental health and proactive personality has no significant predictive effect on the improvement of job engagement (P>.05). This indicates that proactive personality has no significant moderating effect on the impact of mental health on job engagement. As shown in Table 4.14.

4.3.7 Path analysis of employee's holistic health, psychological capital, proactive personality, of leader-member exchange and job performance

After controlling gender and age, the nine variables of employee's holistic health, psychological capital, proactive personality, LMX and job performance were standardized, and path analysis was used to test whether the hypothesis model was established. Firstly, path analysis was conducted for single predictive variables. Finally, significant paths in the single variable model were integrated into one model for path analysis. The results are shown in Table 4.15 (the following results were obtained through bootstrap test and 5000 samples were selected). The overall fitting index of the model was good (χ2/ DF=2.19, NFI=0.99, CFI=1, RMSEA=0.03).

Table 4.15 Path analysis of employee's holistic health, psychological capital, proactive personality, of leader-member exchange and job performance

The dependent variable	The independent variables	R^2	B	t	95% confidence interval
Psychological capital	Physical health		.03	.746	[-.05, .10]
	Sleep health		.03	.98	[. 03, .10]
	Family relationship health		.03	1.30	[- 01, .09]
	Co-worker relationship health	.81	.14	4.53***	[.08, .20]
	Mental health		.07	2.46*	[.02, .13]
	Proactive personality		.29	9.58***	[.23, .35]
	SH * PP		-.09	-3.50***	[-.15, -.04]
	CH * PP		.05	2.40*	[.01, .09]
Job	Psychological	.56	.61	20.96***	[.55, .66]

performance	capital				
	A healthy body		-.00	-.03	[-.06, .06]
	Sleep health		-.02	-.54	[-.07, .04]
	Healthy family relationships		.11	5.24***	[.07, .15]
	Healthy Co-workers		.02	.70	[-.03, .07]
	Mental health		.03	1.29	[-.01, .07]
	Lead member exchange		.06	2.15*	[.01, .11]
	PC*LMX		-.03	1.38	[-.08, .02]
Psychological capital	Sleep health	.81	.05	2.13 *	[.01, .10]
	Co-worker relationship health		.15	4.68 * * *	[.09, .22]
	Mental health		.08	2.60 * *	[.02, .13]
	Proactive personality		.30	9.62 * * *	[.24, .36]
	SH * PP		-.10	-3.46 * * *	[-.15, -.04]
	CH * PP		.05	2.37 *	[.01, .09]
Job performance	Psychological capital		.62	20.89 * * *	[.56, .68]
	Sleep health	.56	-.01	-.22	[-.05, .04]
	Co-worker relationship health		.07	2.79 * *	[.02, .11]
	Mental health		.03	1.54	[-01, .07]

Note: SH: Sleep health, CH: co-worker relationship health, PC: Psychological capital, PP: proactive personality, LMX: Leader-member exchange.
The interaction terms were normalized products, and the other predictive variables and dependent variables were normalized. *P<.05, **P<.01, ***P<.001.

Because the model is oversaturated and multiple paths do not conform to the hypothesis, the model needs to be adjusted. After the insignificant paths were gradually deleted, an optimal model was obtained, and the results were shown in Table 4.15 (the following results were obtained through bootstrap test with 5000 samples selected). The overall fitting index of the model was good ($\chi 2$/ DF=3.61, NFI=.99, CFI=.99, RMSEA=.04). The model diagram is shown in Figure 4.8(a).

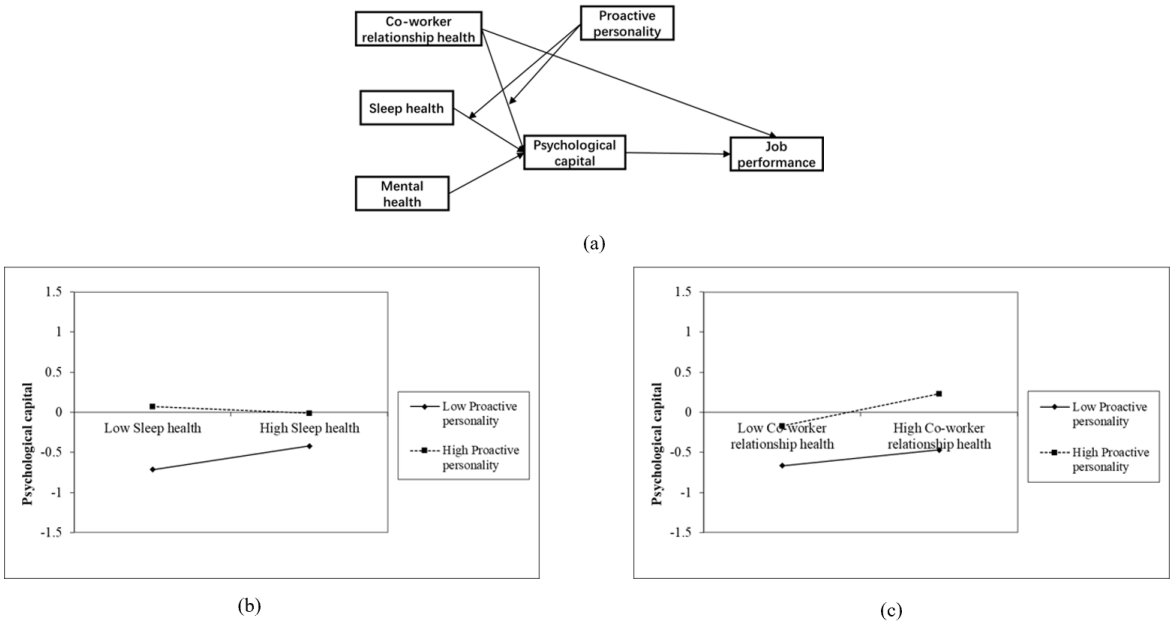


Figure 4.8 Path analysis and model of employee's holistic health, psychological capital, proactive personality, of leader-member exchange and job performance

Note: (a) Optimal model for path analysis of psychological capital; (b) Moderating effect of proactive personality on the relationship between sleep health and psychological capital; (c) Moderating effect of proactive personality on the relationship between co-worker relationship health and psychological capital.

The paths of sleep health/co-worker health/mental health → psychological capital and psychological capital → job performance was significant. (1) The total effect of sleep health on job performance is.028, in which the direct effect is -.005 and the indirect effect is.033. Bootstrap test found that 95%CI of psychological capital was [.00,.07], which did not include 0, indicating significant mediating effect. It suggests that sleep health can improve employee's job performance through enhancing psychological capital. (2) The total effect of co-worker relationship health on job performance was.160, of which the direct effect was.066 and the indirect effect was .093. Bootstrap test found that 95%CI of psychological capital was [.06,.13], which did not include 0, indicating significant mediating effect. The results indicate that co-worker relationship health can improve employee's job performance through enhancing psychological capital. (3) The total effect of mental health on job performance was.080, in which the direct effect was.033 and the indirect effect was.047. Bootstrap test found that 95%CI of psychological capital was [.01,.08], which did not include 0, indicating significant mediating effect. It shows that mental health can improve employee's job performance through enhancing psychological capital.

Secondly, the product term of proactive personality and sleep health has a significant negative predictive effect on psychological capital (B=-10, Z=-3.46, P<.01), indicating that proactive personality can regulate the predictive effect of sleep health on psychological capital. Further simple slope analysis (Figure 4.8(b)) showed that, for the subjects with low proactive

personality level (M-1SD), sleep health had a significant positive predictive effect on psychological capital, B=.15, Z=-4.03, *P*<.01; However, for the subjects with high proactive personality level (M+1SD), sleep health has a significant negative predictive effect on psychological capital (B=-.04, Z=-1.12, *P*>.05), indicating that with the improvement of individual proactive personality level, the positive effect of sleep health on psychological capital may be weakened.

Thirdly, the product term of proactive personality and co-worker relationship has a significant positive effect on the prediction of psychological capital (B=.051, Z=2.365, *P*<0.05), indicating that proactive personality can regulate the prediction effect of co-worker relationship health on psychological capital. Further simple slope analysis (Figure 4.8(c)) showed that, for the subjects with low proactive personality level (M-1SD), co-worker relationship health had a significant positive predictive effect on psychological capital (B=.100, Z=-2.721, *P*<0.01). However, for the subjects with higher proactive personality level (M+1SD), the positive prediction effect of co-worker relationship on psychological capital was greater (B=.201, Z=4.969, *P*<0.01), indicating that with the improvement of individual proactive personality level, the positive prediction effect of co-worker relationship health on psychological capital was significantly increased.

4.3.8 Path analysis of employee's holistic health, job engagement, proactive personality, leader-member exchange and work performance

After controlling gender and age, 9 variables including health, job engagement, proactive personality, LMX and job performance were standardized, and path analysis was used to test whether the hypothesis model was established. Firstly, path analysis was conducted for single predictive variables. Finally, significant paths in the single variable model were integrated into one model for path analysis. The results are shown in Table 4.16 (the following results were obtained through bootstrap test and 5000 samples were selected). The overall fitting index of the model was good (χ2/ DF=4.75, NFI=.98, CFI=.99, RMSEA=.052).

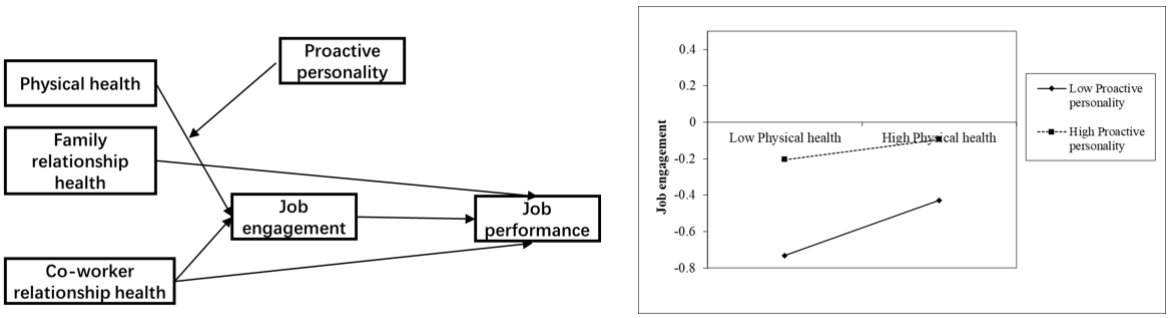
Table 4.16 Path analysis of employee's holistic health, job engagement, proactive personality, leader-member exchange and work performance

The dependent variable	The independent variables	R2	B	t	95% confidence interval
Job engagement	Physical health		.09	2.13 *	[.01, .17]
	Sleep health		-.00	-.01	[-.07, .07]
	Family relationship health		.07	2.66 * *	[.02, .13]
	Co-worker relationship health	.83	.12	3.76 * * *	[.06, .19]
	Mental health		.04	1.40	[-.02, .10]
	Proactive personality		.22	6.86 * * *	[.16, .28]
	PH * PP		.02	.56	[-.05, .09]
	SH * PP		-.10	2.74 *	[-.17 -.03]
Job performance	Job engagement	.51	.65	24.77 * * *	[.60, .71]
	Physical health		-.04	-.1.42	[-.10, .02]
	Sleep health		.01	26.	[.05, .06]
	Family relationship health		.09	4.35 * * *	[.05, .13]
	Co-worker relationship health		.05	1.83 +	[-.00, .09]
	Mental health		.04	2.08	[.00, .08]
	Leader-member exchange		.03	1.25	[-.02, .08]
	WE *LMX		-.02	- .92	[-.06, .02]
Job engagement	Physical health	.84	.10	3.60 * * *	[.05, .16]
	Family relationship health		.08	2.94 * *	[.03, .13]
	Co-worker relationship health		.13	3.89 * * *	[.06, .19]
	Proactive personality		.22	6.78 * * *	[.15, .28]
	PH * PP		-.05	-1.99 *	[-.09, -.00]
Job performance	Job engagement	.51	.66	24.90 * * *	[.60, .71]
	Physical health		-.02	-1.01	[-.06, .02]
	Family relationship health		0.10	4.68 * * *	[.06, .14]
	Co-worker relationship health		.06	2.62 * *	[.01, .10]

Note: PH: physical health, SH: sleep health, PP: proactive personality, WE: Job engagement, LMX: leader-member exchange.
The interaction terms were normalized products, and the other predictive variables and dependent variables were normalized. *P<.05, **P<.01, ***P<.001.

Because the multiple paths in the model do not meet the hypothesis, we need to adjust the model. After the insignificant paths were gradually deleted, an optimal model was obtained, and the results were shown in Table 4.16 (the following results were obtained through bootstrap test and 5000 samples were selected). The overall fitting index of the model was good (χ2/

DF=4.32, NFI=.99, CFI=.99, RMSEA=.05). The model diagram is shown in Figure 4.9(a).



(a) (b)

Figure 4.9 Path analysis of employee's holistic health, job engagement, proactive personality, leader-member exchange and job performance

Note: (a) Optimal model for path analysis of work involvement; (b) Moderating effect of proactive personality on the relationship between physical health and job engagement.

The paths of physical health/family relationship health/co-worker relationship health → job engagement, and job engagement → job performance was significant. In terms of the predicted effects, the indirect effects of all major health variables are composed of the mediating effects of job engagement, (1) The total effect of physical health on job performance is .046, in which the direct effect is -.021 and the indirect effect is .067. Bootstrap test found that the 95% CI of job engagement was [.031, 0.105], which did not include 0, indicating significant mediating effect. The results show that physical health can improve employee's job performance through enhancing job engagement. (2) The total effect of family health on job performance was .149, of which the direct effect was .097 and the indirect effect was .051. Bootstrap test found that the 95%CI of job engagement was [.016,.086], which did not include 0, indicating significant mediating effect. It shows that family relationship health can improve employee's job performance through enhancing job engagement. (3) The total effect of co-worker relationship health on job performance was .141, of which the direct effect was .059 and the indirect effect was .082. Bootstrap test found that the 95% CI of job engagement was [.042,.125], which did not include 0, indicating significant mediating effect. It shows that the part of co-worker relationship health can improve employee's job performance through enhancing job engagement.

Secondly, the product term of proactive personality and physical health has a significant positive prediction effect on job engagement (B=-.05, Z=-1.99, P<0.05), indicating that proactive personality can regulate the prediction effect of physical health on job engagement. Further simple slope analysis (Figure 4.9(b)) showed that, for the subjects with low proactive personality level (M-1SD), physical health had a significant positive predictive effect on job engagement (B=0.150, Z=4.291, P<0.001). However, for the subjects with high proactive

personality level (M+1SD), physical health had no significant predictive effect on job engagement (B=0.055, Z=1.406, *P*>0.05), indicating that with the improvement of individual proactive personality level, the positive predictive effect of physical health on job engagement showed a significant downward trend.

4.3.9 Path analysis of employee's holistic health, job engagement, psychological capital, proactive personality, leader-members exchange and job performance

The results obtained by integrating the above two optimal models are shown in Table 4.17(the following results are obtained through bootstrap test and 5000 samples are selected). The overall fitting index of the model was poor (χ2/ DF=62.60, NFI=.67, CFI=.67, RMSEA=.21).

Table 4.17 Path analysis of employee's holistic health, job engagement, psychological capital, proactive personality, leader-members exchange and job performance

The dependent variable	The independent variables	R2	B	t	95% confidence interval
Psychological capital	Sleep health		.05	2.08 *	[.00, .10]
	Co-worker relationship health		.17	5.31 * * *	[.11, .23]
	Mental health	.81	.08	2.61 * *	[.02, .13]
	Proactive personality		.26	9.26 * * *	[.24, .36]
	SH * PP		-.10	3.57 * * *	[-.15, -.04]
	CH * PP		.05	2.52 *	[.01, .09]
Job engagement	Physical health		.11	3.73 * * *	[.05, .16]
	Family relationship health		.07	2.63 * *	[.02, .12]
	Co-worker relationship health	.84	.11	3.39 * * *	[.05, .17]
	Proactive personality		.26	9.26 * * *	[.20, .31]
	PH * PP		-.05	+1.90	[-.10, .00]
Job performance	Psychological capital		.31	9.86 * * *	[.26, .37]
	Job engagement		.45	14.01 * * *	[.38, .51]
	Physical health	.46	-.02	- .84	[-.08, .03]
	Family relationship health		.09	4.60 * * *	[.05, .13]
	Co-worker relationship health		.02	.98	[- 02, .06]
	Mental health		.03	1.37	[- 01, .06]
	Sleep health		-.00	-.12	[-.05, .05]

Note: SH: sleep health, CH: co-worker relationship health, PH: physical health, PP: proactive personality.
The interaction terms were normalized products, and the other predictive variables and dependent variables were normalized. **P*<.05, ***P*<.01, ****P*<.001.

Due to the poor fitting index of the integration model, the covariance of psychological

capital and job engagement were incorporated into the model according to the modulation index (MI), and an optimal integration model was obtained. The results are shown in Table 4.18 (the following results were obtained through bootstrap test with 5000 samples selected). The overall fitting index of the model was good (χ2/ DF=3.34, NFI=.98, CFI=.99, RMSEA=.04). The model is shown in Figure 4.10(a).

Table 4.18 Optimal path analysis of employee's holistic health, job engagement, psychological capital, proactive personality, leader-members exchange and job performance

The dependent variable	The independent variables	R2	B	t	95% confidence interval
Psychological capital	Sleep health		.05	2.42 **	[.01, .10]
	Co-worker relationship health		.17	5.60 ***	[.11, .23]
	Mental health	.81	.05	2.32 **	[.01, .09]
	Proactive personality		.26	9.18 ***	[.20, .32]
	SH * PP		-.06	-2.76 **	[-.11, -.02]
	CH * PP		.03	1.90 +	[- 00, .06]
Job engagement	Physical health		.10	3.95 ***	[.05, .15]
	Family relationship health	.84	.04	1.97 *	[.00, .08]
	Co-worker relationship health		.12	3.71 ***	[.06, .18]
	Proactive personality		.26	9.18 ***	[.20, .32]
	PH * PP		-.06	-2.74 **	[-.10, -.01]
Job performance	Psychological capital		.31	9.90 ***	[.25, .37]
	Job engagement		.45	13.84 ***	[.39, .51]
	Physical		-.02	- .83	[- 08, .03]
	Family relationship health	.46	.09	4.59 ***	[.05, .13]
	Co-worker relationship health		.02	.99	[- 02, .06]
	Mental health		.03	1.39	[- 01, .06]
	Sleep health		-.00	-.11	[- 06, .05]
Covariances:					
Job engagement	Psychological capital		.54	11.62 ***	[.45, .64]

Note: SH: sleep health, CH: co-worker relationship health, PH: physical health, PP: proactive personality.
The interaction terms were normalized products, and the other predictive variables and dependent variables were normalized. *P<.05, **P<.01, ***P<.001.

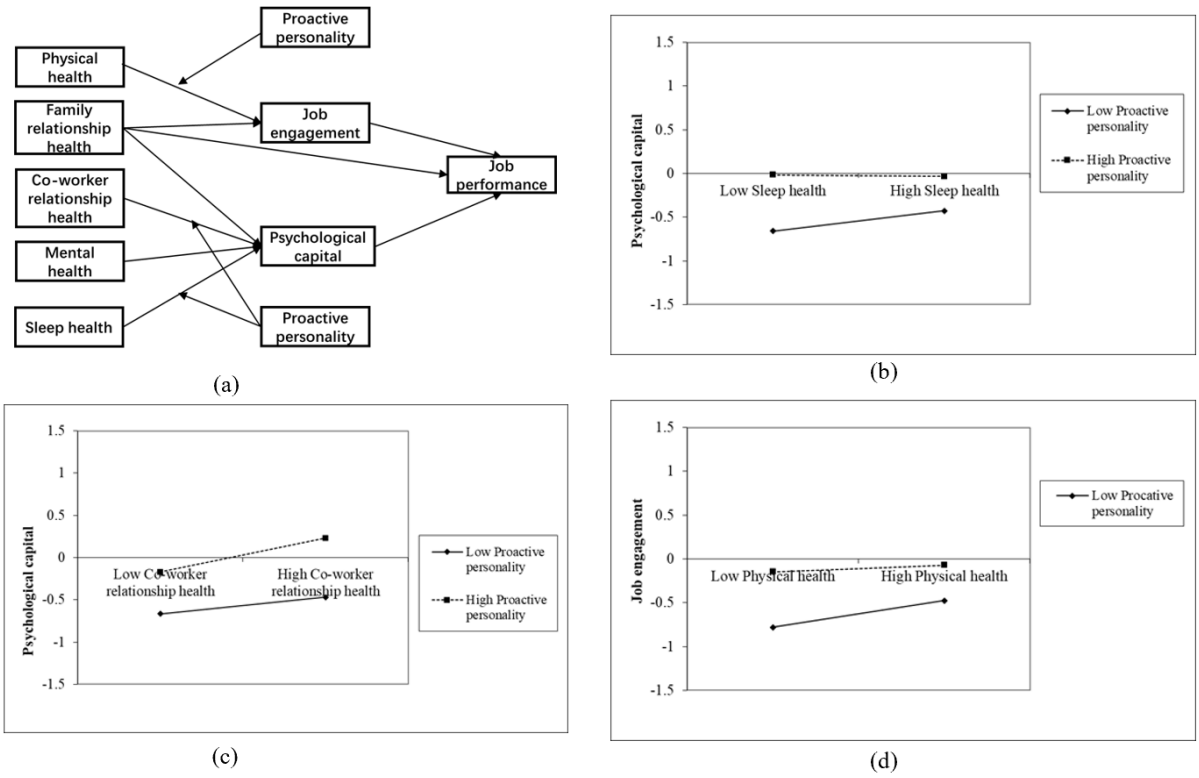


Figure 4.10 Path analysis of employee's holistic health, job engagement, psychological capital, proactive personality, leader-members exchange and job performance

Note: (a) Optimal model of dual mediating variables with one moderating variable; (b) Moderating effect of proactive personality on the relationship between sleep health and psychological capital; (c) Moderating effect of proactive personality on the relationship between co-worker relationship and psychological capital; (d) Moderating effect of proactive personality on the relationship between physical health and job engagement.

