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Fostering Proactive Work Behavior in Rural Doctors: A Multilevel, Multidimensional Trust Approach

LI Li

Doctor of Management

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December, 2025



BUSINESS
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Abstract

The accessibility and quality of China's primary healthcare system depend on rural doctors effectiveness, which is challenged in environments characterized by limited resources, complex policies, and diverse demands. Proactive work behavior (PWB) may offer a solution as put no burden on the system and allow to bridge systemic gaps. Yet, there is a lack of research about how to foster this behavior in rural doctors in China.

Drawing on Social Exchange Theory and the Social-ecological systems theory, this study proposes a conceptual model that departs from trust, positing its positive effect on rural doctors' PWB through the mediation of compensation satisfaction.

Based on a first qualitative study, 53 participants were interviewed to provide an account of the key dimensions in play, which highlighted a tiered trust framework encompassing a macro-level institutional trust, meso-level interpersonal trust, and micro-level self-trust. Departing from this, a second quantitative study tested a 2-1-1 multi-level model with three trust dimensions conceived to operate at the collective level, while compensation satisfaction and PWB are at the individual level. Using time-lag data from 505 rural doctors across 62 townships, findings showed that compensation satisfaction, especially salary, positively predicts PWB. Institutional and interpersonal trust predict PWB and compensation satisfaction more strongly than self-trust. Finally, compensation satisfaction partially mediates the trust-PWB relationship, revealing two pathways: an evaluative-exchange route (salary-mediated) and a safety-enablement route (direct trust effects).

Embedded in the context of Guangdong's BaiQianWan Project, this study offers insights and an actionable evidence base for primary healthcare governance and human resource policies to reinforce the primary healthcare system in China via rural doctors' PWB.

Keywords: Rural doctors, Proactive work behaviors, Institutional trust, Interpersonal trust, Self-trust, Compensation satisfaction

JEL: M12 Personnel Management; I18 Government Policy - Regulation - Public Health

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Resumo

A acessibilidade e a qualidade do sistema de cuidados de saúde primários da China dependem da eficácia dos médicos rurais, que é desafiada pelos recursos limitados, políticas complexas e exigências diversas. O comportamento proativo no trabalho (PWB) pode ser uma solução, pois não sobrecarrega o sistema e permite suprir lacunas sistêmicas. No entanto, falta investigação sobre como fomentar esse comportamento nos médicos rurais na China.

Com base na Teoria da Troca Social e na Teoria dos Sistemas Socioecológicos, este estudo propõe um modelo conceptual que parte da confiança, postulando o seu efeito positivo no PWB dos médicos rurais através da mediação da satisfação com as recompensas.

Com base num primeiro estudo qualitativo, 53 participantes foram entrevistados o que permitiu identificar a importância de uma estrutura estratificada de confiança que abrange a confiança institucional (nível macro), a confiança interpessoal (nível meso) e a autoconfiança (nível micro). Partindo disto, foi realizado um segundo estudo de natureza quantitativa para testar um modelo multinível 2-1-1, no qual as três dimensões da confiança são concebidas como estando a operar ao nível coletivo, enquanto a satisfação com a remuneração e o PWB estão ao nível individual. Com base numa amostra temporalmente defasada de 505 médicos rurais de 62 municípios, os resultados mostraram que a satisfação com a compensação, especialmente com o salário, prevê positivamente o PWB. A confiança institucional e interpessoal prevê o PWB e a satisfação com a compensação mais fortemente do que a auto-confiança. Finalmente, a satisfação com a compensação medeia parcialmente a relação confiança-PWB, mostrando dois caminhos: uma linha de troca avaliativa (mediada pelo salário) e outra linha de viabilização da segurança (efeitos diretos da confiança).

Incorporado no contexto real do Projeto BaiQianWan de Guangdong, este estudo oferece insights e fornece uma base de evidências acionáveis para a governo da saúde primária e políticas de recursos humanos para reforçar o sistema de saúde primária na China por meio do PWB dos médicos rurais.