In terms of mediating effects, the indirect effects of all major health variables are composed of the mediating effects of psychological capital and job engagement, (1) The total effect of sleep health on job performance was .013, in which the direct effect was -.003, and the indirect effect caused by psychological capital was.016. Bootstrap test found that 95%CI of psychological capital was [.00,.03], which did not include 0, indicating significant mediating effect. It suggests that sleep health can improve employee's job performance through enhancing psychological capital. (2) The total effect of family relationship health on job performance was .108, of which the direct effect was .090, and the indirect effect caused by job engagement was .017. Bootstrap test found that the 95% CI of job engagement was [.00,.04], and 0 was not included, indicating significant mediating effect. It shows that family relationship health can improve employee's job performance through enhancing job engagement. (3) The total effect of co-worker relationship health on job performance was .125, of which the direct effect was .021, the indirect effect caused by job engagement was .052, and the indirect effect caused by psychological capital was .052. Bootstrap test found that the mediating effect of job engagement was 95% CI [.03,.08], and the mediating effect of psychological capital was 95% CI [.03,.08], both of which did not include 0, indicating significant mediating effect. The results

indicate that co-worker relationship health can improve employee's job performance through enhancing psychological capital and job engagement. (4) The total effect of mental health on job performance was .041, of which the direct effect was .026, and the indirect effect caused by psychological capital was .015. Bootstrap test found that 95% CI of psychological capital was [.00, .03], which did not include 0, indicating significant mediating effect. It shows that mental health can improve employee's job performance through enhancing psychological capital. (5) The total effect of physical health on job performance was.019, in which the direct effect was -.023, and the indirect effect caused by job engagement was.043. Bootstrap test found that 95%CI of job engagement was [.02,.07], which did not include 0, indicating significant mediating effect. The results show that physical fitness can improve employee's work performance through enhancing job engagement.

Secondly, the product term of proactive personality and sleep health has a significant negative predictive effect on psychological capital (B=-.06, Z=-2.76, P<.01), indicating that proactive personality can regulate the predictive effect of sleep health on psychological capital. Further simple slope analysis (Figure 4.10(b)) showed that, as shown in Figure 4.10(b), for subjects with low proactive personality level (M-1SD), sleep health had a significant positive predictive effect on psychological capital, B=.12, Z=-3.61, P<.01; However, for the subjects with high proactive personality level (M+1SD), sleep health has a significant negative predictive effect on psychological capital, B=-.12, Z=-.29, P>.05, indicating that with the improvement of individual proactive personality level, the positive effect of sleep health on psychological capital may be weakened.

Thirdly, the product term of proactive personality and co-worker relationship health has a significant positive effect on the prediction of psychological capital (B=.03, Z=1.90, P=0.06), indicating that proactive personality can regulate the prediction effect of co-worker relationship health on psychological capital. Further simple slope analysis (Figure 4.10(c)) shows that, as shown in Figure 4.10(c), for the subjects with low proactive personality level (M-1SD), co-worker relationship health has a significant positive predictive effect on psychological capital, B=.14, Z=-4.11, P<0.01; However, for the subjects with higher proactive personality level (M+1SD), the positive prediction effect of co-worker relationship health on psychological capital was greater (B=.20, Z=5.65, P<0.01), indicating that with the improvement of individual proactive personality level, the positive prediction effect of co-worker relationship health on psychological capital was significantly increased.

Finally, the product term of proactive personality and physical health has a significant positive prediction effect on job engagement (B=-.06, Z=-2.74, P<0.05), indicating that

proactive personality can regulate the prediction effect of physical health on job engagement. Further simple slope analysis (Figure 4.10(d)) showed that, according to Figure 4.10(d), for subjects with low proactive personality level (M-1SD), physical health had a significant positive predictive effect on job engagement, B=.15, Z=.4.65, $P<0.001$; However, for the subjects with high proactive personality level (M+1SD), physical health had no significant predictive effect on job engagement (B=.04, Z=1.24, $P>0.05$), indicating that with the improvement of individual proactive personality level, the positive predictive effect of physical health on job engagement showed a significant downward trend.

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Chapter 5: Research Discussion

5.1 Main findings of this study

5.1.1 Differences in the effects of employee's holistic health on job performance

In this research, employee's holistic health is a composite concept, including physical health, sleep health, mental health, co-worker relationship health and family relationship health. Is there any basis for this classification? According to the analysis results of five kinds of relationship between health and performance, physical health and sleep health have a weak positive effect on job performance, mental health is in the middle, and co-worker relationship health and family relationship health have the strongest positive effect on job performance. This suggests that personal physical health, mental health, and co-worker relationship health are separate and should not be lumped together.

On the other hand, the core competitiveness of modern manufacturing is continuous technological innovation, digital and smart production, rather than relying on manual labor. With the rapid development of science and technology, after the mode of production changes from labor-intensive to technology-intensive, the effect of traditional physical health such as physical health and sleep health on job performance gradually weakens, while the effect of co-worker relationship health and harmony on job performance gradually increases. This suggests that in the construction of human resources, the value of labor force's physical capital is declining, while the value of labor force's interpersonal capital is rising.

Finally, as the contribution of employee's physical strength to enterprise performance is declining, employers are likely to pay no attention to the physical health of employees, which also explains why enterprise managers turn a blind eye and remain indifferent to the sub-health status of more and more employees. This prompts employees to pay attention to their health and fully realize that they bear the ultimate responsibility of maintaining good physical health and good sleep quality for their own good! Good physical fitness and sleep quality are the foundation of life satisfaction and long-term well-being.

5.1.2 Differences in mediating mechanisms of the effects of employee's holistic health on job performance

In addition to the direct effects of the five health factors on job performance, the differences in mediating mechanisms also further demonstrate the differences of the five health factors. In the integrated optimal model, the five health factors influence performance through the mediating role of job engagement and psychological capital. But different health types have different mediation paths. Physical health affects job performance by improving job engagement, while sleep health affects job performance by improving psychological capital. This shows that there are differences between physical health and sleep health, and sleep health cannot simply be classified as physical health. Both mental health and co-worker relationship health affect performance through enhancing psychological capital. From the perspective of mediating mechanism, sleep health, mental health, and co-worker health show similar patterns. Family relationship health is the most special one, which affects job performance through job engagement and psychological capital, and directly affects performance. This shows that family relationship health is the most complex, and it also suggests that family relationship health is not just an employee's family matter. Enterprise managers should pay attention to family relationship health, such as organizing family day and other team building activities to enhance mutual understanding.

Through the comparison of different types of mediating mechanisms of the five major health effects on job performance, we further clarify the differences among the five major health factors. Physical health and sleep health seem to be more physical health, but our research results reveal their differences. Both co-worker relationship health and family health seem to be relationship-oriented, but our results also reveal differences in relationship health.

5.1.3 Differences in the moderating mechanisms of health on job performance

In addition to differences in the direct effects and mediating mechanisms of the five health factors on job performance, we also found that the boundary conditions for the establishment of the model in the mediating model with moderation, that is, the moderating effects were also different for different health types. In the final integrated optimal model, we found that proactive personality moderated the mediating effect of physical health on job performance through job engagement, and the mediating effect occurred in the path from physical health to job engagement. Proactive personality moderates the mediating effect of co-worker health and sleep health on job performance through psychological capital, and the mediating effect occurs

in the path from health to psychological capital. The mediating effect of mental health on job performance through psychological capital is not moderated by proactive personality. Similarly, there is no moderating effect of proactive personality in the mechanism of family relationship health. On the one hand, these findings confirm the role of proactive personality; on the other hand, they further clarify that the five kinds of health should not be confused. Although they all have positive effects on performance, their mediating and moderating mechanisms are different. Therefore, in the formulation of relevant employee health management and job performance improvement measures, a case-by-case approach, one key for one locker.

5.2 Similarities and differences between the results of this study and those of previous studies

5.2.1 The relationship between employee's holistic health and job performance

In terms of physical health, according to previous studies, physical health plays a central role in absenteeism. Because absenteeism is a clear indicator of not working, physical health is directly related to job performance. Physical and mental health affect job satisfaction and job performance. By improving employee's nutrition and physical vitality, physical and mental health can be enhanced, and then employee's performance and productivity can be improved. The essence of this model is that physical health mediates the positive effect of physical nutrition and vitality on job performance, that is, there is a high positive predictive effect between physical health and job performance (Merrill et al., 2013; Ybema et al., 2011).

According to the results of this study, it is shown that physical health has a direct positive effect on job performance, which is consistent with previous theoretical views. In addition, this study takes psychological capital and job engagement as mediating variables and tests the relationship between physical health and job performance. This research on the path model of physical health essentially introduces that physical health affects employee's performance by improving their psychological capital or job engagement. The essence of the theoretical model is to improve the level of physical health by improving the level of nutrition and vitality, which ultimately affects the job performance. Therefore, we have made more efforts in research and verification on why physical health can affect performance on the basis of previous theoretical viewpoints. To sum up, the results of this study are consistent with previous views, that is, physical health has a significant positive predictive effect on job performance, and further enriches, supports, and explains this theoretical viewpoint.

In terms of mental health, previous studies have shown that there is a moderate to strong correlation between mental health and job performance, and there is a correlation between positive emotions and organizational job performance. The results of this study further verify this relationship (Ford et al., 2011; Taris, 2006), that is, mental health has a strong direct positive effect on job performance.

Previous studies have shown that poor mental health can lead to cognitive defects related to job performance, such as working memory, recognition, and recall, learning and executive function defects (Austin et al., 2001; Burt et al., 1995; Dalgleish et al., 2007; Eysenck & Calvo, 1992; Hayes et al., 2008). Cognitive skills such as working memory and situational memory mentioned in previous studies mediate the positive relationship between mental health and job performance. The results of this study show that mental health affects job performance by improving the mediating variable of mental capital, that is, without the participation of cognitive skills, mental health still influences job performance. This study provides another way beside the theory, and further supports and explains the theoretical view that mental health has an impact on performance.

In terms of sleep health, previous studies have found that early sleep is positively correlated with work start time, job performance and job satisfaction (Tomaka, 2015). In addition, some studies have found that shift work is directly and positively related to sleep quality and direct burnout, and indirectly affects job performance (Giorgi et al., 2018; Tomaka, 2015).

According to the results of previous studies, there are two ways for sleep health to affect job performance. First, sleep health directly affects job performance and has a positive predictive effect; Second, there is a mediating variable, direct burnout, which affects the relationship between sleep quality and performance. In essence, this model means that the level of sleep quality will affect the level of performance by directly affecting the level of burnout. The results of this study show that the direct positive prediction of sleep health on job performance is weak, and this relationship cannot be well demonstrated. The potential reason may be that all the subjects used in this study are from employees in the first-line manufacturing industry, and the impact of sleep health (a kind of physical health) on job performance is weak. However, the subjects used in previous studies are all from white-collar jobs working full-time during the day, and their sleep health level has a great influence on cognitive resources such as mental power required by their work content, thus affecting their performance level. The results of this study show that sleep health will affect performance through promoting psychological capital, a mediating factor. Therefore, this study provides another way to the theory, and further supports and explains the theoretical viewpoint of how sleep health affects performance.

On the aspect of family relationship health, this study found that family health has a strong positive predictive effect on job performance, and verified the conclusion that work interference with family and family interference with work is negatively correlated with employee's job performance (Zainal et al., 2021), and family-work conflict is significantly negatively correlated with job performance (Witt & Carlson, 2006), which further confirmed that family relationship health has a correlation with job performance.

Research results show that there is a negative correlation between family-work conflict and job performance (M. L. Wang & Tsai, 2014), while there is no significant correlation between work-family conflict and job performance (Karakas & Şahin, 2017). Family conflict means that the relationship between family and work is unhealthy, that is, the unhealthy level of family relationship affects work. The bigger the conflict, the unhealthy the family relationship and the lower the performance level. Therefore, family work conflict and job performance naturally have a negative correlation.

The results of this study show that the health of family relationship has a significant predictive effect on performance, that is, the healthier the family relationship, the higher the performance level of employees, which is consistent with the results of previous studies. In addition, this study also found that the health of family relationships cannot only directly affect performance, but also affect performance through improving psychological capital and job engagement. Therefore, this study enriches the discussion of the impact of family relationship health on performance, and further explains this conclusion. As for the conclusion of work-family conflict, that is, how work affects family's final impact on performance, this study cannot confirm it clearly, and further discussion and demonstration are needed in follow-up studies.

On the health of co-worker relationship health, some scholars have pointed out that co-worker support is one of the dimensions of co-worker relationship, which is defined as the work-related help, encouragement and support provided by co-workers in workplace (J. Zhou & George, 2001). Research shows that when the support level of co-workers is high, the negative impact of surface actions on job performance may be weakened, while the positive impact of deep actions on job performance may increase (Kim et al., 2017); Individuals who have received support from co-workers perform better in job performance (AbuAlRub, 2004). According to the results of this study, the positive effect of co-worker relationship health on performance is extremely strong, which further confirms the relationship between co-worker relationship health and performance. In addition, this study also found that the co-worker relationship health can not only directly affect the performance, but also affect the performance by improving the psychological capital. Therefore, this study enriches the discussion on the

influence of co-worker relationship health on performance, and further explains this conclusion.

5.2.2 Relationship between mediating variables and performance

5.2.2.1 The mediating role of job engagement

Some scholars believe that an employee with a high degree of job engagement will show more work-related behaviors and thoughts even outside working hours, thus improving his job performance (Kanungo, 1982). Other studies have pointed out that job engagement may predict job performance, because those individuals who most strongly agree with their jobs will concentrate their thoughts on their jobs and produce more behaviors that meet the job role requirements (Hillman et al., 2008; Kreiner et al., 2006). Job engagement is positively correlated with task performance, extra-role behavior and active learning behavior (Bakker et al., 2012). Job engagement plays a mediating role in the relationship between employee's value consistency with the organization, perceived organizational support and core self-evaluation of employees and job performance (Rich et al., 2010).

In this study, job engagement is not used as an independent variable, but as a mediating variable to test the effect of other variables on job performance. According to the results of this study, job engagement can positively predict the improvement of job performance, and its mediating effects on job performance are significant in physical health, mental health, sleep health, co-worker relationship health and family relationship health (collectively referred to as big health variables), especially in traditional physical health such as physical health and sleep health, that is, job engagement mediates the positive effects of employee's holistic health variables on performance. Therefore, the conclusion of this study further verifies the relationship proposed by predecessors.

The conclusion of this study, that is, family relationship health affects job performance through two paths — job involvement and psychological capital, and directly affects job performance, is consistent with the findings of this study, which further verifies the relationship between job engagement and job performance.

5.2.2.2 The mediating role of psychological capital

According to previous studies, psychological capital plays an mediating role in the relationship between job stress and job satisfaction (Shang-Guan et al., 2017). The psychological capital of employees is positively correlated with job performance, job satisfaction and organizational commitment. Psychological capital plays an intermediary role in the relationship between

supportive organizational climate and employee performance. To a large extent, psychology mediates between perseverance and academic achievement (Luthans & Youssef, 2004). The model essentially means that psychological capital mediates the positive effects of variables such as supportive organizational climate and perseverance on performance.

In this study, psychological capital is not used as an independent variable, but as a mediating variable to test the effect of other variables on job performance. According to the results of this study, psychological capital can positively predict the improvement of job performance, and the mediating effect of employee's holistic health variables on job performance is significant. Family relationship health, co-worker relationship health, sleep health and mental health affect job performance by improving psychological capital. This study is consistent with previous research conclusions and enriches the discussion of the impact of job engagement on job performance, and further explains and supports this conclusion from the side.

5.2.3 Relationship between moderating variables and performance

5.2.3.1 The moderating role of proactive personality

Previous studies have held that individuals with proactive personality tend to perform better in job performance than those with passive personality, and proactive personality can predict overall performance, task performance and all aspects of performance (Crant, 1995); Proactive personality is positively correlated with objective career success (Byrne et al., 2008); Proactive individuals can choose, create, and influence work situations, thus increasing the possibility of career success (Seibert et al., 2001). There is a significant positive correlation between initiative and objective and subjective career success (Jr & Marler, 2009); There is a significant positive correlation between proactive and employee's creative performance. Proactive employees can use their personality advantages to construct their work tasks, relationships and cognition, and then generate creative performance (H. Li et al., 2020); Psychologic capital and proactive personality are positively correlated with students' academic performance (L. P. Ng et al., 2019); Leaders with high proactive have better performance than those with low proactive (Huang et al., 2020); Proactive personality can moderate the relationship between work and non-work stressors and work/life satisfaction (Cunningham & De La Rosa, 2008).

In this study, proactive personality is not tested as an independent variable, but as a moderating variable. According to the results of this study, no matter whether the mediating variable is psychological capital or job engagement, proactive personality can predict the improvement of the mediating variable when it is used as a moderating variable.

The interaction between sleep and proactive personality can negatively predict the improvement of psychological capital. It shows that with the improvement of individual's proactive personality level, the positive influence of sleep health on psychological capital may be weakened. The interaction of the other four items has no significant predictive effect.

The interaction between physical health/sleep health and proactive personality can negatively predict the improvement of job engagement. It shows that with the improvement of individual's proactive personality level, the positive influence of physical health/sleep health on job engagement may be weakened. The interaction of the other items has no significant predictive effect.

It is impossible to verify the direct predictive relationship between proactive personality and job performance in previous studies. However, results in this research can confirm that when proactive personality is used as a moderating variable, it can positively or negatively predict mediating variables through interaction with other variables, thus affecting job performance, further verifying the moderating effect of proactive personality.

5.2.3.2 The moderating role of leader-member exchange

Some scholars have found that this variable of leader-member exchange can be used as a moderating variable to examine the influence on work outcome variables. Later, an empirical study pointed out that the exchange of high-quality leaders would also make employees feel more psychological security, which would make them more likely to make active adjustments and changes to their work, that is, have an impact on the final job performance behavior (Scandura & Graen, 1984; Scandura et al., 1986).

Some scholars believe that interpersonal interaction plays an important role in the process of employees, especially new employees, adapting to the environment. As the product of the initial interaction between leaders and subordinates, the initial exchange of leaders is likely to play an important role in the socialization of new employees, and ultimately affect employee’s job performance behavior (Kammeyer-Mueller et al., 2013).

In this study, leader-member exchange is not used as an independent variable to test the relationship between job performance and dependent variable, but as a mediating variable to examine the influence of independent variable psychological capital/job engagement on job performance. According to the analysis results of the moderating effect in this study, the leader-member exchange has not found a significant moderating effect on the influence of independent variables on job performance, which is inconsistent with previous findings. The potential reason may be all the subjects in this study are from the employees of the first-line manufacturing

industry. On the automated production line, the productivity and product yield of employees depend on the advanced level of the production line, and many production instructions and execution actions are completed through man-machine dialogue. In the modern manufacturing factories with increasingly developed digitalization and intelligence, workers in the first-line industries rely less and less on the interaction, guidance and help of supervisors such as foremen, supervisors, and managers to achieve efficient work. Therefore, the leader-members' exchange frequency in daily work and production is limited, and their opinions and suggestions are less, which has no obvious influence on employee's job performance. In the listed previous studies, the selected subjects are employees from large service organizations, new employees of a large research university in the United States, white-collar employees of public and private service and manufacturing organizations, and employees of inpatient and educational housing services of a large undergraduate in the Midwest of the United States. These employees are different from those selected in this study in that they will communicate and exchange opinions with leaders (such as supervisors) more frequently in their daily work, and the will of leaders will be reflected in them. Therefore, this study cannot test this theoretical viewpoint for the time being, and further research is needed to discuss the moderating effect of leader member exchange.

5.3 The theoretical significance of this study

5.3.1 The theories supported by this study

5.3.1.1 Trait activation theory

According to the trait activation theory, there is an internal relationship between external situation and personality traits, and this relationship can predict individual behavior. According to this theory, an individual with a certain trait must be subjected to a situation that is compatible with the trait before he can show a certain behavior (Tett & Burnett, 2003; Tett & Guterman, 2000; Tett et al., 2013). Based on this theory, we can assume that after a specific clue in the external situation stimulates the proactive personality, the interaction between the stimulated proactive personality and the stimulus can predict the job performance. The results of this study show that proactive personality regulates the mediating effect of co-worker relationship health and sleep health on performance through psychological capital. Co-worker relationship health and sleep health can be regarded as specific clues, and proactive personality can be regarded as the product of stimulation, which can predict job performance. Therefore, the conclusion of this study is consistent with and support trait activation theory.

5.3.1.2 Social cognitive theory

According to cognitive theory, individuals, environment, and behaviors will influence each other and produce different results in different backgrounds. Personal factors include individual personality characteristics (proactive personality) and emotional factors. Behavioral factors are the specific performance of individual behaviors (job performance), and environmental factors refer to objective environmental conditions. Individual factors will be influenced by environmental factors and constantly adjusted, which will lead to the change of individual behavior (Bandura, 1986; Bateman & Crant, 1993). Therefore, individuals with proactive personality will take the initiative to take constructive actions at work according to the changes of working environment and tasks, so as to improve their work performance. This study found that proactive personality has a significant moderating effect on various paths, such as psychological capital and job engagement. The conclusion of this study is consistent with the viewpoint of social cognitive theory. This study supports this theory.

5.3.1.3 Psychological capital theory

According to the psychological capital theory, psychological capital is a positive psychological state displayed by individuals in the process of growth and development, and it can be continuously developed and managed. Psychology capital includes four psychological states: self-efficacy, hope, resilience, and optimism. Self-efficacy is self-confidence, which can improve individuals' ability to accept challenging tasks at work and think that they can succeed. Optimism can make individuals make positive attribution at work, hoping that individuals can stick to their goals and make appropriate adjustments according to the situation to achieve better success; Toughness can give individuals more perseverance, constantly adjust and try, and finally achieve higher performance (Luthans et al., 2005; Luthans & Youssef, 2004). To sum up, the four psychological states (psychological capital) have a positive predictive effect on job performance, which is consistent with the conclusion of this study.

In addition, this study also draws a conclusion that the variables in the five kinds of employee’s holistic health are all mediated by psychological capital, thus improving job performance. According to the four psychological states of psychological capital, we can assume that individuals with healthy family relationships benefit from good family relationships and can get more support from family members. They are more resilient than those with unhealthy family relationships, thus achieving higher performance. A mentally healthy individual is more optimistic and hopeful, so this individual can have a high level of psychological capital than others, and thus obtain high performance. Therefore, the hypothesis

based on the results of this study perfectly accords with the viewpoint of psychological capital theory, so this study supports this theory.

5.3.1.4 Theory of human capital

According to the theory of human capital, human capital refers to the capital mainly manifested by the quality of workers, including their physical health, knowledge, skills and demonstrated abilities. The productivity of human capital depends on the efforts of the people who own this kind of capital, which can be obtained through acquired investment, and affects the productivity and income in the later period (Becker, 1962; Schultz, 1961).

Based on this theory, employee's health, psychological capital, and other resources carried by the workers themselves can be considered as of great significance to the organization of production, which can not only increase profits, but also improve the production efficiency of material capital. Because employees with good physical and mental health have more energy, more focused attention, and higher motivation level than those with poor health, their job performance will see significantly positive impact. According to the results of this study, five kinds of health have significant positive effects on performance. In addition, the relationship between psychological capital as a mediating variable and job performance also has a significant predictive effect. Therefore, this study supports the theory of human capital.

5.3.1.5 Hierarchy of needs theory

According to the hierarchy theory, people's motivation is determined by people's needs, and people's needs are mainly divided into five levels: physiological needs, security needs, belonging and love needs, respect needs and self-realization needs. Moreover, the generation of needs is progressing from low level to high level, and when the needs of the lower level are not fully met, the needs of the higher level arise. After the low-level needs are basically met, its incentive function will be reduced, its dominant position will no longer be maintained, and the high-level needs will replace it as the main reason for promoting behavior (Maslow, 1943, 1964, 1970).

Based on this theory, we can assume that when employees meet the most basic survival needs after work, they are eager for higher level needs. At this time, the motivation of employee's work is no longer based on the low-level needs of "solving food and clothing", but on higher-level spiritual rewards such as longing for respect and self-realization. If the enterprise doesn't pay attention to this point and still judges the employees according to the minimum standards, it is very likely to reduce the employee's work enthusiasm and thus affect their work performance.

Therefore, according to this theory, when employees get more emotional support, respect, sense of belonging and other advanced needs from the organization, they are more likely to make more efforts for the benefit of the organization, thus achieving a higher level of performance. The support, respect, and sense of belonging those employees get from enterprise organizations can be regarded as a level of the co-worker relationship or psychological capital of colleagues. According to the results of this study, the co-worker relationship health has a strong positive effect on job performance, and psychological capital can positively predict the improvement of job performance, and it has a mediating role. To sum up, the conclusion of this study accords with the hierarchy of needs theory.

5.3.1.6 Social exchange theory

According to the social exchange theory, individuals always engage in social exchange in their social life. That is people expect to be rewarded while providing help and support to others. Or when people get help and support from others, they are more willing to repay others. Social exchange can be understood as a principle of mutual benefit, which is about the exchange of intangible social costs and benefits (such as respect, honor, friendship, and support) and is not bound by explicit rules or agreements (Blau, 1956, 1964; Homans, 1958; Thibaut & Kelley, 1959).

Based on this theory, it can be assumed that if employees get more emotional support, respect, and sense of belonging from the organization, they are more likely to make more efforts for the benefit of the organization, thus improving their performance level. If the enterprise organization gives employees who need help—offering individuals with poor physical and mental health regular physical checks and paid medical leave, providing a good working environment and a co-worker relationship environment of mutual support and understanding, or giving counseling and training on the development and management of their own psychological capital—then according to the principle of mutual benefit under social exchange theory, these employees are more likely to make a return behavior to the enterprise, thus achieving the purpose of improving performance. According to the conclusion of this study, big health variables and psychological capital have significant positive effects on performance. Therefore, while helping the employees, the enterprise organization is essentially improving its own interests and efficiency. Therefore, this study supports the theory of social exchange.

5.3.1.7 Triple needs theory

According to the theory of triple needs, people's higher needs include the needs of achievement,

power, and affinity. Individuals with a strong need for achievement are more eager for perfection, and more eager for the sense of accomplishment gained by the success brought by improving their work performance. People with achievement needs have strong requirements for job competence and success. Individuals with high power demand will also pursue excellent job performance, but they are different from those who need to achieve it, in order to gain status and power or to be commensurate with the power and status they already have. People with high affinity demand are eager for affinity, like the working environment of cooperation rather than competition, and hope to communicate and understand each other. They are more sensitive to interpersonal relationships in the environment. In the working environment, individuals with high affinity demands can better bring good workplace atmosphere and healthy co-worker relationship to other employees, thus improving the overall performance level (McClelland et al., 1953).

Achievement demand and power demand can be regarded as another manifestation of self-efficacy in psychological capital. Based on this theory, individuals with achievement demand and power demand are more likely to perform better in job performance. The conclusion of this study shows that psychological capital has a positive predictive effect on job performance, and the relationship between psychological capital and job performance as a mediating variable also has a significant predictive effect. In addition, we can also regard affinity demand as one of the dimensions of co-worker relationship health, and it is more conducive to employee’s efforts towards high performance level. The results of this study show that the co-worker relationship health has a strong positive effect on job performance. To sum up, this study supports the triple needs theory.

5.3.1.8 Work demand theory

Job demand theory holds that the characteristics of any job can be divided into job requirements and job resources. Job requirements are "negative factors" that consume individual energy at work, such as job overload, role conflict, time pressure, job insecurity. Work resources are "positive factors" in work, such as support from colleagues, work autonomy, performance feedback. According to this theory, only high work resources can increase work engagement, which can stimulate employee’s motivation and increase work engagement, thus having a positive impact (Bakker et al., 2003). Therefore, based on this theory, we can think that when employees get much higher job resources, no matter the job requirements are high or low, they can be given more protection and enthusiasm to do a good job actively, thus increasing their personal and organizational performance.

Employee’s holistic health variables, psychological capital, job engagement and initiative personality can all be regarded as "positive factors" in job resources. The results of this study show that employee’s holistic health, especially the co-worker relationship health, has a strong positive effect on job performance; Psychology capital can positively predict the improvement of job performance, and there is a corresponding mediating role; Job engagement can positively predict the improvement of job performance, and there is a corresponding mediating role. Therefore, the results of this study perfectly agree with the viewpoint of job demand theory, so this study supports this theory.

5.3.1.9 Theory of challenging and bocking stressors

The theory of challenging-blocking stressors holds that it is beneficial to an individual's career, such as workload, working hours, work responsibilities. Such stressors are called challenging stressors; The stressors that hinder an individual's career development, such as organizational politics, ambiguous roles, and job insecurity, are called blocking stressors (Cavanaugh et al., 2000).

The core of this theory lies in the word "stress", which is beneficial to an individual's career, such as physical health and mental health, good relationship with colleagues, and proactive personality traits. Although these factors have a significant positive impact on job performance, they cannot be classified as challenging stress. However, blocking stress can include tense colleagues' relationship, low physical and mental health and sleep health to catch up with the progress.

Based on this theory, it can be concluded that different stressors have different effects on work. Giving employees appropriate positive pressure will stimulate employee’s positive work behaviors and lead to a positive impact on work performance. At the same time, reducing the impact of blocking stress on employees will also help to reduce employee’s negative behaviors. According to the results of this study, the unhealthy relationship between colleagues and other physical and mental health will lead to the reduction of job performance. Therefore, this study can confirm this theory about the negative impact of blocking stress on performance but cannot demonstrate the impact of challenging stressors on performance. Therefore, this study partially supports the theory of challenging-blocking stressors.

5.3.2 Theories expanded by this study: Self-determination theory

Self-determination theory holds that all individuals are born to work hard to meet the three psychological needs of competence, autonomy, and relationship. And tend to meet these needs.

This research expounds the mechanism of environmental factors influencing individual behavior and mental health through the mediating of internal psychological needs (Deci & Ryan, 1985a, 1985b, 1985c, 2014; Vansteenkiste et al., 2006; Vansteenkiste & Ryan, 2013).

Employee's motivation and effort can be strengthened through internal and external stimulations, that is, when employee's needs are stimulated externally to meet their internal needs, employees will be more active in their work, thus producing good work performance. Therefore, in the process of improving work performance, it will be very effective to enhance the motivation of employees. Based on this theory, there may be a path that psychological needs affect job performance through the mediating role of environmental factors, and the emphasis lies in the mediating role of environmental factors as mediating variables between psychological needs and performance (individual behavior).

To sum up, the self-determination theory holds that personal factors can influence outcome variables through environmental factors, while this study found that personal factors can directly affect outcome variables without environmental factors. In this study, employee's holistic health variables such as physical health, sleep health, and co-worker relationship health can still have a direct impact on the outcome variables (job performance) without the participation of environmental factors. In addition, this study takes job engagement and psychological capital as mediating variables, both of which belong to organism variables, but not to environment variables, and finds a new path of organism variables as mediation, that is, individual factors (non-environment factors) mediate the positive effect of psychological needs on performance. Therefore, this study does not deny the role of environmental factors in this theory but expands and enriches the viewpoints of this theory.

5.3.3 Theoretical contribution of this study

This study takes employee's holistic health variables as independent variables, psychological capital, job engagement as mediating variables, leader-member exchange and proactive personality as moderating variables and investigates the effects on job performance. After integrating the path optimal model of psychological capital and the path optimal model of job engagement, this study also puts forward its own theory according to the obtained double-mediating optimal model.

Employee's holistic health variables, that is, physical health, sleep health, mental health, co-worker relationship health and family relationship health, should not be confused with each other. Although they all have positive effects on performance, the mechanisms of the five on job performance are not the same.

First, it is the direct predictive effect of employee's holistic health variables on job performance. Physical health and sleep health have weak positive effects on performance, while mental health is in the middle, while co-worker relationship health and family health have the strongest positive effects on performance.

Secondly, it is the mediating mechanism of employee's holistic health variables for job performance prediction. Health affects job performance by improving job engagement, while sleep health affects performance by improving psychological capital. Mental health and co-worker relationship health both affect performance by improving psychological capital. From the mode of mediating mechanism, sleep health and mental health, and the co-worker relationship health show similar patterns. Family relationship health is the most special. Family relationship health affects performance through job engagement and psychological capital, and it also has a direct effect on performance. This shows that the role of family relationship health is the most complicated and critical.

Finally, it is the moderating mechanism of employee's holistic health on performance. Proactive personality moderates the mediating effect of physical health on performance through job engagement, and proactive personality moderates the mediating effect of co-worker relationship health and sleep health on performance through psychological capital. The mediating effect of mental health on performance through psychological capital is not moderated by proactive personality. Similarly, there is no moderating effect of proactive personality in the mechanism of family relationship health.

To sum up, to improve employee's job performance, companies should protect their employee's health, because all five kinds of health have a positive impact on job performance, which is also in line with common sense. Secondly, attention should be paid to the employee's family relationship health, which not only directly and significantly affect job performance, but also affect job performance through job engagement and psychological capital. All other things being equal, a healthy family relationship can ensure a sound work performance. The key take-away is the proactive personality has a significant moderating effect on various paths, so enterprises can give higher weight to this trait when recruiting new employees. For the long-time service employees, the initiative of employees can be improved by strengthening training and formulating comprehensive incentive measures.

5.4 Application value of this research

5.4.1 Research implications of employee's holistic health variables

5.4.1.1 Overview of research implications

This study has explored the impact and importance of employee health on organizations in the context of the global outbreak and continuation of COVID-19, the reduction of demographic dividend and the postponement of retirement age caused by the low fertility rate in the world and even In China. The benefit of an enterprise comes from the performance of its employees. The development of an enterprise promotes the development of social economy. The policies of the government affect the operation of an enterprise, and then affect the policies and management of an enterprise for its employees. How to fully ensure the attention and support of all social parties, including the government, enterprises, organizational managers, and employees for employee health management is of great significance for promoting social, economic, and cultural progress. The health management of employees mainly uses modern medical treatment and information technology to track and evaluate the health status of employees from the physiological and psychological perspectives, systematically maintaining the physical and mental health of employees, reducing medical costs, and improving the overall production efficiency of enterprises.

Therefore, this study will analyze the significance and corresponding methods of investment in employee health management from the perspectives of the government, enterprises, human resource management departments and employees.

5.4.1.2 Implications of research on government departments

Health management is a systematic project, which requires the attention of the whole society, all parties and all staff including the cooperation between various government departments. For the government, the health literacy level of residents is taken as the action effect index, the purpose is to improve the health literacy level of citizens. Popularizing health knowledge and improving the health literacy of the whole people is one of the most fundamental, economical, and effective measures to improve the health of the whole people.

Looking around the world, in 2010, WHO published a Healthy Workplace Action Model: For Employers, Workers, policy makers and Practitioners, which provides a global framework for workplace health protection and promotion. Canada, the United States, Europe, Japan, Iceland have all designated corresponding policies to help employees develop a healthy life and

promote the healthy state of the professional population by encouraging enterprises to highlight health during development.

5.4.1.3 Research implications to enterprises

The main body of an enterprise is composed of employees, and the benefits and development of an enterprise cannot be separated from the labor of employees. Only healthy employees can continuously, actively, and efficiently create greater value for enterprises. Therefore, enterprises should attach great importance to the decline of employee's health, and constantly improve employee's health level by setting up and implementing employee health plans, to enhance the overall performance of enterprises.

A total of 1,648 companies from 40 countries and in 25 languages surveyed across multiple cycles of the global coronavirus pandemic, with some degree of questionnaire adaptation in response to the pandemic.

The survey results were weighted by global, regional, and country data, and the key findings of the survey are that employee health is highly correlated with key business indicators. Improving employee health can significantly improve the company's key business indicators, including customer satisfaction, customer retention, employee engagement, employee loyalty, profit margin. According to the survey results, 90 percent of companies in the Asia-pacific region have implemented various employee health programs, but only 55 percent have integrated employee health into their strategic planning, and only 27 percent have considered employee health as part of their strategy.

In addition, the study found that, globally: 3 % increase in employee health performance leads to a 1 % increase in customer satisfaction and retention; 3.5% increase in employee health performance is associated with a 1% increase in employee satisfaction and customer acquisition. 4% increase in workplace health performance is associated with a 1 % increase in profits and a 1% reduction in staff turnover. The top health issues for Asia-pacific companies are work-life balance, work environment and culture, mental health, physical health, and burnout.

(1) Occupational Stress

In organizations, employees are prone to occupational stress, also known as occupational stress, which refers to the physical and psychological reaction that occurs when the requirements of an individual's job position do not match his or her ability, resources or needs. If it persists, it may cause physical and mental health damage. Moderate stress at work can activate the individual potential of workers, but if they are in a high degree of stress for a long time, it can cause job burnout, depression, anxiety, cardiovascular system diseases, endocrine

system diseases and other diseases, and reduce work performance. In the process of rapid advancement of industrialization and modernization, the mass emergence of information, the diversity of social values, the pace of life growth and increasing competition in the market, the change of family structure and social relations, and the changing of modern works bring to people's work and life of ubiquitous tension. The occupational stress includes manual and mental labor and covers all industries. According to the World Health Organization, occupational stress has become a worldwide epidemic. The International Labor Organization has added mental and behavioral disorders to its 2010 list of occupational diseases. Some countries and regions (such as Japan and Taiwan Province of China) have listed mental disorders caused by psychological factors in the workplace as legal occupational diseases.

In short, if enterprises can correctly prevent and control and actively respond to occupational stress it, employees can work happily and live healthily.

(2) Environment Health

Health is the most basic and important part of enterprise health management. A healthy working environment can make employees more relaxed at work, thus improving their work performance.

In terms of environmental governance, employee’s health can be improved by optimizing space details. For example, it is equipped with intelligent lighting system and air quality management system to expand the green planting area, and it is equipped with real-time environmental monitoring on each floor, which can monitor the temperature and humidity of the current environment in real time, as well as the content of carbon dioxide and PM2.5 in the air, to ensure that all spatial indicators are in the optimal range. In the construction of digital system, environmental health management is also included, and "on-demand optimization" is realized. For example, according to the weather forecast, crowd distribution forecast and environmental parameters, the opening state of each vent of fresh air system and air conditioning system can be dynamically adjusted in different time periods, and the lighting system can also be controlled in a similar way to protect health and save energy at the same time.

In addition, there are harmful factors in the workplace, which may have an impact on the reproductive health of employees, and this impact may have a negative effect on the fertility rate advocated by the government.

Compared with the past, there are more reproductive health problems today, such as infertility, recurrent abortion, and low birth weight of newborns, which are quite common among female workers, and they will affect the quality of life of female workers. It is found

that workplace exposure to certain chemicals, physical factors, and biological factors such as viruses and bacteria may affect women's reproductive health, women's conception and the health of their unborn children. Enterprises can adapt to employees by introducing ergonomics, changing the work content, adjusting the workplace, and changing tools and equipment.

(3) Work-life Balance

Under the long working hours and high-intensity work pressure, the health status of employees is bound to be greatly affected. How to consider the health of employees while enterprises seek business development has become one of the focuses of people's attention. Since 2020, the COVID-19 epidemic has caused great impact on economic production and public health safety, further highlighting the importance of people's physical and mental health to enterprises and national development. Therefore, it is necessary to build a healthy enterprise.

Employee health and corporate profits are not contradictory, but mutually reinforcing. A physically and mentally healthy employee with better job performance and innovative ability. To ensure the health of employees, enterprises should actively participate in the construction of healthy enterprises, meet the health needs of employees, and realize the coordinated development of enterprise construction and people's health.

(4) Health Management Benefits

At present, several enterprises providing professional health management programs have emerged in the market to meet the health needs of enterprises. In the past, enterprises were mainly willing to buy physical examination services. Now, with the improvement of health awareness, some enterprises begin to pay attention to health security services, cloud clinic, health cloud butler and other services. However, awareness of employee health management in domestic enterprises needs to be further improved, and the relevant funds and personnel allocation are still insufficient.