Palavras-chave: Comportamento Proactivo no Trabalho, Médicos rurais, Cuidados primários, Confiança institucional, Confiança interpessoal, Auto-confiança.

JEL: M12 Gestão de pessoas; I18 Políticas governamentais – Regulação – Saúde -Pública

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摘要

中国初级卫生保健体系的可及性与服务质量，取决于乡村医生的工作效能——而他们在资源有限、政策复杂且需求多元的环境中面临诸多挑战。主动工作行为或许能提供解决方案，因其不会给医疗体系增加负担，同时有助于弥补系统性缺陷。然而，目前尚缺乏关于如何在中国乡村医生中培养此类行为的研究。

本研究借鉴社会交换理论和社会生态系统理论，提出一个以信任为核心的概念模型，该模型认为信任通过薪酬满意度的中介作用，对乡村医生的主动工作行为产生积极影响。

基于一项初步的定性研究，对 53 名参与者进行了访谈，以阐述其中起关键作用的各个维度，研究结果凸显了一个分层信任框架，该框架包含宏观层面的制度信任、中观层面的人际信任和微观层面的自我信任。在此基础上，第二项定量研究测试了一个 2-1-1 多层次模型，该模型设想三种信任维度在集体层面运作，而薪酬满意度与主动性工作行为则体现在个人层面。利用来自 62 个乡镇 505 名乡村医生的时间滞后数据，研究结果表明，薪酬满意度（尤其是工资）对主动工作行为具有积极预测作用。制度信任和人际信任比自我信任更能预测主动工作行为和薪酬满意度。最后，薪酬满意度部分中介了信任与主动工作行为之间的关系，揭示了两条路径：一种是评价-交换路径（通过工资中介），另一种是安全赋能路径（信任的直接效应）。

本研究立足于广东省百千万工程的背景，为初级卫生保健治理与人力资源政策提供了深入见解及可操作的实证依据，旨在通过提升乡村医生的主动工作行为来强化中国的初级卫生保健体系。

关键词：乡村医生，主动工作行为，制度信任，人际信任，自我信任，薪酬满意度

JEL: M12 人事管理；**I18** 政府政策——监管——公共卫生

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Content

Chapter 1: Introduction	1
1.1. Overview of rural doctors in China.....	1
1.2 Rural healthcare services in Guangdong.....	4
1.2.1 Overview of Guangdong province	4
1.2.2 The role and current state of rural doctors in Guangdong.....	6
1.2.3 Distribution and number of rural doctors	6
1.2.4 Working conditions and challenges.....	6
1.2.5 Rural healthcare reform in Guangdong and its impact.....	7
1.3 Research problem.....	8
1.3.1 Importance of rural doctors’ work behavior.....	8
1.3.2 Key factors influencing rural doctors’ proactive work behavior.....	9
1.4 Research questions	10
1.4.1 The relationship between trust and rural doctors’ proactive work behavior	10
1.4.2 The relationship between trust and job satisfaction	11
1.4.3 The relationship between job satisfaction and proactive work behavior	11
1.5 Research purpose.....	12
1.5.1 Core objective.....	12
1.5.2 Empirical objectives	12
Chapter 2: Literature Review	13
2.1 Rural doctors	13
2.1.1 Historical changes in rural healthcare system of China	13
2.1.2 Difficulties in the development of rural doctors in China.....	15
2.2 Status of primary healthcare services in other countries.....	17
2.2.1 US patient-centered medical home.....	17
2.2.2 UK national health service	19
2.2.3 Portugal national health service	20
2.2.4 Cuba.....	21
2.2.5 South Korea.....	22
Chapter 3: STUDY 1-The Influencing Factors of Rural Doctors’ Proactive Work Behavior: A Grounded Theory Approach.....	25