At the same time, some enterprises that do not exclude health management are not clear about how to ensure the health of employees and what measures should be taken. Entrepreneurs play a key role in shaping a healthy culture within an enterprise. In the health engineering construction of various enterprises, it is found that those enterprises that attach importance to personal health often do a good job in health work. All enterprises that attach importance to personal health will do well in their health work. However, in some enterprises with frequent employee health problems, it will be found that their business owners and management do not pay attention to their own health.

Enterprises should take the initiative to assume more social responsibilities to protect the health of employees. Such as the establishment of "workers' health week", through mental

health, scientific movement, nutrition and other themes, health knowledge publicity, continuous improvement of enterprise workers to health.

Paying attention to employee's mental health is to give employees psychological bonuses. Implement mental health management, and guide employee's psychological problems in time. By adjusting the state of mind and body, employees can gain a sense of belonging and identity through the concern of the enterprise, thus improving their work enthusiasm and loyalty to the enterprise, greatly enhancing their work efficiency, and rapidly improving the economic benefits of the enterprise.

Healthy employees are the "first productivity" of enterprises!

5.4.1.4 Implications for human resource managers

Human resource management has been transformed from the employment management mode with the "commodity man" theory to the human capital operation mode with the "knowledge man" theory. In the process of this evolution, the importance of human beings has become increasingly prominent, the individual needs of human beings have been continuously met, and human capital has gradually become the most important capital of enterprises.

Strengthening employee health management in an all-round way is the requirement of modern enterprise management. It embodies the humanistic care of employees, respect for people and emphasis on human capital.

Actions could be taken in the following aspects:

(1) Establish a cultural atmosphere of respect for employees.

Employee health management is rooted in the "people-oriented" corporate culture. Therefore, to implement employee health management, we must start with culture change.

First, enterprises should establish a humanized management concept, create a cultural atmosphere of respecting and valuing employees, and shape a "people-oriented" corporate image.

Secondly, in the specific management practice, HR needs to implement flexible management and caring management, listen to employee's needs, help employees make progress, let employees participate in decision-making so that employees can truly experience the feeling of being respected and find a sense of belonging.

(2) Improve the incentive and communication mechanism of enterprises.

Improve the incentive and communication mechanism of enterprises to solve the worries of employees. Pay attention to the personal development of employees, provide broad development space, improve career promotion channels, and give employees motivation and

hope. Provide competitive salary and reward system to motivate employees. Establish a smooth communication channel, so that employees and superiors and subordinates can have an equal dialogue, exchange information and ideas. Actively hold various forms of cultural and sports activities, relieve the pressure of work, enhance the emotional communication between employees, and improve team cohesion.

(3) Set up posts related to employee health management.

Strengthen the investment in human resources, set up related posts of employee health management, and be responsible for the management and supervision of employee health. For example, Huawei set up its chief employee health and safety officer for the first time in 2008 to further improve its employee protection and occupational health plan.

(4) Pay attention to the dual management of physical and mental health.

Attention should be paid to not only employee's physical health, but also their mental health. According to a survey on occupational mental health management of employees in Chinese enterprises conducted by China Health Organization and EAP Association, 99.13% of white-collar workers are troubled by workplace psychological factors such as stress, depression, and job burnout. 79.54% of professionals realize that "occupational mental health" affects their work.

For enterprises, helping employees to develop a good lifestyle is an important aspect of building a healthy enterprise. At present, the incidence of insomnia in China is increasing gradually, and sleep health is the foundation of health. Sleep is closely related to daily diet, physical exercise, and work efficiency. Sleep health should be the focus of healthy enterprises and healthy individuals and deserves much attention. Healthy sleep can not only reduce the incidence of endocrine, heart, blood vessels and other related diseases, but also improve work efficiency.

The purpose of managing employee's mental health is to promote employee's mental health, reduce management costs, enhance organizational culture, and improve enterprise performance. An effective management of employee's mental health can bring better benefits to enterprises.

5.4.1.5 Research implications for employees

According to the "2020 National Health Insight Report" for health research in China, 97% of employees said they had health-related troubles.

Employees are faced with the pressure of an increasingly fast pace of life and work, working 12 hours a day and six days a week. Many people are in a "sub-health" state due to staying up late, irregular diet and lack of exercise.

According to the survey of office workers in 10 cities by the Ministry of Health, 48% of employees are in sub-health state, especially in economically developed areas. 75.3% in Beijing, 73.49% in Shanghai and 73.41% in Guangdong; And almost every individual who participates in the market competition suffers from chronic diseases and mental disorders.

Employees should not only exercise regularly, but also keep fit. Avoid unhealthy food and get enough sleep. Establish good relations with colleagues, fam Employees should not only exercise regularly, but also keep fit. Avoid unhealthy food and get enough sleep. Establish good relations with colleagues, family, and friends. Talk to your trusted family, friends, and colleagues when you encounter problems or troubles. If the stress persists, severe physical or psychological symptoms appear, and you cannot get out of it or your self-relaxation is ineffective, you can seek help from a psychological counselor or professional service organization.

The increasingly fierce social competition, work pressure, work environment, interpersonal relationship, job change, welfare, salary difference, family harmony will directly affect the mental health of employees. The Report on the Development of Chinese National Mental Health (2017-2018), jointly published by Institute of Psychology, Chinese Academy of Sciences and Social Science Literature Publishing House, reveals the current mental health of Chinese nationals in a great amount of information, which deserves our attention.

Psychological research shows that stress is not all harmful, and the corresponding relationship between job performance and stress presents an inverted U-shaped curve. Moderate stress can bring positive work motivation and optimistic life goals, and improve work efficiency and life satisfaction, while high-load stress can bring great negative effects to people. Therefore, enterprises need to pay more attention to employee’s mental health.

5.4.2 Research implications of proactive personality variable

5.4.2.1 Overview of research implications

The rapid development of society, organization and technology requires employees to constantly adapt to changes. Personality characteristics, especially those that can reflect the willingness to change, are increasingly studied by scholars and considered as the key factors that drive individual success and bring organizational competitive advantage. Studies have proved that active personality has a positive impact on many individual and organization-related outcome variables, including job performance, career success, leadership, team performance, creativity. Advocating proactive personality will help the government, enterprises,

organizations, and employees to deal with various setbacks and disadvantages in life and work, and actively treat self-choice.

5.4.2.2 Implications for government departments

The Chinese government calls on the people to take the initiative to take responsibility, be industrious and brave. Be open, learn advanced experience and technology from other countries, and strive for the great rejuvenation of the Chinese nation. It is imperative to cultivate a positive social mentality, overcome the impermanence, helplessness, and negative individual values of "living for yourself" brought by Covid-19 epidemic, and guide the healthy development of social mentality with correct values. Negative social emotions will become a booster of social conflicts, which will have a destructive impact on society. When a major incident occurs, social emotions will be more fragile and sensitive than usual, and negative emotions such as anxiety, anxiety, panic, and pessimism will easily appear. The government should attach great importance to the problem of insufficient imbalance in economic and social development, as well as the negative social sentiment caused by the superposition effect of weaknesses in social governance and epidemic situation.

5.4.2.3 Research implications for enterprises

(1) Management Style

The essence of management is to stimulate the enthusiasm of employees, actively create value for enterprises and give back to the society. Employee’s proactivity is to let employees take the initiative to do something and produce better results than passive work. When employees keep initiative in their work, they can devote themselves to their work. Through the company's rules and regulations and the authority of managers, the mandatory management mode of making subordinates work hard may result in lower performance, and lead to physical and mental health problems of employees.

A good manager can stimulate the internal motivation of employees themselves. Only by truly finding the inner motivation of subordinates can employees love their work from the bottom of their hearts and take the initiative to take responsibility. Sharing the values of the team can bring positive power to subordinates. Once they find that what they have done is to realize their sense of accomplishment, and deeply feel the sense of identity brought by the sense of accomplishment, this sense of identity will make them feel satisfied. This is a positive driving force driven by values. It can make people take the initiative to eliminate interference and create outstanding achievements, to realize their self-worth.

Finding the work direction that employees are good at and giving full play to their advantages can greatly improve their work enthusiasm and efficiency. Every employee in the team has his own unique growth experience, educational background, and skill characteristics. Individual differences exist objectively. Managers should put everyone in the most suitable position and give them the most suitable tasks, which will make their work easier and more satisfactory.

By praising employees for achieving their work goals or contributions, satisfying their sense of honor, and making them feel the recognition and praise of the enterprise, they will work more actively for the enterprise.

（2）Incentive Mechanism

A set of good incentive mechanism can effectively improve employee’s performance and promote their health. To sum up, there are these aspects:

(a) Salary

Whether a generous salary can be provided is still a direct factor affecting the enthusiasm of employees. However, a generous salary may not always satisfy employees. In salary decision-making, we should comprehensively consider the relative value of post, salary level and personal performance, and take them as the basis for formulating salary system. Through the effective combination of the above three elements, employees can know in advance the specific impact of doing well or poorly on their salary income, which is conducive to fully mobilizing employee’s enthusiasm, making their efforts conform to the company's development direction, promoting the realization of the company's strategic objectives, linking the company's business objectives with personal objectives, and realizing the common development of enterprises and individuals.

(b) Institutions

The implementation of enterprises needs various systems. Similarly, a reasonable system should be worked out to motivate employees, to effectively mobilize the enthusiasm and initiative of employees.

Competition mechanism: Competition can motivate employees. The last elimination system is a specific form of competition mechanism. As far as the management of enterprises in China is concerned, the last elimination system is feasible. Establishing a strict competition mechanism for employees and implementing the last elimination system can put pressure on employees, create a competitive atmosphere among employees, and help mobilize the enthusiasm of employees, make the company more vigorous and energetic, and better promote the growth of enterprises. However, the last elimination system will have a negative impact on

the mental health of some employees.

Goal motivation: It is to determine appropriate goals, induce people's motivation and behavior, and achieve the purpose of arousing people's enthusiasm. Goals can trigger, guide, and motivate. Only by constantly pursuing high goals can a person have the inner motivation to strive for progress. In fact, everyone has other goals besides money, such as power goals or achievement goals. Managers should dig out this hidden or present goal in everyone's heart and help them to set reasonable goals.

(c) Emotional motivation

Maslow, a psychologist, put forward five different needs of people in his book Motivation and Personality. The contents of these five aspects are: basic life needs-sense of security-sense of belonging-status and respect-self-realization. In addition to the basic living needs, the other four aspects are emotional needs. Therefore, emotional motivation is of great significance to arouse the enthusiasm and proactive of employees. There are many ways about emotional motivation, mainly these:

Respect for motivation: The so-called respect for motivation means that managers of enterprises should pay attention to the value and status of employees. If managers do not pay attention to employee’s feelings and respect them, their enthusiasm will be greatly dampened, and their work will only be paid, and the incentive will be greatly weakened. Respect is the catalyst to accelerate the outbreak of employee’s self-confidence, and respect incentive is a basic incentive method. Mutual respect between superiors and subordinates is a powerful spiritual force, which contributes to the harmony between employees and the formation of team spirit and cohesion. Therefore, respecting motivation is an important way to improve the enthusiasm of employees.

Participation: The practical experience and research of modern human resource management show that modern employees have requirements and desires to participate in management. Creating and providing all opportunities for employees to participate in management is an effective way to mobilize their enthusiasm. Through participation, employee’s sense of belonging and identity to the enterprise can be formed, which can further meet the needs of self-esteem and self-realization.

Work motivation: Work itself is the perfect motivation. To give full play to employee’s work enthusiasm, reflection should be given to how to make the work itself more meaningful and challenging to give employees a sense of self-realization. This requires managers to design employee’s work to enrich and expand the work content.

Training and development opportunities: With the knowledge-based economy coming, the

world is becoming more and more information-based, digital, and network-based, and the speed of knowledge updating is accelerating, which makes the irrational knowledge structure of employees and the phenomenon of knowledge aging increasingly prominent. Through training, they can enrich their knowledge, cultivate their ability, provide them with opportunities for further development and meet their self-realization needs.

Promotion of honor: Honor is the lofty evaluation of individuals or groups by people or organizations, and it is an important means to meet people's self-esteem needs and inspire people to strive for progress. From the perspective of people's motivation, everyone has the need of self-affirmation, glory and striving for honor. It is a good way to inspire some outstanding and representative advanced employees by giving them the necessary honors.

(d) Establish excellent corporate culture

In the process of enterprise development, the management of human resources should be consciously strengthened by establishing common values and professional ethics, to unify the thoughts of employees, make people work towards the same goal and push the enterprise forward. To create an excellent corporate culture is to make the enterprise set up a "people-oriented" idea, respect the value and status of employees, and make employees have a sense of ownership.

5.4.2.4 Implications for human resource managers

Selecting people and team building is one of the most important tasks for human resource managers, especially for key talents in core positions. Regarding how to select people, the core is to disassemble the tasks according to the company's strategy, set the positions, and then match the talents with corresponding abilities according to the abilities of the specific positions to complete the tasks.

It is inappropriate to select people only by the basic elements of intelligence, education, and knowledge. We must comprehensively consider the specific work tasks and working environment, and establish a 1+X selection model, where 1 is the necessary skill, experience, and ability to complete the job tasks of this post, and X is the specific high-performance gene of this post, that is, the competence demonstrated by the internal psychological characteristics, especially the characteristics of proactive personality.

Many solutions need trial and error because this is the nature of innovation. But trial and error will bring great psychological pressure. Everyone is eager to succeed, and everyone is eager to be recognized, but not everyone has the cognition that "proving this road is not feasible is also a kind of success". In the environment where frustration is the norm, and success is a

small probability event, a proactive mental attitude becomes an essential competency of employees.

5.4.2.5 Research implications for employees

To be a proactive employee, a practical implementation plan for each goal is required so that the goal can be refined and quantified. Second, from now on, Walk the Talk is a must. Third, set a time limit. Parkinson's law points out that if people feel that there is still time, their work will be delayed until all the time is exhausted. Set a deadline, exercise strict self-discipline, devote all energy and mobilize all resources to ensure that the task is completed on time. The difference between elite and mediocre employees in the workplace is that the former always takes the initiative to find tasks and is willing to take responsibility for their words and deeds, While the latter will only evade tasks and responsibilities. Take the initiative to do everything well. Do not wait for the boss to ask, remind, and urge further actions. Success comes with taking the initiative.

5.4.3 Research implications of psychological capital variable

5.4.3.1 Overview of research implications

Positive psychology emphasizes that people should pay more attention to what is right and what is positive. In the last decade, the role of positive psychology in the field of organizational and human resource performance has been widely concerned by scholars, especially its influence on positive organizational scholarship and positive organizational behavior.

Confidence, or self-efficacy, is an important dimension of positive organizational behavior. It refers to an individual's ability to control his motivation, cognitive resources, behaviors, and self-confidence in successfully completing tasks in each scenario. At the same time, self-efficacy is also one of the dimensions of psychological capital, and its positive role in promoting work-related performance through social persistence, positive feedback, physical and psychological arousal has been confirmed by previous studies.

When the government, enterprises, human resource managers and employees reach a consensus and resonate with the confidence, hope, optimism and resilience of psychological capital, the society, economy, organizations, and individuals will develop.

5.4.3.2 Research implications for government departments

To be a person with certain psychological capital, one must have moral character, knowledge, and responsibility. The cultivation of moral character requires rich nutrition and fertile soil. This

soil is the civilization and education of a country.

Young people's value orientation determines the value orientation of the whole society in the future, and young people are in the period of values formation and establishment. It is very important to cultivate values in this period. It's like buttoning clothes. If the first button is wrong, the rest of the buttons will be wrong. The buttons of life should be buttoned from the beginning.

The state should train and encourage the people, especially the young people, to be diligent in learning, be quick to seek knowledge, pay attention to internalizing what they have learned, and form their own opinions. They should care for the country, the people, the world, and learn to take social responsibility.

5.4.3.3 Research implications for enterprises

Hope, confidence, optimism, and resilience make employees more productive. Employees can implant, develop, measure, and train these qualities, to continuously increase productivity.

Every enterprise focuses on financial capital. There is a significant difference between the book value and market value of the company and the so-called "intrinsic value" of the company. This difference is caused by human capital. It is not only financial assets and tangible assets, but also human assets, which together constitute the value of the company. Compared with human capital and social capital, psychological capital pays more attention to the individual's psychological state. Human capital refers to the knowledge and skills contained in employees. For example, human capital can be improved by accumulating experience, receiving education and training skills. Society refers to the relationship resources established through relationships, contact networks and friends, and it is the knowledge contained in employee groups and employee networks. Psychological capital describes employee’s confidence and hope for the future. It is a state, not a trait. Like human capital and social capital, psychological capital can be acquired and developed through training.

Human capital emphasizes "what you know", such as knowledge and skills; Social capital emphasizes "who do you know", such as relationships and contacts; Psychological capital emphasizes "who you are" and "what you want to be", focusing on the individual's psychological state. Psychology is a core psychological element that transcends human capital and social capital. It can gain competitive advantage by investing and developing "who you are", and its foundation is composed of "who you are" instead of "what you know" or "who you know".

Psychology is based on a positive psychological paradigm, focusing on people's positive aspects and advantages, reflecting personal confidence, hope, optimism, and resilience in the

future, and focusing on the self-management ability of individuals or organizations in the face of future adversity.

To an individual, psychological capital refers to the psychological resources that promote personal growth and performance. To an organizational, like human capital and social capital, psychological capital can finally realize the return on investment and competitive advantage of the organization by improving employee performance. Psychological capital is unique and can be effectively measured and managed. By investing and developing psychological capital, performance can be improved, and organizational competitive advantage can be formed.

Because of the high tension caused by unemployment or job change during and post Covid-19, employees will face greater uncertainty and pressure. If the nervous state of employees is not handled properly, then employee satisfaction and commitment to the organization will easily be affected, causing ultimately a negative impact on performance. Uncertainty, stress, and anxiety easily lead to employee's lack of confidence in their ability to deal with problems in changing environment.

Especially in the era of rapid technological change, employee's resistance to the use of new technologies is not because they are worried about the technology itself but lack confidence in whether they can successfully use new technologies and achieve good performance. Therefore, the rapid changes of social and economic environment make employees face greater psychological anxiety and pressure. To survive and develop, it is particularly important to cultivate self-confident, optimistic, hope and resilience employees.

For the development of psychological capital, Dr. Fred Luthans recommended a training method: let people experience success in setting their own goals. As part of optimism training, guide them not to be divorced from reality in optimism. They are taught how to set optimistic goals, and then positively attribute the smooth and unsatisfactory situations of things. To enhance tenacity, the use of developmental language helps people to correctly understand why they are good and what their strengths are.

First, let employees enhance their own efficiency, optimism, desire, and resilience by examining their own behaviors. Think about what your typical way of dealing with a specific situation is, and then plan different ways of dealing with it in advance when necessary.

In addition, employees should have a successful experience. Just say "Great job!" is not enough. Employees need specific evaluation. This success will bring more success by giving significance.

Setting goals can also increase desire and effectiveness. If employees encounter difficulties in pursuing their goals, help them find alternative resources and methods, which can not only

cultivate their desire, but also cultivate their resilience.

5.4.3.4 Implications for human resource managers

Human resource managers know that human potential is infinite, and its root lies in human psychological capital. Since having hired more and more high quality of people, most people are in a high demand level of "being respected" and "realizing their self-worth", so they have a high demand for psychological care. Psychological problems are relatively sensitive, and it is easy to cause concerns or even resistance. This is a very realistic ideological and psychological problem faced by enterprises. If you cannot properly handle the nervous state, it will easily reduce your satisfaction and commitment to the organization, and ultimately have a negative impact on the job performance.

Human resource managers cannot look at employee's resignation from the perspective of "economic man". They should broaden their management horizons from the perspective of psychology, master the methods to help employees improve their psychological quality and the techniques of psychological counseling, and guide employees to work with positive emotions, to stimulate the team's vitality and passion and promote the improvement of work performance.

For the value of an organization, the role of psychological capital can be summarized in three points:

First, it can enhance the cohesion of enterprises, improve morale, including maintaining job satisfaction, and help maintain the sense of loyalty of enterprises; Secondly, it can promote employee's mental health and reduce production costs; Third, it can reduce the management cost.

Human resource managers should introduce employee satisfaction surveys and regularly assess the psychological state of employees. Through the implementation of employee assistance program, provide employees with psychological assistance tools to help employees get release and solutions from various problems in the workplace and life.

5.4.3.5 Research implications for employees

Employee's establishment and maintenance of good psychological capital in the workplace is conducive to their physical and mental health. Then their work performance is high as well as life quality.

To be a person with proactive personality (called "positive energy" in China). Know your personality and what you need to pay attention to in your daily life and work. Think in another's shoes, for example, when the other party has complaints or grievances, look at solving problems

with empathy, guide the other party to ask questions on how to solve them, and think and solve problems in multiple directions, which can effectively improve work efficiency and interpersonal relationships. People who constantly improve their abilities and become more confident, optimistic, and proactive. Give full play to positive energy at home and in the company and do a good job of stress management during the epidemic of Covid-19.