3.1 Introduction	25
3.2 Literature review (study 1).....	26
3.2.1 Current status of research on rural doctors in China	26
3.3 Job satisfaction	28
3.3.1 Theoretical basis of job satisfaction: two-factor theory	28
3.3.2 Existing research on job satisfaction	28
3.3.3 Dimensions and measurement of job satisfaction	30
3.3.4 Relationship between competence, doctor-patient relationship and job satisfaction and turnover intention among rural doctors in China	31
3.4 Method	32
3.4.1 Procedure and sample.....	32
3.4.2 Research method	33
3.4.3 Interview outline.....	36
3.4.4 Interview quality control	38
3.4.5 Theoretical saturation test	39
3.5 Results (study 1).....	39
3.5.1 Open coding	40
3.5.2 Axial coding	49
3.5.3 Selective coding	50
3.5.4 Institutional trust is the cornerstone of the rural healthcare service system....	51
3.5.5 Interpersonal trust is the link between the medical service and collaboration of rural doctors.....	52
3.5.6 Self-trust is the internal driving force for the career development of rural doctors	53
3.6 Discussion and conclusion (Study 1)	54
Chapter 4: STUDY 2-Proactive Work Behavior in Rural Doctors: A Mediation Multilevel Model based on Trust and Compensation Satisfaction	57
4.1 Literature review	57
4.1.1 Proactive work behavior.....	57
4.1.2 Theories of trust.....	67
4.1.3 Social-ecological systems theory	70
4.1.4 The central mediator role of job satisfaction.....	81
4.1.5 Institutional trust and satisfaction with compensation	82
4.2 Method	88
4.2.1 Procedure.....	88

4.2.2 Sample	89
4.2.3 Data analysis strategy	90
4.2.4 Measures.....	91
4.2.5 Aggregability	103
4.3 Results	104
4.3.1 Hypotheses testing.....	106
4.4 Discussion and conclusion (Study 2)	109
Chapter 5: General Discussion and Conclusion	111
Bibliography	121
Webliography	137
Other References	139
Annex A: Interview Script – Study 1 (Rural Doctors)	141
Annex B: Interview Script – Study 1 (CHC)	143
Annex C: Questionnaire Survey on PWB of Rural Doctors-Phase 1	145
Annex D: Questionnaire Survey on PWB of Rural Doctors-Phase 2	153

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List of Tables

Table 1.1 Number of rural health clinics and personnel nationwide.....	2
Table 1.2 Number of rural doctors in village health units in Guangdong province (2012-2022)	3
Table 3.1 Outline of interview on rural doctors	36
Table 3.2 Outline of interview on county health commission officials.....	38
Table 3.3 Open coding results	40
Table 3.4 Results of axial encoding	49
Table 3.5 Institutional trust frequency.....	52
Table 3.6 Frequency of interpersonal trust.....	53
Table 3.7 Frequency of self-trust.....	54
Table 4.1 Different definitions of trust.....	67
Table 4.2 Delineating dimensions of interpersonal trust.....	76
Table 4.3 Component matrix for institutional trust.....	92
Table 4.4 Component matrix for interpersonal trust	94
Table 4.5 Component matrix for self-trust	97
Table 4.6 Component matrix for satisfaction with tangible rewards	98
Table 4.7 Component matrix for satisfaction with tangible rewards	100
Table 4.8 Measurement model comparison.....	102
Table 4.9 Means, standard deviation and bivariate statistics	105
Table 4.10 Estimates for within and between level direct and indirect effects	107

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List of Figures

Figure 1.1 Institutions, personnel and treatment in village health units in Guangdong Province (2012-2022).....	2
Figure 3.1 Influencing factor model of 3D trust on proactive work behavior of rural doctors	51
Figure 4.1 Organizational trust division.....	68
Figure 4.2 Figure model structure	86
Figure 4.3 CFA for Institutional Trust.....	93
Figure 4.4 CFA for Interpersonal Trust	96
Figure 4.5 CFA for Self-trust.....	98
Figure 4.6 CFA for job satisfaction	99
Figure 4.7 CFA for PWB.....	100