5.4.4 Research implications of job engagement variable

5.4.4.1 Overview of research implications

Job engagement, also known as engagement, is described as the positive feeling and sense of accomplishment brought by work. It contains three qualities: vigor, dedication, and absorption. Vigorous, resilient at work, eager to work, showing perseverance and tireless work. A dedicated person will feel that their work is meaningful, challenged, motivated and enthusiastic about it. When a dedicated person devotes himself to their work, he will feel that time passes quickly, and they forget everything else, and it is difficult to get out of the work. A dedicated society, enterprises and employees are of great significance to the economic development and the benefits of enterprises.

5.4.4.2 Implications for government departments

The government should actively advocate the concepts of "happiness comes from struggle", "success lies in dedication" and "greatness is bred from the ordinary", and carry forward the spirit of dedication, labor, artisans, entrepreneurs, and scientists, so that all people can keep a high-spirited, dedicated, and enterprising spirit.

5.4.4.3 Research implications for enterprises

The vitality of an enterprise is reflected by its employees, and to stimulate the vitality of the enterprise is to stimulate the employee’s work input. Managers of enterprises should understand their employee’s career development needs, and organically combine this demand with the company's development strategy, development goals, performance appraisal to stimulate employee’s work enthusiasm and create enterprise vitality. Managers should respect employees and core teams, establish an effective distribution mechanism of responsibilities and rights, and create development space for employees.

Build a healthy and progressive corporate culture and advocate the spirit of employees being masters of their own affairs. Encourage employees to innovate boldly and make them dedicated and happy. Fully empower employees and attach importance to their self-esteem and

ability. Actively empower, so that every employee is full of sense of mission, daring to “can do attitude” and eager to make success.

5.4.4.4 Implications for human resource managers

Whether employees are dedicated or not is directly influenced by corporate culture and management, including mechanism, process, and human resource management practice, in addition to personal attitude towards work and life, growth trajectory and value orientation. Their relationship is like seed and soil. Employees are like a seed, whether they can grow quickly and achieve excellent performance depends not only on whether the seed is good, but also on fertile soil, suitable climate, and scientific management.

There are several ways to enhance employee engagement:

(1) The reward system linked to performance

The motivation of high dedication is not only related to the salary of employees, but also related to other reward methods that make employees feel a sense of belonging. The sense of belonging has a key impact on the professionalism of employees.

The way to create a sense of belonging is to link rewards with job performance. Studies have shown that if you link rewards with an employee's personal performance and business results, the degree to which these rewards motivate him is closely related to the degree to which he maintains and improves his performance. Psychological reward is very important. Giving a concert ticket worth RMB 200 yuan to reward employees is more rewarding than giving RMB 200 yuan. Because the concert singer is the idol of the employee, the employee was deeply touched by the meticulous understanding of the employee from the personnel department and won a psychological reward.

(2) Continuous performance evaluation

The positive evaluation conclusion is a kind of reinforcement and recognition of employee’s good behavior and an important incentive measure. All employees are pursuing success and helping employees to improve their deficiencies can also show goodwill. Constructively providing negative feedback is also a manifestation of managers' concern for employee’s progress.

(3) highly valued employee relationship management

Companies with good employee relations have more dedicated teams. The research shows that communication and change management are an important part of employee relationship management process.

Great changes have taken place in the employment relationship between modern enterprises

and employees. In the past, long-term commitment was emphasized. Nowadays, layoffs seem to be very common. Not only is the employee's loyalty to the enterprise insufficient, but the enterprise's loyalty to the employee is also insufficient. When there is a crisis of trust between enterprises and employees, the degree of employee's engagement will be greatly reduced.

If the managers of an enterprise can communicate effectively with employees, answer important questions in employee's minds, and take corresponding management measures, then employee's professional engagement will be effectively improved.

(4) Focus on future learning and development

The learning process includes having employees regularly discuss their learning needs and make career development plans. According to the analysis of Accenture's human capital development framework, employee's engagement is 52% higher in companies that do well in employee career development process than those are not good in the process.

5.4.4.5 Research implications for employees

Employee's devotion to work is to their self-worth, get more salary returns and broader career development. To a large extent, it determines how employees perceive the environment, how they look at the work they are engaged in, and then how they behave at work.

Job engagement is a kind of competitiveness. Whether a person can stand out from others depends not only on the ability to surpass others, but also on a more positive work attitude. Those who are fired or never promoted are often not due to their lack of ability, but their attitude towards work is not correct enough.

Good work habits are the basis of efficient work engagement, and reasonable arrangement of work and rest time can ensure one's work energy and health.

Devotion to work is a perfect proof of love to work, and it produces good results. This kind of work attitude and results can not only be affirmed by the coworkers, but also empower the employees themselves.

5.5 Deficiencies of this study

5.5.1 Insufficient representation of samples

Totality refers to the whole class of things or people with a certain characteristic, including all possible research objects involved in a certain research topic. The totality is composed of individuals, and the nature of the totality is determined by the nature of individuals. The collection of partial individuals extracted from the population according to certain rules is called

sample. The sample should be well representative of the population to ensure the correctness of the inference.

This study selected 1410 employees of a manufacturing company in Guangdong Province as the research objects. Through the measurement and data analysis of job performance, health, psychological capital, job engagement, leader member exchange and proactive personality, the enlightenment of big health variable, proactive personality variable, psychological capital variable and job engagement variable in government departments, enterprises, human resource managers and employees is obtained. The research process and its results were only based on the specific group and employees from other industries across the country were not considered., hence the participants of this study cannot represent all groups. The external validity, namely the extent to which the experimental results can generally inference to the test samples and other similar phenomena is limited. Therefore, whether the same results will occur in other regions needs to be verified by experimental studies in the future.

5.5.2 Leader-member exchange moderation mechanism is not supported in the study

Scandura and Graen conducted an experimental study on the moderating effect of initial LMX on leadership intervention in a sample of 83 computer processing employees in a large service organization in 1984. It was found that the LMX was used as a moderating variable to investigate the effect on the job outcome variable after it was proposed.

In a three-period longitudinal study of 411 employees, Hussain and Arif (2018) pointed out that LMX plays a mediating role in the relationship between organizational commitment and job performance, that is, organizational commitment positively predicts job performance through LMX.

Manata (2019) pointed out that the quality difference of LMX has a significant impact on teamwork performance, and this impact relationship is moderated by task cohesion.

Therefore, according to LMX theory and previous research results, LMX is a very important moderating variable in job performance.

The constructs of LMX can be divided into single dimension and multi-dimension. Dienesch and Liden (1986b) developed a four-dimension scale to measure leading member exchange based on the hypothesis of four-dimension constructs. This scale has a high number of citations worldwide and its content is relatively new .

However, according to the measurement, data analysis and research results of LMX conducted in this study, although LMX can positively predict the improvement of job performance, the interaction term between job engagement and LMX has no significant

predictive effect on the improvement of job performance (P>.05). This indicates that LMX has no significant moderating effect on the effect of psychological capital or job engagement on job performance, that is, there is no significant moderating effect. Therefore, the expected moderation mechanism of LMX was not supported in this study.

5.5.3 Shorter longitudinal tracking time

Longitudinal research, also called longitudinal tracking, refers to repeated research on the same or the same group of research objects for a relatively long period of time. It can obtain consistent materials of the same group in a certain field, which can help researchers to understand the development or changing trend of some psychological characteristics of this group more accurately.

The research object of this study is 1410 employees of a manufacturing company in Guangdong Province. The employees were evaluated in June 2021 and November 2021, respectively, and the longitudinal follow-up time was only 5 months. Long-term observation may be needed to deeply study the effects of employee's holistic health on performance.

5.6 Future development direction of this study

This study investigated the effects of employee's holistic health variables, proactive personality variable, psychological capital variable, job engagement variable and LMX variable on job performance through questionnaire survey, correlation analysis, path analysis, and moderating and mediating effects tests on employees of a manufacturing company in Guangdong Province, China. On the one hand, it has enriched the related research on enterprise management, and on the other hand, it has also expanded the related research on the influencing factors of how enterprises improve employee's work performance. So, this research can provide theoretical support and practical guidance for government departments, executives, and human resources managers in different enterprises. And it can help enterprises to continuously improve their employee's job performance. With the development of theories and the gradual improvement of data, my research can be improved from the following aspects.

5.6.1 Reproducibility verification should be carried out in more groups

As the research object selected in this study is a specific group, the external validity of the experiment is limited. Therefore, this study can be carried out in more industries in different

regions in future to help us better understand the impact of employee's holistic health variables on job performance. The sample size should be increased, and the external validity should be expanded by ensuring the internal validity of the study.

5.6.2 Further explore the role of leadership variables on the relationship between employee's holistic health and job performance

In this study, many variables in the relationship between job performance were investigated and analyzed in detail, such as psychological capital, job engagement and active personality. However, the moderating effect of LMX was inconsistent with the hypothesis in this study. Therefore, we will continue to consult the related literature on the interaction between employee's holistic health, job performance and leader member exchange variables, select appropriate theoretical models and mature correlation scales in the future. Based on this research, we will further explore the mechanism and boundary conditions of leader exchange variables and enrich the research on the influence of leader-exchange as a regulatory variable on other variables on job performance.

5.6.3 Long-term longitudinal exploration of causality among variables

With the changes in the world, the relationship model among employee's holistic health, psychological capital, proactive personality, leader member exchange, job engagement and job performance obtained in this research should keep pace with the times and be constantly enriched. In the future, the researcher will keep conducting long-term longitudinal research on selected research objects, systematically reveal the causal relationship between employee's health change process at work and job performance, and further understand the influence mechanism and boundary conditions of various variables on job performance. So, this research can provide theoretical support and practical guidance for government departments, executives of different enterprises and human resource managers. And it can help enterprises attach importance to employee health management, strive to improve employee's healthy working environment, continuously improve employee's work performance, and realize the sustainable business development.

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Bibliography

AbuAlRub, R. F. (2004). Job stress, job performance, and social support among hospital nurses. *Journal of Nursing Scholarship, 36*(1), 73-78.

Adamczyk, K., Barr, A. B., & Segrin, C. (2021). Relationship status and mental and physical health among Polish and American young adults: The role of relationship satisfaction and satisfaction with relationship status. *Applied Psychology Health and Well-Being, 13*(3), 620-652.

Adams, G. A., King, L. A., & King, D. W. (1996). Relationships of job and family involvement, family social support, and work-family conflict with job and life satisfaction. *Journal of Applied Psychology, 81*(4), 411-420.

Airila, A., Hakanen, J., Punakallio, A., Lusa, S., & Luuk-konen, R. (2012). Is work engagement related to work ability beyond working conditions and lifestyle factors? *International Archives of Occupational and Environmental Health, 85*(8), 915–925.

Alarcon, G. M., & Edwards, J. M. (2011). The relationship of engagement, job satisfaction and turnover intentions. *Stress and Health, 27*(3), 294-298.

Albert, K., & Stones, M. J. (1980). The measurement of happiness: Development of the Memorial University of Newfoundland Scale of Happiness (MUNSH). *Journal of Gerontology, 35*(6), 906-912.

Alderfer, M. A. (2011). Assessing family health. In M. Craft-Rosenberg & S. Pehler (Eds.). *Encyclopedia of family health* (pp. 78–85). Sage.

Alessandri, G., Consiglio, C., Luthans, F., & Borgogni, L. (2018). Testing a dynamic model of the impact of psychological capital on work engagement and job performance. *Career Development International, 23*(1), 33-48.

Allen, T. D., & Armstrong, J. (2006). Further examination of the link between work-family conflict and physical health. *American Behavioral Scientist, 49*(9), 1204-1221.

Allport, G. W. (1961). Becoming: Basic considerations for a psychology of personality. *Journal of Humanistic Psychology, 1*(2), 122-128.

Ancoli-Israel, S., Martin, J., & Blackwell, T. (2015). The SBSM guide to actigraphy monitoring: Clinical and research applications. *Behavioral Sleep Medicine, 13*, 4-38.

Ashforth, B. E., & Humphrey, R. H. (1995). Emotion in the workplace: A reappraisal. *Human Relations, 48*, 97-125.

Austin, M. P., Mitchell, P., & Goodwin, G. M. (2001). Cognitive deficits in depression: Possible implications for functional neuropathology. *The British Journal of Psychiatry, 178*(3), 200-206.

Avey, J. B., Patera, J. L., & West, B. J. (2006). The implications of positive psychological capital on employee absenteeism. *Journal of Leadership & Organizational Studies, 13*(2), 42-60.

Avey, J. B., Reichard, R. J., Luthans, F., & Mhatre, K. H. (2011). Meta analysis of the impact of positive psychological capitalon employee attitudes，behaviors，and performance. *Human Resource Development Quarterly, 22*, 127-152.

Baard, P., Deci, E., & Ryan, R. (2004). Intrinsic need satisfaction: A motivational basis of performance and well-being in two work settings. *Journal of Applied Social Psychology, 34*, 2045-2068.

Bakker, A. B., Demerouti, E., & Brummelhuis, L. (2012). Work engagement, performance, and active learning: The role of conscientiousness. *Journal of Vocational Behavior, 80*(2), 555-564.

Bakker, A. B., 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), 393-341.

Bakker, A. B., Van Emmerik, H., & Euwema, M. C. (2006). Crossover of burnout and engagement in work teams. *Work and Occupations, 33*(4), 464-489.

Bandura, A. (1986). *Social foundations of thought and action*. Prentice-Hall.

Bandura, A. (1997). *Self-efficacy: The exercise of control*. Freeman.

Barber, L., Grawitch, M. J., & Munz, D. C. (2012). Are better sleepers more engaged workers? A Self–regulatory approach to sleep hygiene and work engagement. *Stress and Health, 29*(4), 307–316.

Bass, B. M. (1985). *Leadership and performance beyond expectations*. Free Press.

Bateman, T. S., & Crant, J. M. (1993). The proactive component of organizational behavior:A measure and correlates. *Journal of Organizational Behavior, 14*, 103-118.

Bauer, T. N., & Green, S. G. (1996). Development of leader-member exchange: A longitudinal test. *Academy of Management Journal, 39*(6), 1538-1567.

Beal, D. J., Weiss, H. M., Barros, E., & MacDermid, S. M. (2005). An episodic process model of affective influences on performance. *Journal of Applied Psychology, 90*(6), 1054-1068.

Beck, A. T., Brown, G., Steer, R. A., Eidelson, J. I., & Riskind, J. H. (1987). Differentiating anxiety and depression: A test of the cognitive content-specificity hypothesis. *Journal of Abnormal Psychology, 96*(3), 179-183.

Beck, A. T., Epstein, N., Brown, G., & Steer, R. A. (1988). An inventory for measuring clinical anxiety: Psychometric properties. *Journal of Consulting Clinical Psychology, 56*(6), 893-897.

Beck, A. T., Ward, C. H., Mendelson, M., Mock, J., & Erbaugh, J. (1961). An inventory for measuring depression. *Archives of General Psychiatry, 4*(6), 561-571.

Becker, G. S. (1962). Investment in human capital: A theoretical analysis. *Journal of political economy, 70*(5, Part 2), 9-49.

Belloc, N. B., & Breslow, L. (1972). Relationship of physical health status and health practices. *Preventive Medicine, 1*, 409-421.

Black, K., & Lobo, M. (2008). A conceptual review of family resilience factors. *Journal of Family Nursing, 14*(1), 33-55.

Blaney, P. H. (1986). Affect and memory: A review. *Psychological Bulletin, 99*(2), 229-246.

Blau, P. M. (1956). Social mobility and interpersonal relations. *American Sociological Review, 21*(3), 290-295.

Blau, P. M. (1964). *Exchange and power in social life.* John Wiley & Sons.

Bledow, R., Schmitt, A., Frese, M., & Kühnel, J. (2011). The affective shift model of work engagement. *Journal of Applied Psychology, 96*(6), 1246–1257.

Blom, V., Richter, A., Hallsten, L., & Svedberg, P. (2015). The associations between job insecurity, depressive symptoms and burnout: The role of performance-based self-esteem. *Economic and Industrial Democracy, 39*(1), 48-63.

Borman, W. C., & Motowidlo, S. J. (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.

Bowers, K. S. (1973). Situationism in psychology: An analysis and critique. *Psychological Review, 80*, 307-336.

Boya, F. Ö., Demiral, Y., Ergör, A., Akvardar, Y., & Witte, H. D. (2008). Effects of perceived job insecurity on perceived anxiety and depression in nurses. *Industrial Health, 46*(6), 613-619.

Brenes, G. A., Rapp, S. R., Rejeski, W. J., & Miller, M. E. (2002). Do optimism and pessimism predict physical functioning. *Journal of Behavioral Medicine, 25*(3), 219-231.

Brisson, C., Laflamme, N., & Moisan, J. (1999). Effect of family responsibilities and job strain on ambulatory blood pressure among white-collar women. *Psychosomatic Medicine, 61*(2), 205-213.

Britt, T. W., Castro, C. A., & Adler, A. B. (2005). Self-engagement, stressors, and health: A longitudinal study. Personality and Social Psychology Bulletin. *Personality and Social Psychology Bulletin, 31*(11), 1475–1486.

Brodman, K., Erdmann, A. J., Lorge, I., Wolff, H. G., & Broadbent, T. H. (1951). The cornell medical index-health questionnaire: II. As a diagnostic instrument. *Journal of the American Medical Association, 145*(3), 152-157.

Bromiley, P., & Cummings, L. L. (1995). Transactions costs in organizations with trust. In R. Bies, B. Sheppard, & R. Lewicki (Eds.), *Research on Negotiation in Organizations*. *5*, 219-247.

Brower, H. H., Schoorman, F. D., & Tan, H. H. (2000). A model of relational leadership: The integration of trust and leader–member exchange. *The leadership Quarterly, 11*(2), 227-250.

Brown, S. P., & Leigh, T. W. (1996). A new look at psychological climate and its relationship to job involvement, effort, and performance. *Journal of Applied Psychology of Women Quarterly, 81*, 358–368.

Burt, D. B., Zembar, M. J., & Niederehe, G. (1995). Depression and memory impairment: A meta-analysis of the association, its pattern, and specificity. *Psychological Bulletin, 117*(2), 285-305.

Buss, A. H., & Finn, S. E. (1977). Classification of personality traits. *Journal of Personality & Social Psychology, 57*(2), 432-444.

Buxton, O. M., & Marcelli, E. (2010). Short and long sleep are positively associated with obesity,diabetes, hypertension, and cardiovascular disease among adults in the United States. *Social Science & Medicine, 71*(5), 1027–1036.

Buysse, D. J. (2014). Sleep health: Can we define it? Does it matter? *Sleep, 37*(1), 9-17.

Byrne, Z. S., Dik, B. J., & Chiaburu, D. S. (2008). Alternatives to traditional mentoring in fostering career success. *Journal of Vocational Behavior, 72*(3), 429-442.

Cai, W., Lysova, E. I., Bossink, B., Khapova, S. N., & Wang, W. (2018). Psychological capital and self-reported employee creativity: The moderating role of supervisor support and job characteristics. *Creativity and Innovation Management, 28*, 30-41.

Campbell, D. J. (2000). The proactive employee: Managing workplace initiative. *Academy of Management Executive, 14*(3), 52-66.

Carayon, P., Smith, M. J., & Haims, M. C. (1999). Work organization, job stress, and work-related musculoskeletal disorders. *Human Factors, 41*(4), 644-663.

Carney, C. E., Buysse, D. J., Ancoli-Israel, S., Edinger, J. D., Krystal, A. D., Lichstein, K. L., & Morin, C. M. (2012). The consensus sleep diary: Standardizing prospective sleep self-monitoring. *Sleep, 35*(2), 287-302.

Cavanaugh, M. A., Boswell, W. R., Roehling, M. V., & Boudreau, J. W. (2000). An empirical examination of self-reported work stress among U.S. managers. *Journal of Applied Psychology, 85*(1), 65-74.

Chan, D. (2006). Interactive effects of situational judgment effectiveness and proactive personality on work perceptions and work outcomes. *Journal of Applied Psychology, 91*(2), 475-481.

Chang, H. T., Chou, Y. J., Liou, J. W., & Tu, Y. T. (2016). The effects of perfectionism on innovative behavior and job burnout: Team workplace friendship as a moderator. *Personality Individual Differences, 96*, 260-265.

Chen, C. Y., Mao, H. Y., Hsieh, A. T., Liu, L. L., & Yen, C. H. (2013). The relationship among interactive justice, leader–member exchange, and workplace friendship. *The Social Science*

Journal, 50(1), 89-95.
Cheng, G. H. L., & Chan, D. K. S. (2008). Who suffers more from job insecurity? A meta-analytic review. *Applied Psychology, 57*(2), 272-303.
Cohn, M. A., Fredrickson, B. L., Brown, S. L., Mikels, J. A., & Conway, A. M. (2009). Happiness unpacked: Positive emotions increase life satisfaction by building resilience. *Emotion, 9*(3), 361-368.
Colbert, A. E., Bono, J. E., & Purvanova, R. K. (2016). Flourishing via workplace relationships: Moving beyond instrumental support. *Academy of Management Journal, 59*(4), 1199-1223.
Cotter, E. W., & Fouad, N. A. (2012). Examining burnout and engagement in layoff survivors: The role of personal strengths. *Journal of Career Development, 40*(5), 424–444.
Crant, J. M. (1995). The proactive personality scale and object job performance among real estate agents. *Journal of Applied Psychology, 80*, 532-537.
Crant, J. M., & Bateman, T. S. (2000). Charismatic leadership viewed from above: The impact of proactive personality. *Journal of Organizational Behavior, 21*(1), 63-75.
Culbertson, S. S., Mills, M. J., & Fullagar, C. J. (2012). Work engagement and work-family facilitation: Making homes happier through positive affective spillover. *Human Relations, 65*(9), 1155–1177.
Cunningham, C. J. L., & De La Rosa, G. M. (2008). The interactive effects of proactive personality and work-family interference on well-being. *Journal of Occupational Health Psychology, 13*(3), 271-282.
Da, S., Zhu, Z., Cen, H., Gong, X., & Zhang, X. (2021). Psychological capital, positive affect, and organizational outcomes: A three wave cross lagged study. *Journal of Pacific Rim Psychology, 15*, 1-13.
Dalgleish, T., Williams, J. M. G., Golden, A. M. J., Perkins, N., Barrett, L. F., Barnard, P. J., Au Yeung, C., Murphy, V., Elward, R., & Tchanturia, K. (2007). Reduced specificity of autobiographical memory and depression: The role of executive control. *Journal of Experimental Psychology: General, 136*(1), 23-42.
Dansereau, F. (1995). A dyadic approach to leadership: Creating and nurturing this approach under fire. *The Leadership Quarterly, 6*(4), 479-490.
Dansereau, J., Fred, G., George, H., & William, J. (1975). A vertical dyad linkage approach to leadership within formal organizations: A longitudinal investigation of the role making process. *Organizational Behavior Human Performance, 13*(1), 46-78.
Darvishmotevali, M., & Ali, F. (2020). Job insecurity, subjective well-being and job performance: The moderatingrole of psychological capital. *International Journal of Hospitality Management, 87*, 1-10.
Dawkins, S., Martin, A., Scott, J., Sanderson, K., & Schüz, B. (2018). A cross-level model of team level psychological capital (psycap) and individual and team level outcomes. *Journal of Management & Organization, 27*(2), 397-416.
Day, D. V., Sin, H., & Chen, T. T. (2004). Assessing the burdens of leadership: Effects of formal leadership roles on individual performance over time. *Personnel Psychology, 57*, 573-605.
De Witte, H., Pienaar, J., & De Cuyper, N. (2016). Review of 30 years of longitudinal studies on the association between job insecurity and health and well-being: Is there causal evidence? *Australian Psychologist, 51*(1), 18-31.
Deci, E. L., & Ryan, R. M. (1985a). *Causality orientations theory*. Springer US.
Deci, E. L., & Ryan, R. M. (1985b). *Cognitive evaluation theory*. Springer US.
Deci, E. L., & Ryan, R. M. (1985c). *Toward an organismic integration theory*. Springer US.
Deci, E. L., & Ryan, R. M. (2014). *Autonomy and need satisfaction in close relationships: Relationships motivation theory*. Springer US.
Deluga, R. J. (1992). The relationship of leader-member exchange with laissez-faire, transactional, and transformational leadership in naval environments. In K. E. Clark, M. B.

Clark, & D. P. Campbell (Eds.), *Impact of leadership* (pp. 237-247). Center for Creative Leadership.

Demerouti, E., Bakker, A. B., Nachreiner, F., & Schaufeli, W. B. (2001). The job demands resources model of burnout. *Journal of Applied Psychology, 86*(3), 499-512.

Deng, C., Liu, Z., & Qiu, H. (2017). 领导成员交换调节作用下中端正式地位和员工工作绩效关系研究［Middle level formal status and employee job performance: The moderated effect of leader-member exchange]. *Journal of Management, 14*(10), 1456-1464.

Derogatis, L. R., Lipman, R. S., & Covi, L. (1973). SCL-90: An outpatient psychiatric rating scale preliminary report. *Psychopharmacol Bull, 9*(1), 13-28.

Dienesch, R. M., & Liden, R. C. (1986). Leader-member exchange model of leadership: A critique and further development. *Academy of Management Review, 11*(3), 618-634.

DiTommaso, E., & Spinner, B. (1993). The development and initial validation of the Social and Emotional Loneliness Scale for Adults (SELSA). *Personality and Individual Differences, 14*, 127-134.

Dudley, N. M., & Cortina, J. M. (2008). Knowledge and skills that facilitate the personal support dimension of citizenship. *Journal of Applied Psychology, 93*(6), 1249-1270.

Dudley, N. M., Orvis, K. A., Lebiecki, J. E., & Cortina, J. M. (2006). A meta-analytic investigation of conscientiousness in the prediction of job performance: Examining the intercorrelations and the incremental validity of narrow traits. *Journal of Applied Psychology, 91*, 40-57.

Dulebohn, J. H., Bommer, W. H., Liden, R. C., Brouer, R. L., & Ferris, G. R. (2012). A meta-analysis of antecedents and consequences of leader-member exchange: Integrating the past with an eye toward the future. *Journal of Management, 38*(6), 1715-1759.

Dysvik, A., & Kuvaas, B. (2011). Intrinsic motivation as a moderator on the relationship between perceived job autonomy and work performance. *European Journal of Work and Organizational Psychology, 20*(3), 367-387.

English, H. B., & English, A. C. (1958). *A comprehensive dictionary of psychological and psychoanalytical terms: A guide to usage*. David McKay.

Erdogan, B., & Bauer, T. N. (2005). Enhancing career benefits of employee proactive personality: The role of fit with jobs and organizations. *Personnel Psychology, 58*(4), 859-891.

Erez, A., & Isen, A. M. (2002). The influence of positive affect on the components of expectancy motivation. *Journal of Applied Psychology, 87*(6), 1055-1067.

Ettner, S. L., & Grzywacz, J. G. (2001). Workers' perceptions of how jobs affect health: A social ecological perspective. *Journal of Occupational Health Psychology, 6*(2), 101-113.

Eysenck, M. W., & Calvo, M. G. (1992). Anxiety and performance: The processing efficiency theory. *Cognition Emotion, 6*(6), 409-434.

Ferreira, M. B., de Almeida, F., Soro, J. C., Herter, M. M., Pinto, D. C., & Silva, C. S. (2021). On the relation between over-indebtedness and well-being: An analysis of the mechanisms influencing health, sleep, life satisfaction, and emotional well-being. *Frontiers in Psychology, 12*, 1-14.

Field, J. (2009). Good for your soul? Adult learning and mental well-being. *International Journal of Lifelong Education, 28*(2), 175-191.

Ford, M. T., Cerasoli, C. P., Higgins, J. A., & Decesare, A. L. (2011). Relationships between psychological, physical, and behavioural health and work performance: A review and meta-analysis. *Work and Stress, 25*(3), 185-204.

Freeney, Y., & Fellenz, M. R. (2013). Work engagement as a key driver of quality of care: A study with midwives. *Journal of Health Organization and Management, 27*(3), 330-349.

Frone, M. R., Russell, M., & Cooper, M. L. (1997). Relation of work-family conflict to health outcomes: A four-year longitudinal study of employed parents. *Journal of Occupational*

and Organizational Psychology, 70(4), 325-335.
Fu, W., & Deshpande, S. P. (2014). The impact of caring climate, job satisfaction, and organizational commitment on job performance of employees in a China's insurance company. *Journal of Business Ethics, 124*(2), 339-349.
Gangwisch, J. E., Heymsfield, S. B., Boden-Albala, B., Buijs, R. M., Kreier, F., Pickering, T. G., Rundle, A. G., Zammit, G. K., & Malaspina, D. (2006). Short sleep duration as a risk factor for hypertension: Analyses of the first National Health and Nutrition Examination Survey. *Hypertension, 47*(5), 833-839.
Gerstner, C. R., & Day, D. V. (1997). Meta-Analytic review of leader–member exchange theory: Correlates and construct issues. *Journal of Applied Psychology, 82*(6), 827-844.
Giorgi, F., Mattei, A., Notarnicola, I., Petrucci, C., & Lancia, L. (2018). Can sleep quality and burnout affect the job performance of shift-work nurses? A hospital cross-sectional study. *Journal of Advanced Nursing, 74*(3), 698-708.
Gohar, A., Adams, A., Gertner, E., Sackett-Lundeen, L., & Bijwadia, J. (2009). Working memory capacity is decreased in sleep-deprived internal medicine residents. *Journal of Clinical Sleep Medicine, 5*(3), 191-197.
Goldenberg, H., & Goldenberg, I. (2007). *Family therapy: An overview (7th ed.)*. Wadsworth.
Goldsmith, A. H., Darity, W., & Veum, J. R. (1998). Race, cognitive skills, psychological capital and wages. *Review of Black Political Economy, 26*(2), 13-22.
Goldsmith, A. H., Veum, J. R., & Darity, W. J. (1997). The impact of psychological and human capital on wages. *Economic Inquiry, 35*, 815-829.
Goldstein, I. B., Shapiro, D., Chicz-DeMet, A., & Guthrie, D. (1999). Ambulatory blood pressure, heart rate, and neuroendocrine responses in women nurses during work and off work days. *Psychosomatic Medicine, 61*(3), 387-296.
Golembiewski, R. T., & McConkie, M. (1975). The centrality of interpersonal trust in group processes. *Theories of Group Processes, 131*(1), 131-185.
Gomez, C., & Rosen, B. (2001). The leader-member exchange as a link between managerial trust and employee empowerment. *Group Organization Management, 26*(1), 53-69.
Gong, Z., Chen, Y., & Wang, Y. (2019). The influence of emotional intelligence on job burnout and job performance: Mediating effect of psychological capital. *Frontiers in Psychology, 10*, 1-26.
Gouldner, A. W. (1960). The norm of reciprocity: A preliminary statement. *American Sociological Review, 25*, 161-178.
Graen, G. B., & Cashman, J. F. (1975). A role-making model of leadership in formal organizations: A developmental approach. In J. Hunt & L. Larson (Eds.), *Leadership frontiers* (pp. 143-165). Kent State University Press.
Graen, G. B., Liden, R. C., & Hoel, W. (1982). Role of leadership in the employee withdrawal process. *Journal of Applied Psychology, 67*(6), 868-872.
Graen, G. B., Novak, M. A., & Sommerkamp, P. (1982). The effects of leader-member exchange and job design on productivity and satisfaction: Testing a dual attachment model. *Organizational Behavior Human Performance, 30*(1), 109-131.
Graen, G. B., & Scandura, T. A. (1987). Toward a psychology of dyadic organizing. *Research in Organizational Behavior, 9*, 175-208.
Graen, G. B., & Uhl-Bien, M. (1991). The transformation of professionals into self-managing and partially self-designing contributors: Toward a theory of leadership-making. *Journal of Management Systems, 3*, 25-39.
Graen, G. B., & Uhl-Bien, M. (1995). Relationship-based approach to leadership: Development of leader-member exchange (LMX) theory of leadership over 25 years: Applying a multi-level multi-domain perspective. *The leadership Quarterly, 6*(2), 219-247.
Greenhalgh, L., & Rosenblatt, Z. (1984). Job insecurity: Toward conceptual clarity. *Academy*

of Management Review, 9(3), 438-448.
Griffin, M. A., Neal, A., & Parker, S. K. (2007). A new model of work role performance: Positive behavior in uncertain and interdependent contexts. *Academy of Management Journal, 50*(2), 327-347.
Haack, M., & Mullington, J. M. (2005). Sustained sleep restriction reduces emotional and physical well-being. *Pain, 119*(1-3), 56–64.
Haaga, D. A., Dyck, M. J., & Ernst, D. (1991). Empirical status of cognitive theory of depression. *Psychological Bulletin, 110*(2), 215-236.
Hakanen, J. J., & Schaufeli, W. B. (2012). Do burnout and work engagement predict depressive symptoms and life satisfaction? A three-wave seven-year prospective study. *Journal of Affective Disorders, 141*(2-3), 415–424.
Hanson, S. M. (2001). *Family health care nursing: Theory, practice, and research*. F. A. Davis.
Harrison, Y., & Horne, J. A. (2000). The impact of sleep deprivation on decision making: A review. *Journal of Experimental Psychology: Applied, 6*(3), 236–249.
Havens, D. S., Warshawsky, N. E., & Vasey, J. (2013). RN work engagement in generational cohorts: The view from rural US hospitals. *Journal of Nursing Management, 21*(7), 927-940.
Hayes, S., Hirsch, C., & Mathews, A. (2008). Restriction of working memory capacity during worry. *Journal of Abnormal Psychology, 117*(3), 712-717.
Henseke, G. (2018). Good jobs, good pay, better health? The effects of job quality on health among older European workers. *The European Journal of Health Economics, 19*(1), 59-73.
Hildenbrand, K., Sacramento, C. A., & Binnewies, C. (2018). Transformational leadership and burnout: The role of thriving and followers' openness to experience. *Journal of Occupational Health Psychology, 23*(1), 31-43.
Hillman, A. J., Nicholson, G., & Shropshire, C. (2008). Directors' multiple identities, identification, and board monitoring and resource provision. *Organization Science, 19*, 441–456.
Homans, G. C. (1958). Social behavior as exchange. *American Journal of Sociology, 63*(3), 597-606.
Hough, L. M. (2003). Emerging trends and needs in personality research and practice: Beyond main effects. In M. R. Barrick & A. M. Ryan (Eds.), *Personality and work* (pp. 289-325). Jossey-Bass.
Hough, L. M., & Oswald, F. L. (2000). Personnel selection: Looking toward the future--Remembering the past. *Annual Review of Psychology, 51*(1), 631-664.
Hough, L. M., & Schneider, R. J. (1996). Personality traits, taxonomies, and applications in organizations. In K. R. Murhpy (Ed.), *Individual differences behavior in organizations* (pp. 31-88). Jossey-Bass.
Huang, J. L., Liao, C., Li, Y., Liu, M., & Biermeier-Hanson, B. (2020). Just what you need: The complementary effect of leader proactive personality and team need for approval. *Journal of Business and Psychology, 35*(4), 421-434.
Hussain, K., & Arif, I. (2018). Role of supervisor's organizational embodiment and organizational identification on lmx and job performance relationship: A test of moderated-mediation model. *Journal of Management Sciences, 5*(1), 18-37.
Ilies, R., Nahrgang, J. D., & Morgeson, F. P. (2007). Leader-member exchange and citizenship behaviors: A meta-analysis. *Journal of Applied Psychology, 92*, 269-277.
Jacobs, P. A., Tytherleigh, M. Y., Webb, C., & Cooper, C. L. (2007). Predictors of work performance among higher education employees: An examination using the ASSET model of stress. *International Journal of Stress Management, 14*, 199-210.
Jenaro, C., Flores, N., Orgaz, M. B., & Cruz, M. (2011). Vigour and dedication in nursing professionals: Towards a better understanding of work engagement. *Journal of Advanced*

Nursing, 67(4), 865-875.
Jenkins, D. C., Stanton, B. A., Niemcryk, S. J., & Rose, R. M. (1988). A scale for the estimation of sleep problems. *Journal of Clinical Epidemiology, 41*, 313-321.
Jensen, S. M., & Luthans, F. (2006). Relationship between entrepreneurs' psychological capital and their authentic leadership. *Journal of Managerial Issues, 18*(2), 254-273.
Johari, J., & Yahya, K. K. (2016). Job characteristics, work involvement, and job performance of public servants. *European Journal of Training and Development, 40*(7), 554-575.
Johns, M. W. (1991). A new method for measuring daytime sleepiness: The Epworth sleepiness scale. *Sleep, 14*(6), 540-545.
Jones, F., & Fletcher, B. (1996). Taking work home: A study of daily fluctuations in work stressors, effects on moods and impacts on marital partners. *Journal of Occupational Organizational Psychology, 69*(1), 89-106.
Joormann, J., & Gotlib, I. H. (2008). Updating the contents of working memory in depression: Interference from irrelevant negative material. *Journal of Abnormal Psychology, 117*(1), 182-192.
Jr, B. F., & Marler, L. E. (2009). Change driven by nature: A meta-analytic review of the proactive personality literature. *Journal of Vocational Behavior, 75*(3), 329-345.
Judge, T. A., & Bono, J. E. (2001). Relationship of core self-evaluations traits--self-esteem, generalized self-efficacy, locus of control, and emotional stability--with job satisfaction and job performance: A meta-analysis. *Journal of Applied Psychology, 86*(1), 80-92.
Judge, T. A., Erez, A., Bono, J. E., & Thoresen, C. J. (2003). The core self-evaluations scale: Development of a measure. *Personnel Psychology, 56*(2), 303-331.
Judge, T. A., & Hurst, C. (2007). Capitalizing on one's advantages: Role of core self-evaluations. *Journal of Applied Psychology, 92*(5), 1212-1227.
Kahn, W. A. (1990). Psychological conditions of personal engagement and disengagement at work. *Academy of Management Journal, 33*, 692–724.
Kahn, W. A. (1992). To be fully there: Psychological presence at work. *Human Relations, 45*, 321–349.
Kammeyer-Mueller, J., Wanberg, C., Rubenstein, A., & Song, Z. (2013). Support, undermining, and newcomer socialization: Fitting in during the first 90 days. *Academy of Management Journal, 56*(4), 1104–1124.
Kanfer, R. (1990). Motivation theory and industrial and organizational psychology. In M. D. Dunnette & L. M. Hough (Eds.), *Handbook of industrial and organizational psychology* (pp. 75–170). Consulting Psychologists Press.
Kanungo, R. N. (1982). Measurement of job and work involvement. *Journal of Applied Psychology, 67*, 341–349.
Karakas, A., & Şahin, A. (2017). The relation between work family life conflict, job performance and job stress: A research on hotel employee. *Sosyoekonomi, 25*(32), 51-69.
Karatepe, O. M., Keshavarz, S., & Nejati, S. (2010). Do core self-evaluations mediate the effect of coworker support on work engagement? A study of hotel employees in Iran. *Journal of Hospitality Tourism management, 17*(1), 62-71.
Kataria, A., Garg, P., & Rastogi, R. (2013). Does psychological climate augment OCBs? The mediating role of work engagement. *The Psychologist Manager Journal, 16*(4), 217–242.
Keyes, C. L. (2002). The mental health continuum: From languishing to flourishing in life. *Journal of Health Social Behavior, 43*(2), 207-222.
Kim-Godwin, Y. S., & Bomar, P. J. (2014). Family health promotion. In J. R. Kaakinen, D. P Coehlo, R.Steele, A. Tabacco, & S. M. H. Hanson (Eds.). *Family health care nursing: Theory, practice & research* (pp. 207-234). F.A. Davis.
Kim, M. S., Hong, Y. C., Yook, J. H., & Kang, M. Y. (2017). Effects of perceived job insecurity on depression, suicide ideation, and decline in self-rated health in Korea: A population-

based panel study. *International Archives of Occupational and Environmental Health, 90*(7), 663-671.

King, L. A., Mattimore, L. K., King, D. W., & Adams, G. A. (1995). Family support inventory for workers: A new measure of perceived social support from family members. *Journal of Organizational Behavior, 16*(3), 235-258.

Kirby, E., & Krone, K. (2002). "The policy exists but you can't really use it": Communication and the structuration of work-family policies. *Journal of Applied Communication Research, 30*(1), 50-77.

Kok, B. E., Coffey, K. A., Cohn, M. A., Catalino, L. I., Vacharkulksemsuk, T., Algoe, S. B., Brantley, M., & Fredrickson, B. L. (2013). How positive emotions build physical health: Perceived positive social connections account for the upward spiral between positive emotions and vagal tone. *Psychological Science, 24*(7), 1123-1132.

Koseoglu, G., Blum, T. C., & Shalley, C. E. (2020). Gender similarity, coworker support, and job attitudes: An occupation's creative requirement can make a difference. *Journal of Management Organization Science, 26*(5), 880-898.

Kram, K. E., & Isabella, L. A. (1985). Mentoring alternatives: The role of peer relationships in career development. *Academy of Management Journal, 28*(1), 110-132.