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Chapter 1: Introduction

The establishment and development of the rural healthcare system is a complex and long-term task worldwide. Rural doctors play a crucial role in this system, serving as not only primary healthcare providers for rural residents, but also key practitioners in implementing healthcare policies at the grassroots level. In recent years, with the deepening of healthcare reform in China, the working environment and service quality of rural doctors have received widespread attention. Despite significant progress in poverty alleviation in China, the imbalance in the distribution of healthcare resources between urban and rural areas remains significant. Rural doctors encounter substantial professional pressures and challenges owing to resource scarcity. Even in economically developed provinces like Guangdong, there is still an imbalance in development between the Pearl River Delta and the eastern, western, and northern regions of Guangdong. Against this background, exploring the current state of rural healthcare services and analyzing the work behaviors of rural doctors, particularly their proactive work behaviors, is of great importance for optimizing the healthcare system.

1.1. Overview of rural doctors in China

The *Statistical Bulletin on the Development of China's Healthcare Development in 2023* released by the National Health Commission shows that by the end of 2023, there were 582,000 rural health clinics nationwide. There were 1,327,000 people working in rural health clinics, including 1,108,000 practicing (assistant) physicians and those holding rural doctor's certificates, 196,000 registered nurses, and 15,000 health workers. Compared with the previous year, the number of rural health clinics decreased by 600,000, while the number of licensed (assistant) physicians increased by 600,000 (Table 2.1). The primary reasons for the decline in the number of rural health clinics are administrative restructuring and the merger of some rural health clinics. Rural health clinics handled 1.4 billion patient visits, an increase of 120 million compared to the previous year, with an average of 2,407 patient visits per clinic annually.

Table 1.1 Number of rural health clinics and personnel nationwide

	Norm	2022	2023
Number of rural health clinics (10,000)		58.8	58.2
Total number of personnel (10,000)		136.7	132.7
Practicing (assistant) medical practitioners and holders of rural doctor's certificate		114.1	110.8
#Number of medical practitioners (assistants)		50.2	50.8
Number of registered nurses		20.4	19.6
Hygienist		1.8	1.5

Note: The number of practicing (assistant) physicians and registered nurses in village health units includes the figures for township health center locations.

According to the data from the 2022 *Guangdong Province Health and Wellness Statistical Yearbook*, there were a total of 25,304 village health stations in Guangdong Province in 2022, which are an important part of the province's healthcare service system. Within these village health stations, there are 17,423 rural doctors and 11,247 practicing (assistant) physicians (Figure 2.1, and Table 2.2). These professionals serve as the main force driving rural health development. In addition to providing basic medical services, they are also responsible for disease prevention and health education and promotion, playing a vital role in improving health conditions and the quality of life in rural areas.