Kreiner, G. E., Hollensbe, E. C., & Sheep, M. L. (2006). Where is the "me" among the "we"? Identity work and the search for optimal balance. *Academy of Management Journal, 49*, 1031–1057.

Larson, C., & LaFasto, F. M. (1989). *Teamwork*. Sage.

Larson, M., & Luthans, F. (2006). Potential added value of psychological capital in predicting work attitudes. *Journal of Leadership & Organizational Studies, 13*(1), 45-62.

Lather, A. S., & Kaur, M. S. (2015). Psychological capital as predictors of organizational commitment and organizational citizenship behaviour. *The International Journal of Indian Psychology, 2*(4), 101-112.

Lawter, L., Kopelman, R. E., & Prottas, D. J. (2015). McGregor's theory X/Y and job performance: A multilevel, multi-source analysis. *Journal of Managerial Issues, 27*, 84-101.

Lawton, M., & Brody, E. (1988). Physical self-maintenance scale (PSMS). . *Psychopharmacology Bulletin, 24*(4), 793-794.

Leavitt, H. J. (1988). *Managerial pychology: Managing behavior in organizations*. Dorsey Press.

Lee, C., Huang, G. H., & Ashford, S. J. (2018). Job insecurity and the changing workplace: Recent developments and the future trends in job insecurity research. *Annual Review of Organizational Psychology and Organizational Behavior, 5*, 335-359.

Lee, K., & Allen, N. J. (2002). Organizational citizenship behaviour and workplace deviance: The role of affect and cognitions. *Journal of Applied Psychology, 87*, 131-142.

Li, H., Jin, H., & Chen, T. (2020). Linking proactive personality to creative performance: The role of job crafting and high-involvement work systems. *The Journal of Creative Behavior, 54*(1), 196-210.

Li, S., & Xu, Q. (2022). Family support as a protective factor for attitudes toward social distancing and in preserving positive mental health during the COVID-19 pandemic. *Journal of Health Psychology, 27*(4), 858-867.

Li, Y., Wang, Z., Yang, L., & Liu, S. (2015). The crossover of psychological distress from leaders to subordinates in teams: The role of abusive supervision, psychological capital, and team performance. *Journal of Occupational Health Psychology, 21*(2), 142-153.

Liden, R. C., & Graen, G. B. (1980). Generalizability of the vertical dyad linkage model of leadership. *Academy of Management Journal, 23*(3), 451-465.

Liden, R. C., & Maslyn, J. M. (1998). Multidimensionality of leader–member exchange: An

empirical assessment through scale development. *Journal of Management, 24*, 43-72.
Liden, R. C., Sparrowe, R. T., & Wayne, S. J. (1997). Leader-member exchange theory: The past and potential for the future. *Research in Personnel and Human Resources Management, 15*, 47-119.
Liden, R. C., Wayne, S. J., & Stilwell, D. (1993). A longitudinal study on the early development of leader-member exchanges. *Journal of Applied Psychology, 78*, 662-674.
Lin, C. T., Hsieh, A. T., & Lu, C. L. (2008, July 27-31). *A study of the relationship between job attribute and employee workplace friendship: Taiwan and Mainland China.* PICMET'08-2008 Portland International Conference on Management of Engineering & Technology, Cape Town, South Africa.
Lindebaum, D. (2013). Does emotional intelligence moderate the relationship between mental health and job performance? An exploratory study. *European Management Journal, 31*(6), 538-548.
Linn, M. W. (1967). A rapid disability rating scale. *Journal of the American Geriatrics Society, 15*(2), 211-214.
Liu, X., Lyu, B., Fan, J., Yu, S., & Chen, H. (2021). A study on influence of psychological capital of chinese university teachers upon job thriving: Based on motivational work behavior as an intermediary variable. *Sage Open, 11*(2), 1-10.
Llosa, J. A., Menéndez-Espina, S., Agulló-Tomás, E., & Rodríguez-Suárez, J. (2018). Job insecurity and mental health: A meta-analytical review of the consequences of precarious work in clinical disorders. *Anales De Psicología, 34*(2), 211-223.
Locke, E. A. (1976). Handbook of industrial and organizational psychology. In M. D. Dunnette (Ed.), *The nature and causes of job satisfaction* (pp. 1297-1349). Rand McNally.
Locke, E. A., Frederick, E., Lee, C., & Bobko, P. (1984). Effect of self-efficacy, goals, and task strategies on task performance. *Journal of Applied Psychology, 69*(2), 241-251.
Lonescu, A. F., & Lliescu, D. (2021). LMX, organizational justice and performance: Curvilinear relationships. *Journal of Managerial Psychology, 36*(2), 197-211.
Lupa, D., & Vrg, D. (2020). Psychological capital, health, and performance: The mediating role of burnout. *Psihologia Resurselor Umane, 18*(1), 7-22.
Luthans, F., Avey, J. B., Avolio, B. J., & Combs, N. G. M. (2010). Psychological capital development: Toward a micro-intervention. *Journal of Organizational Behavior, 27*(3), 387-393.
Luthans, F., Avolio, B. J., Avey, J. B., & Norman, S. M. (2007). Positive psychological capital: Measurement and relationship with performance and satisfaction. *Personnel Psychology, 60*(3), 541-572.
Luthans, F., Avolio, B. J., Walumbwa, F. O., & Li, W. (2005). The psychological capital of Chinese workers: Exploring the relationship with performance. *Management Organization Review, 1*(2), 249-271.
Luthans, F., & Youssef, C. M. (2004). Human, social, and now positive psychological capital management. *Organizational Dynamics, 33*(2), 143-160.
Mahoney, F. I., & Barthel, D. W. (1965). Functional evaluation: The Barthel Index. *Maryland State Medical Journal, 14*, 56-61.
Major, D. A., Turner, J. E., & Fletcher, T. D. (2006). Linking proactive personality and the Big Five to motivation to learn and development activity. *Journal of Applied Psychology, 91*(4), 927-935.
Manata, B. (2019). The effects of lmx differentiation on team performance: Investigating the mediating properties of cohesion. *Journal of Leadership & Organizational Studies, 27*(2), 1-9.
Manuel, S. K., Howansky, K., Chaney, K. E., & Sanchez, D. T. (2017). No rest for the stigmatized: A model of organizational health and workplace sexism (OHWS). *Sex Roles,*

77(9), 697-708.
Maslach, C., Schaufeli, W. B., & Leiter, M. P. (2001). Job burnout. *Annual Review of Psychology, 52*(1), 397-422.
Matteson, M. T., Ivancevich, J. M., & Smith, S. V. (1984). Relation of type a behaviour to performance and satisfaction among sales personnel. *Journal of Vocational Behaviour, 25*, 203-214.
Maurer, T. J., & Pierce, H. R. (1998). A comparison of Likert scale and traditional measures of self-efficacy. *Journal of Applied Psychology, 83*(2), 324–329.
May, D. R., Gilson, R. L., & Harter, L. M. (2004). The psychological conditions of meaningfulness, safety and availability and the engagement of the human spirit at work. *Journal of Occupational Organizational Psychology, 77*(1), 11-37.
McAllister, D. J. (1995). Affect and cognition based trust as foundations for interpersonal cooperation in organizations. *Academy of Management Journal, 38*(1), 24-59.
McCarthy, J. M., Trougakos, J. P., & Cheng, B. H. (2016). Are anxious workers less productive workers? It depends on the quality of social exchange. *Journal of Applied Psychology, 101*(2), 279-291.
McClelland, D. C., Atkinson, J. W., Clark, R., & Lowell, E. (1953). *The achievement motive*. Appleton Century Crofts.
McGoldrick, M., Gerson, R., & Petry, S. (2008). *Genograms: Assessment and interventions (3rd ed.)*. W.W. Norton.
McWhinnie, J. R. (1981). Disability assessment in population surveys: Results of the O.E.C.D common development effort. *Revue d Épidémiologie et de Santé Publique, 29*(4), 413-419.
Menéndez-Espina, S., Llosa, J. A., Agulló-Tomás, E., Rodríguez-Suárez, J., Sáiz-Villar, R., & Lahseras-Díez, H. F. (2019). Job insecurity and mental health: The moderating role of coping strategies from a gender perspective. *Frontiers in Psychology, 10*, 1-10.
Merrill, R. M., Aldana, S. G., Pope, J. E., Anderson, D. R., Coberley, C. R., Grossmeier, J. J., & Whitmer, R. W. (2013). Self-rated job performance and absenteeism according to employee engagement, health behaviors, and physical health. *Journal of Occupational Environmental Medicine, 55*(1), 10-18.
Mikkelsen, A., Saksvik, P. O., Eriksen, H. R., & Ursin, H. (1999). The impact of learning opportunities and decision authority on occupational health. *Work and Stress, 13*(1), 20-31.
Mitchell, T. R., Hopper, H., Daniels, D., George-Falvy, J., & James, L. R. (1994). Predicting self-efficacy and performance during skill acquisition. *Journal of Applied Psychology, 79*(4), 506-517.
Morrison, R. (2007). *Gender differences in the relationship between workplace friendships and organisational outcomes.* Aut Faculty of Business.
Morrow, S. (1999). Instrumental activities of daily living scale. *American Journal of Nursing, 99*(1), 24CC.
Motowidlo, S. J., & Van Scotter, J. R. (1994). Evidence that task performance should be distinguished from contextual performance. *Journal of Applied Psychology, 79*(4), 475-480.
Muraven, M., & Baumeister, R. F. (2000). Self-regulation and depletion of limited resources: Does self-control resemble a muscle? *Psychological Bulletin, 126*(2), 247-259.
Nahrgang, J. D., Morgeson, F. P., & Ilies, R. (2009). The development of leader-member exchanges: Exploring how personality and performance influence leader and member relationships over time. *Organizational Behavior and Human Decision Processes, 108*, 256-266.
Nart, S., & Batur, O. (2014). The relation between work-family conflict, job stress, organizational commitment and job performance: A study on turkish primary teachers. *European Journal of Research on Education, 2*(2), 72-72.
Netemeyer, R. G., Boles, J. S., & McMurrian, R. (1996). Development and validation of work-

family conflict and family-work conflict scales. *Journal of Applied Psychology, 81*(4), 400-410.

Newman, D. A., & Harrison, D. A. (2008). Been there, bottled that: Are state and behavioral work engagement new and useful construct "wines"? . *Industrial and Organizational Psychology, 1*, 31–35.

Ng, L. P., Choong, Y. O., Kuar, L. S., Tan, C. E., & Teoh, S. Y. (2019, April 16). *The effects of psychological capital and proactive personality on undergraduate students' academic performance.* Proceedings of the Second International Conference on the Future of ASEAN (ICoFA) 2017, Singapore.

Ng, T. W., Eby, L. T., Sorensen, K. L., & Feldman, D. C. (2005). Predictors of objective and subjective career success: A meta-analysis. *Personnel Psychology, 58*(2), 367-408.

Ngwenya, B., & Pelser, T. (2020). Impact of psychological capital on employee engagement-job satisfaction and employee performance. *SA Journal of Industrial Psychology, 46*(4), 1-12.

Niessen, C., Mäder, I., Stride, C., & Jimmieson, N. L. (2017). Thriving when exhausted: The role of perceived transformational leadership. *Journal of Vocational Behavior, 103*, 41-51.

O'Neill, T. A., & Allen, N. J. (2011). Personality and the prediction of team performance. *European Journal of Personality, 25*(1), 31-42.

Olson, D. H., & DeFrain, J. (2000). *Marriage and the family: Diversity and strengths*. Mayfield Publishing.

Ones, D. S. (2005). Personality at work: Raising awareness and correcting misconceptions. *Human Performance, 18*(4), 389-404.

Ouweneel, E., Le Blanc, P. M., Schaufeli, W. B., & Van Wijhe, C. I. (2012). Good morning, good day: A diary study on positive emotions, hope, and work engagement. *Human Relations, 65*(9), 1129–1154.

Ouweneel, E., Schaufeli, W. B., & Le Blanc, P. M. (2013). Believe, and you will achieve: Changes over time in self-efficacy, engagement, and performance. *Applied Psychology: Health and Well-Being, 5*(2), 225–247.

Parker, S. (1998). Enhancing role breadth self-efficacy: The roles of job enrichment and other organizational interventions. *Journal of Applied Psychology, 6*(6), 835–852.

Peterson, C. (2000). The future of optimism. *American Psychologist, 55*(1), 44-55.

Peterson, C., & Seligman, M. E. P. (2004). *Character strengths and virtues*. Oxford University.

Peterson, S. J., & Luthans, F. (2003). The positive impact and development of hopeful leaders. *Leadership & Organization Development Journal, 24*(1), 26-31.

Pienaar, J., & Willemse, S. A. (2008). Burnout, engagement, coping and general health of service employees in the hospitality industry. *Tourism Management, 29*(6), 1053-1063.

Pillai, R., Scandura, T. A., & Williams, E. A. (1999). Leadership and organizational justice: Similarities and differences across cultures. *Journal of International Business Studies, 30*(4), 763-779.

Porath, C., Spreitzer, G., Gibson, C., & Garnett, F. G. (2012). Thriving at work: Toward its measurement, construct validation, and theoretical refinement. *Journal of Organizational Behavior, 33*(2), 250-275.

Ram, S., Seirawan, H., Kumar, S. K. S., & Clark, G. T. (2010). Prevalence and impact of sleep disordersand sleep habits in the United States. *Sleep and Breathing, 14*(1), 63–70.

Rasmussen, H. N., Scheier, M. F., & Greenhouse, J. B. (2009). Optimism and physical health: A meta-analytic review. *Annals of Behavioral Medicine, 37*(3), 239-256.

Rich, B. L., Lepine, J. A., & Crawford, E. R. (2010). Job engagement: Antecedents and effects on job performance. *Academy of Management Journal, 53*, 617-635.

Rubin, M., & Kelly, B. M. (2015). A cross-sectional investigation of parenting style and friendship as mediators of the relation between social class and mental health in a university

community. *International Journal for Equity in Health, 14*(1), 1-11.
Rubin, M., Paolini, S., Subašić, E., & Giacomini, A. (2019). A confirmatory study of the relations between workplace sexism, sense of belonging, mental health, and job satisfaction among women in male-dominated industries. *Journal of Applied Social Psychology, 49*(5), 267-282.
Rubin, M., Subasic, E., Giacomini, A., & Paolini, S. (2017). An exploratory study of the relations between women miners' gender-based workplace issues and their mental health and job satisfaction. *Journal of Applied Social Psychology, 47*(7), 400-411.
Ryan, R. M., & Frederick, C. (1997). On energy, personality, and health: Subjective vitality as a dynamic reflection of well-being. *Journal of Personality, 65*(3), 529-565.
Sabanayagam, C., & Shankar, A. (2010). Sleep duration and cardiovascular disease: Results from the National Health Interview Survey. *Sleep, 33*(8), 1037-1042.
Saeri, A. K., Cruwys, T., Barlow, F. K., Stronge, S., & Sibley, C. G. (2018). Social connectedness improves public mental health: Investigating bidirectional relationships in the New Zealand attitudes and values survey. *Australian New Zealand Journal of Psychiatry, 52*(4), 365-374.
Saks, A. M. (2006). Antecedents and consequences of employee engagement. *Journal of Managerial Psychology, 21*(7), 600–619.
Scandura, T. A., & Graen, G. B. (1984). Moderating effects of initial leader-member exchange status on the effects of a leadership intervention. *Journal of Applied Psychology, 69*(3), 428-436.
Scandura, T. A., Graen, G. B., & Novak, M. A. (1986). When managers decide not to decide autocratically: An investigation of leader-member exchange and decision influence. *Journal of Applied Psychology, 71*, 589-584.
Schaufeli, W. B., & Bakker, A. B. (2004). *Utrecht work engagement scale, preliminary manual* Utrecht: Occupational Health Psychology Unit, Utrecht University.
Schaufeli, W. B., Martinez, I., Pinto, A. M., Salanova, M., Bakker, A. B., & Barney, J. (2002). Burnout and engagement in university students: A cross national study. *Journal of Cross-Cultural Psychology, 33*, 464–481.
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*(1), 71-92.
Schnall, P. L., Dobson, M., & Landsbergis, P. (2016). Globalization, work, and cardiovascular disease. *International Journal of Health Services, 46*(4), 656-692.
Schriesheim, C. A., Castro, S. L., & Cogliser, C. C. (1999). Leader-member exchange (LMX) research: A comprehensive review of theory, measurement, and data-analytic practices. *The leadership Quarterly, 10*(1), 63-113.
Schultz, T. W. (1961). Investment in human capital. *The American Economic Review, 51*(1), 1-17.
Scott, S. G., & Bruce, R. A. (1994). Determinants of innovative behavior: A path model of individual innovation in the workplace. *Academy of Management Journal, 37*(3), 580– 607.
Seers, A. (1989). Team-member exchange quality: A new construct for role-making research. *Organizational Behavior Human Decision Processes, 43*(1), 118-135.
Seibert, S. E., Crant, J. M., & Kraimer, M. L. (1999). Proactive personality and career success. *Journal of Applied Psychology, 84*(3), 416–427.
Seibert, S. E., Kraimer, M. L., & Crant, J. M. (2001). What do proactive people do? A longitudinal model linking proactive personality and career success. *Personnel Psychology, 54*, 845-874.
Seligman, M., & Csikszentmihalyi, M. (2000). Positive psychology: An introduction. *American Psychologist, 55*, 5-14.

Shang-Guan, C., Li, Y., & Ma, H. (2017). The mediating role of psychological capital on the association between occupational stress and job satisfaction among township cadres in a specific province of China: A cross-sectional study. *International Journal of Environmental Research and Public Health, 14*, 972-984.

Shirom, A. (2003). Feeling vigorous at work? The construct of vigor and the study of positive affect in organizations. In P. L. Perrewe & D. C. Ganster (Eds.), *Emotional and physiological processes and positive intervention strategies: Research in occupational stress and well-being* (pp. 135–164): Emerald Group Publishing Limited.

Sias, P. M. (2005). Workplace relationship quality and employee information experiences. *Communication Studies, 56*(4), 375-395.

Sias, P. M., & Cahill, D. J. (1998). From coworkers to friends: The development of peer friendships in the workplace. *Western Journal of Communication, 62*(3), 273-299.

Sias, P. M., Pedersen, H., Gallagher, E. B., & Kopaneva, I. (2012). Workplace friendship in the electronically connected organization. *Human Communication Research, 38*(3), 253-279.

Simon, L. S., Judge, T. A., & Halvorsen-Ganepola, M. D. (2010). In good company? A multi-study, multi-level investigation of the effects of coworker relationships on employee well-being. *Journal of Vocational Behavior, 76*(3), 534-546.

Smith, K. M., Freeman, P. A., & Zabriskie, R. B. (2009). An examination of family communication within the core and balance model of family leisure functioning. *Family Relations, 58*, 79-90.

Sojo, V. E., Wood, R. E., & Genat, A. E. (2016). Harmful workplace experiences and women's occupational well-being: A meta-analysis. *Psychology of Women Quarterly, 40*(1), 10-40.

Sonnentag, S., & Zijlstra, F. R. (2006). Job characteristics and off-job activities as predictors of need for recovery, well-being, and fatigue. *Journal of Applied Psychology, 91*(2), 330-350.

Sparrowe, R. T., & Liden, R. C. (1997). Process and structure in leader-member exchange. *Academy of Management Review, 22*(2), 522-552.

Spector, P. E., Fox, S., Penney, L. M., Bruursema, K., Goh, A., & Kessler, S. (2006). The dimensionality of counterproductivity: Are all counterproductive behaviors created equal? *Journal of Vocational Behavior, 68*(3), 446-460.

Spector, P. E., & Jex, S. M. (1998). Development of four self-report measures of job stressors and strain: Interpersonal conflict at work scale, organizational constraints scale, quantitative workload inventory, and physical symptoms inventory. *Journal of Occupational Health Psychology, 3*, 356-367.

Spreitzer, G., Porath, C. L., & Gibson, C. B. (2012). Toward human sustainability. *Organizational Dynamics, 41*(2), 155-162.

Stajkovic, A. D., & Luthans, F. (1998a). Selfefficacy and work-related performance: A meta-analysis. *Psychological Bulletin, 124*, 240-261.

Stajkovic, A. D., & Luthans, F. (1998b). Social cognitive theory and self-efficacy: Going beyond traditional motivational and behavioral approaches. *Organizational Dynamics, 26*, 62–74.

Steptoe, A., O' Donnell, K., Marmot, M., & Wardle, J. (2008). No positive affect, psychological well-being, and good sleep. *Journal of Psychosomatic Research, 64*(4), 409–415.

Stewart, T., & Ruckdeschel, C. (1998). Intellectual capital: The new wealth of organizations. *Performance Improvement, 37*, 56-59.

Stickgold, R. (2001). Sleep, learning, and dreams: Off-line memory reprocessing. *Science, 294*(5544), 1052-1057.

Sturman, M. C. (2007). The past, present, and future of dynamic performance research. *Research in Personnel and Human Resources Management, 26*, 49-110.

Szymanski, D. M., & Feltman, C. E. (2015). Linking sexually objectifying work environments among waitresses to psychological and job-related outcomes. *Psychology of Women*

Quarterly, 39(3), 390-404.
Taris, T. W. (2006). Is there a relationship between burnout and objective performance? A critical review of 16 studies. *Work and Stress, 20*(4), 316-334.
Taris, T. W., & Schreurs, P. J. G. (2009). Well-being and organizational performance: An organizational-level test of the happy-productive worker hypothesis. *Work and Stress, 23*, 120-136.
Ten Brummelhuis, L. L., Van Der Lippe, T., Kluwer, E. S., & Flap, H. (2008). Positive and negative effects of family involvement on work-related burnout. *Journal of Vocational Behavior, 73*(3), 387-396.
Testa, M. A., & Simonson, D. C. (1996). Assessment of quality of life outcomes. *New England Journal of Medicine, 334*(13), 835-840.
Tett, R. P., & Burnett, D. D. (2003). A personality trait-based interactionist model of job performance. *Journal of Applied psychology, 88*(3), 500-517.
Tett, R. P., & Guterman, H. A. (2000). Situation trait relevance, trait expression, and cross-situational consistency: Testing a principle of trait activation. *Journal of Research in Personality, 34*(4), 397-423.
Tett, R. P., Simonet, D. V., Walser, B., & Brown, C. (2013). Trait activation theory: Applications, developments, and implications for person-workplace fit. In N. D. Christiansen & R. P. Tett (Eds.), *Handbook of personality at work* (pp. 71-100). Routledge.
Thibaut, J. W., & Kelley, H. H. (1959). *The social psychology of groups*. Wiley.
Thomas, L. T., & Ganster, D. C. (1995). Impact of family-supportivework variables onwork-family conflict and strain: A control perspective. *Journal of Applied Psychology, 80*(1), 6-15.
Thompson, J. A. (2005). Proactive personality and job performance: A social capital perspective. *Journal of Applied Psychology, 90*(5), 1011-1017.
Tomaka, J. (2015). *Connecting sleep-wake cycles and work schedules to job satisfaction, performance, and absenteeism* [Doctoral dissertation]. Alliant International University.
Troup, C., & Dewe, P. (2002). Exploring the nature of control and its role in the appraisal of workplace stress. *Work and Stress, 16*(4), 335-355.
Tse, H. H., & Dasborough, M. T. (2008). A study of exchange and emotions in team member relationships. *Group Organization Management, 33*(2), 194-215.
Vandervoort, D. (1999). Quality of social support in mental and physical health. *Current Psychology, 18*(2), 205-222.
Vansteenkiste, M., Lens, W., & Deci, E. L. (2006). Intrinsic versus extrinsic goal contents in self-determination theory: Another look at the quality of academic motivation. *Educational Psychologist, 41*(1), 19-31.
Vansteenkiste, M., & Ryan, R. M. (2013). On psychological growth and vulnerability: Basic psychological need satisfaction and need frustration as an unifying principle. *Journal of Psychotherapy Integration, 23*(3), 263-280.
Viswesvaran, C., & Ones, D. S. (2000). Perspectives on models of job performance. *International Journal of Selection and Assessment, 8*(4), 216-226.
Walsh, F. (2011). *Resilience and mental health: Challenges across the lifespan*. Cambridge University.
Walumbwa, F. O., Luthans, F., Avey, J. B., & Oke, A. (2011). Retracted: Authentically leading groups: The mediating role of collective psychological capital and trust. *Journal of Organizational Behavior, 32*(1), 4-24.
Walumbwa, F. O., Muchiri, M. K., Misati, E., Wu, C., & Meiliani, M. (2018). Inspired to perform: A multilevel investigation of antecedents and consequences of thriving at work. *Journal of Organizational Behavior, 39*, 249–261.
Wambugu, L. W. (2014). Effects of organizational culture on employee performance (case study

of wartsila-kipevu li power plant). *European Journal of Business and Management, 6*(32), 80-93.

Wang, M. L., & Tsai, L. J. (2014). Work-family conflict and job performance in nurses: The moderating effects of social support. *The Journal of Nursing Research, 22*(3), 200-207.

Wang, T., & Huang, X. T. (2014). Relationship between physical health and happiness in China: The moderating effect of religiosity. *Chinese Journal of Clinical Psychology, 22*(6), 1053-1056.

Ware, J. E. (1993). *SF-36 health survey manual and interpretation guide*. The Health Institute.

Ware, J. E., Jr, K. M., & Keller, S. D. (1995). *SF-12: How to score the SF-12 physical and mental health summary scales*. The Health Institute.

Wefald, A. J., & Downey, R. G. (2009). Construct dimensionality of engagement and its relation with satisfaction. *The Journal of Psychology, 143*(1), 91–112.

Williams, H. M., Parker, S. K., & Turner, N. (2010). Proactively performing teams: The role of work design, transformational leadership, and team composition. *Journal of Occupational Organizational Psychology, 83*(2), 301-324.

Williams, L. J., & Anderson, S. E. (1991). Job satisfaction and organizational commitment as predictors of organizational citizenship and in-role behaviors. *Journal of Management, 17*(3), 601-617.

Witt, L. A., & Carlson, D. S. (2006). The work-family interface and job performance: Moderating effects of conscientiousness and perceived organizational support. *Journal of Occupational Health Psychology, 11*(4), 343–357.

Wolfson, A. R., Harkins, E., Johnson, M., & Marco, C. (2015). Effects of the young adolescent sleep smart program on sleep hygiene practices, sleep health efficacy, and behavioral well-being. *Journal of the National Sleep Foundation, 1*(3), 197-204.

Wright, T. A., Cropanzano, R., Denney, P. J., & Moline, G. L. (2002). When a happy worker is a productive worker: A preliminary examination of three models. *Canadian Journal of Behavioural Science, 34*(3), 146-150.

Xanthopoulou, D., Bakker, A. B., Demerouti, E., & Schaufeli, W. B. (2009). Work engagement and financial returns: A diary study on the role of job and personal resources. *Journal of Occupational and Organizational Psychology, 82*(1), 183–200.

Xu, X., Jiang, L., & Wang, H. (2019). How to build your team for innovation? A cross-level mediation model of team personality, team climate for innovation, creativity, and job crafting. *Journal of Occupational and Organizational Psychology, 92*(1), 1-25.

Yang, Y. Y. (1995). 试析人际关系及其分类——兼与黄光国先生商榷与社会学研究 [A trial analysis of interpersonal relationships and their classification]. *Sociological Research,* (5), 18-23.

Ybema, J. F., Evers, M. S., & Scheppingen, A. V. (2011). A longitudinal study on the effects of health policy in organizations on job satisfaction, burnout, and sickness absence. *Journal of Occupational & Environmental Medicine, 53*(11), 1251-1257.

Yildiz, H. (2019). The interactive effect of positive psychological capital and organizational trust on organizational citizenship behavior. *Sage Open, 9*(3), 1-15.

Yu, S., Wu, N., Liu, S., & Gong, X. (2021). Job insecurity and employee's extra-role behavior: Moderated mediation model of negative emotion and workplace friendship. *Frontiers in Psychology, 12*, 1-12.

Zacher, H., Jimmieson, N. L., & Bordia, P. (2014). Time pressure and coworker support mediate the curvilinear relationship between age and occupational well-being. *Journal of Occupational Health Psychology, 19*(4), 462-475.

Zainal, N., Zawawi, D., Aziz, Y. A., & Ali, M. H. (2021). Work-family conflict and job performance: Moderating effect of social support among employees in malaysian service sector. *International Journal of Business and Society, 21*(1), 79-95.

Zand, D. E. (1972). Trust and managerial problem solving. *Administrative Science Quarterly, 17*, 229-239.

Zareen, M., Razzaq, K., & Mujtaba, B. G. (2013). Job design and employee performance: The moderating role of employee psychological perception. *European Journal of Business and Management, 5*(5), 46-55.

Zautra, A. J., Johnson, L. M., & Davis, M. C. (2005). Positive affect as a source of resilience for women in chronic pain. *Journal of Consultingand Clinical Psychology, 73*(2), 212–220.

Zhang, X., Li, N., & Harris, T. B. (2015). Putting non-work ties towork: The case of guanxi in supervisor-subordinate relationships. *The leadership Quarterly, 26*(1), 37-54.

Zhou, J., & George, J. M. (2001). When job dissatisfaction leads to creativity: Encouraging the expression of voice. *Academy of Management Journal, 44*(4), 682-696.

Zhou, L., Wang, M., Chen, G., & Shi, J. (2012). Supervisors' upward exchange relationships and subordinate outcomes: Testing the multilevel mediation role of empowermentl. *Journal of Applied Psychology, 97*(3), 668-680.

Zhou, Y. K., & Chen, S. (2021). 中国文化背景下本土社会工作者同事关系研究 [A study of collegial relationships among local social workers in the Chinese cultural context]. *Social Work and Management, 21*(1), 54-63.

Zimet, G. D., Powell, S. S., Farley, G. K., Werkman, S., & Berkoff, K. A. (1990). Psychometric characteristics of the multidimensional scale of perceived social support. *Journal of Personality Assessment, 55*(3-4), 610-617.

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Webliography

Johns Hopkins University. (2022, June 22). *COVID-19 dashboard by the center for systems science and engineering (CSSE) at Johns Hopkins University*. Retrieved June 22, 2022, from https://publichealthupdate.com/jhu/.

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Annex A: Measuring scale

Appendix 1: Job performance self-rating Scale

strongly disagree		disagree	neutral	agree	strongly agree
1		2	3	4	5

Num.	**Item**	**Rate**
1	Adequately completes assigned duties.	1...2...3...4...5
2	Fulfills responsibilities specified in job description.	1...2...3...4...5
3	Performs the tasks that are expected of me.	1...2...3...4...5
4	Meets formal performance requirements of the job.	1...2...3...4...5
5	Engages in activities that will directly affect my performance evaluation.	1...2...3...4...5
6	Neglects aspects of the job which am obligated to perform.	1...2...3...4...5
7	Fails to perform essential duties.	1...2...3...4...5
8	Helps others who have been absent.	1...2...3...4...5
9	Helps others who have heavy workloads.	1...2...3...4...5
10	Assists supervisor with his/her work (when not asked).	1...2...3...4...5
11	Takes time to listen to co-workers' problems and worries.	1...2...3...4...5
12	Goes out of way to help new employees.	1...2...3...4...5
13	Takes a personal interest in other employees.	1...2...3...4...5
14	Passes along information to co-workers.	1...2...3...4...5
15	Attendance at work is above the norm.	1...2...3...4...5
16	Gives advance notice when unable to come to work.	1...2...3...4...5
17	Takes underserved work breaks.	1...2...3...4...5
18	Great deal of time spent with personal phone conversations.	1...2...3...4...5
19	Complains about insignificant things at work.	1...2...3...4...5
20	Conserves and protects organizational property.	1...2...3...4...5
21	Adheres to informal rules devised to maintain order.	1...2...3...4...5

Appendix 2: Physical well-being scale

Never	Once or twice	Once or twice in a week	Most days	Everyday
1	2	3	4	5

Num.	**Item**	**Rate**
1	An upset stomach or nausea	1...2...3...4...5
2	A backache	1...2...3...4...5
3	Trouble sleeping	1...2...3...4...5
4	Headache	1...2...3...4...5
5	Acid indigestion or heartburn	1...2...3...4...5
6	Eye strain	1...2...3...4...5
7	Diarrhea	1...2...3...4...5
8	Stomach cramps (Not menstrual)	1...2...3...4...5
9	Constipation	1...2...3...4...5
10	Ringing in the ears	1...2...3...4...5
11	Loss of appetite	1...2...3...4...5
12	Dizziness	1...2...3...4...5
13	Tiredness or fatigue	1...2...3...4...5

Appendix 3: Mental health scale

Strongly disagree	Disagree	Neutral	Agree	Strongly agree
1	2	3	4	5

Num.	**Item**	**Rate**
1	I am overwhelmed by thoughts of doing poorly at work.	1...2...3...4...5
2	I worry that my work performance will be lower than that of others at work.	1...2...3...4...5
3	I feel nervous and apprehensive about not being able to meet performance targets.	1...2...3...4...5
4	I worry about not receiving a positive job performance evaluation.	1...2...3...4...5
5	I often feel anxious that I will not be able to perform my job duties in the time allotted.	1...2...3...4...5
6	I worry about whether others consider me to be a good employee for the job.	1...2...3...4...5
7	I worry that I will not be able to successfully manage the demands of my job.	1...2...3...4...5
8	Even when I try as hard as I can, I still worry about whether my job performance will be good	1...2...3...4...5

Appendix 4: Family Relationship Health Scale

Strongly disagree	Disagree	Neutral	Agree	Strongly agree
1	2	3	4	5

Num.	**Item**	**Rate**
1	I feel alone when I'm with my family.	1...2...3...4...5
2	No one in my family really cares about me.	1...2...3...4...5
3	There is no one in my family I can depend upon for support and encouragement, but I wish there were	1...2...3...4...5
4	I really care about my family.	1...2...3...4...5
5	I really belong in my family.	1...2...3...4...5
6	I wish my family was more concerned about my welfare.	1...2...3...4...5
7	I feel part of my family.	1...2...3...4...5
8	My family really cares about me.	1...2...3...4...5
9	There is no one in my family I feel close to, but I wish there were.	1...2...3...4...5
10	My family is important to me.	1...2...3...4...5
11	I feel close to my family.	1...2...3...4...5

Appendix 5: Co-worker relationship Health Scale

Strongly disagree	Disagree	Neutral	Agree	Strongly agree
1	2	3	4	5

Num.	**Item**	**Rate**
1	My interactions with my co-workers are rewarding.	1...2...3...4...5
2	My co-workers value my input.	1...2...3...4...5
3	My co-workers listen to what I have to say.	1...2...3...4...5
4	My co-workers really know who I am.	1...2...3...4...5
5	I believe that my co-workers appreciate who I am.	1...2...3...4...5
6	I sense a real connection with my co-workers.	1...2...3...4...5
7	My co-workers and I have mutual respect for one another.	1...2...3...4...5
8	I feel a real 'constant' with my co-workers.	1...2...3...4...5
9	I feel worthwhile when I am around my co-workers.	1...2...3...4...5
10	I trust my co-workers.	1...2...3...4...5

Appendix 6: Sleep health scale

Never	Once or twice	Once or twice in a week	Most days	Everyday
1	2	3	4	5

Num.	**Item**	**Rate**
1	Have trouble falling asleep?	1...2...3...4...5
2	Wake up several times per night.	1...2...3...4...5
3	Have trouble staying asleep (including waking far too early)?	1...2...3...4...5
4	Wake up after your usual amount of sleep feeling tired and worn out?	1...2...3...4...5

Appendix 7: Psychological capital scale

Strongly disagree	Disagree	Neutral	Agree	Strongly agree
1	2	3	4	5

Num.	**Item**	**Rate**
1	I feel confident analyzing a long-term problem to find a solution.	1...2...3...4...5
2	I feel confident in representing my work area in meetings with management.	1...2...3...4...5
3	I feel confident contributing to the discussions about the company's strategy.	1...2...3...4...5
4	I feel confident helping to set targets/goals in my work area.	1...2...3...4...5
5	I feel confident contacting people outside the company (e.g., suppliers, customers) to discuss problems.	1...2...3...4...5
6	I feel confident presenting information to a group of colleagues.	1...2...3...4...5
7	If I should find myself in a jam at work, I could think of many ways to get out of it.	1...2...3...4...5
8	At the present time, I am energetically pursuing my work goals.	1...2...3...4...5
9	There are lots of ways around any problem.	1...2...3...4...5
10	Right now I see myself as being pretty successful at work.	1...2...3...4...5
11	I can think of many ways to reach my current work goals.	1...2...3...4...5
12	At this time, I am meeting the work goals that I have set for myself.	1...2...3...4...5
13	When I have a setback at work, I have trouble recovering from it, moving on.	1...2...3...4...5
14	I usually manage difficulties one way or another at work.	1...2...3...4...5
15	I can be "on my own," so to speak, at work if I have to.	1...2...3...4...5
16	I usually take stressful things at work in stride.	1...2...3...4...5
17	I can get through difficult times at work because I've experienced difficulty before.	1...2...3...4...5
18	I feel I can handle many things at a time at this job.	1...2...3...4...5
19	When things are uncertain for me at work, I usually expect the best.	1...2...3...4...5

20	If something can go wrong for me work-wise, it will.	1...2...3...4...5
21	I always look on the bright side of things regarding my job.	1...2...3...4...5
22	I'm optimistic about what will happen to me in the future as it pertains to work.	1...2...3...4...5
23	In this job, things never work out the way I want them to.	1...2...3...4...5
24	I approach this job as if "every cloud has a silver lining."	1...2...3...4...5

Appendix 8: Job engagement Scale

Strongly disagree	Disagree	Neutral	Agree	Strongly agree
1	2	3	4	5

Num.	**Item**	**Rate**
1	I work with intensity on my job.	1...2...3...4...5
2	I exert my full effort to my job.	1...2...3...4...5
3	I devote a lot of energy to my job.	1...2...3...4...5
4	I try my hardest to perform well on my job.	1...2...3...4...5
5	I strive as hard as I can to complete my job.	1...2...3...4...5
6	I exert a lot of energy on my job.	1...2...3...4...5
7	I am enthusiastic about my job.	1...2...3...4...5
8	I feel energetic about my job.	1...2...3...4...5
9	I am interested in my job.	1...2...3...4...5
10	I am proud of my job.	1...2...3...4...5
11	I feel positive about my job.	1...2...3...4...5
12	I am excited about my job.	1...2...3...4...5
13	At work, my mind is focused on my job.	1...2...3...4...5
14	At work, I pay a lot of attention to my job.	1...2...3...4...5
15	At work, I concentrate on my job.	1...2...3...4...5
16	At work, I focus a great deal of attention on my job.	1...2...3...4...5
17	At work, I am absorbed in my job.	1...2...3...4...5
18	At work, I devote a lot of attention to my job.	1...2...3...4...5

Appendix 9: Leader-member exchange scale

Strongly disagree	Disagree	Neutral	Agree	Strongly agree
1	2	3	4	5

Num.	**Item**	**Rate**
1	I like my supervisor very much as a person.	1...2...3...4...5
2	My supervisor is the kind of person one would like to have as a friend.	1...2...3...4...5
3	My supervisor is a lot of fun to work with.	1...2...3...4...5
4	My supervisor defends my work actions to a superior, even without complete knowledge of the issue in question.	1...2...3...4...5
5	My supervisor would come to my defense if I were "attacked" by others.	1...2...3...4...5
6	My supervisor would defend me to others in the organization if I made an honest mistake.	1...2...3...4...5
7	I do work for my supervisor that goes beyond what is specified in my job description.	1...2...3...4...5
8	I am willing to apply extra efforts, beyond those normally required, to further the interests of my work group.	1...2...3...4...5
9	I am impressed with my supervisor's knowledge of his/ her job.	1...2...3...4...5
10	I respect my supervisor's knowledge of and competence on the job.	1...2...3...4...5
11	I admire my supervisor's professional skills.	1...2...3...4...5

Appendix 10: Active personality Inventory

Strongly disagree	Disagree	Neutral	Agree	Strongly agree
1	2	3	4	5

Num.	**Item**	**Rate**
1	I am constantly on the lookout for new ways to improve my life.	1...2...3...4...5
2	I feel driven to make a difference in my community, maybe the world.	1...2...3...4...5
3	I tend to let others take the initiative to start new projects.	1...2...3...4...5
4	Wherever I have been, I have been a powerful force for constructive change.	1...2...3...4...5
5	I enjoy facing and overcoming obstacles to my ideas.	1...2...3...4...5
6	Nothing is more exciting than seeing my ideas turn into reality.	1...2...3...4...5
7	If I see something I do not like, I fix it.	1...2...3...4...5
8	No matter what the odds, if I believe in something, I will make it happen.	1...2...3...4...5
9	I love being a champion for my ideas, even against theirs opposition.	1...2...3...4...5
10	I excel at identifying opportunities.	1...2...3...4...5
11	I am always looking for better ways to do things.	1...2...3...4...5
12	If I believe in an idea, no obstacle will prevent me from making it happen.	1...2...3...4...5
13	I love to challenge the status quo.	1...2...3...4...5
14	When I have a problem, I tackle it head-on.	1...2...3...4...5
15	I am great at turning problems into opportunities.	1...2...3...4...5
16	I can spot a good opportunity long before others can.	1...2...3...4...5
17	If I see someone in trouble, I help out in any way I can.	1...2...3...4...5