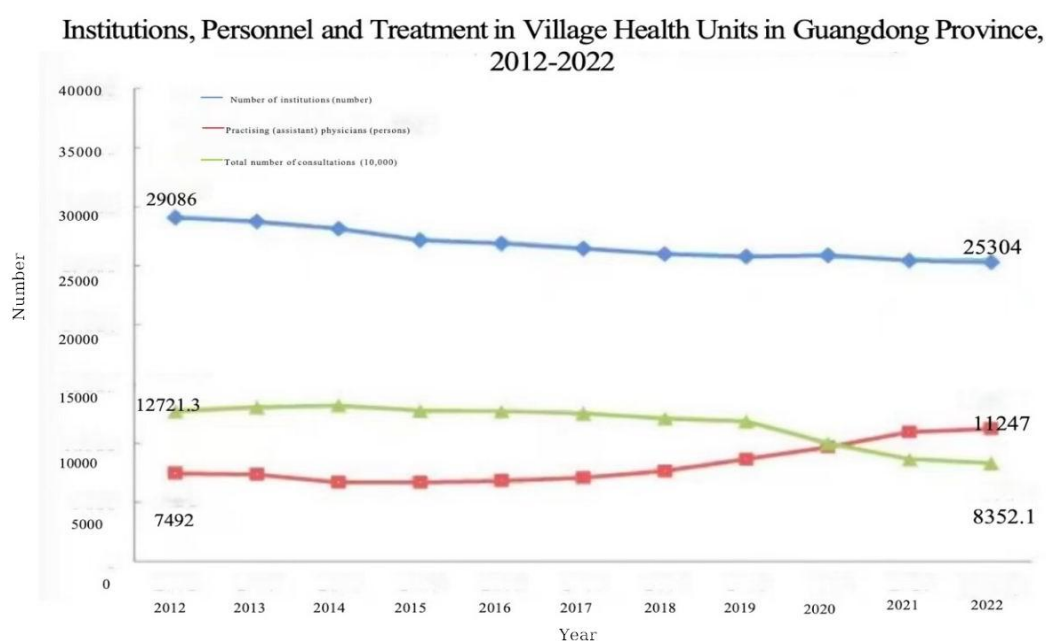


Figure 1.1 Institutions, personnel and treatment in village health units in Guangdong Province (2012-2022)

Source: Guangdong Provincial Health Commission (2022)

Table 1.2 Number of rural doctors in village health units in Guangdong province (2012-2022)

Region	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Guangdong Province	30751	29450	26151	25149	24410	23417	22382	21161	20205	17793	17423
Guangzhou	1495	1407	1208	1028	776	679	657	590	522	393	399
Shaoguan	1589	1542	1352	1314	1280	1231	1189	1104	1049	930	930
Zhuhai	113	103	83	98	67	52	47	41	35	29	28
Shantou	594	555	416	561	546	497	475	465	456	327	320
Foshan	172	153	94	93	32	26	23	21	23	20	19
Jiangmen	995	997	927	891	827	772	741	712	690	647	637
Zhanjiang	2894	2817	2384	2496	2483	2398	2273	2199	2144	1961	1891
Maoming	3859	3578	3351	3234	3482	3423	3332	3133	3015	2437	2409
Zhaoqing	2579	2484	2108	2042	2000	1960	1937	1883	1834	1635	1582
Huizhou	1385	1287	1175	1077	968	855	812	759	700	617	600
Meizhou	2419	2265	1941	1956	1935	1881	1821	1730	1558	1375	1343
Shanwei	1404	1319	1260	1266	1248	1211	1097	1059	1013	870	827
Heyuan	1824	1721	1663	1493	1402	1339	1241	1121	1072	930	907
Yangjiang	1491	1453	1335	1206	1240	1190	1085	1012	974	862	826
Qingyuan	1920	1822	1530	1402	1316	1263	1191	1072	1017	896	884
Dongguan	781	733	468	106	12						
Zhongshan	52	42	37	31	28	14	9	9	8	6	3
Chaozhou	1522	1491	1368	1439	1434	1389	1379	1351	1332	1288	1282
Jieyang	2129	2254	2108	2095	2107	2081	2008	1912	1844	1722	1698
Yunfu	1534	1427	1343	1321	1227	1156	1065	988	919	848	838

Source: Guangdong Provincial Health Commission (2022)

1.2 Rural healthcare services in Guangdong

As a pioneer in implementing the reform and opening-up policy, Guangdong Province has not only achieved a high level of economic development and a large population but has also made significant strides in healthcare. However, the uneven distribution of medical resources between urban and rural areas remains a prominent issue. In rural areas, the lack of medical resources has become a major bottleneck limiting the development of primary healthcare services. This imbalance not only affects the health and well-being of rural residents, but also hinders the realization of social equity. In Guangdong, the disparity between urban and rural healthcare services is notable, with rural healthcare facing challenges such as outdated facilities, insufficient medical personnel, and unstable drug supplies (Song et al., 2017).

In recent years, the Chinese governments at all levels have implemented various policies to promote the reform and development of the rural healthcare system, aiming to improve the quality of rural healthcare services and promote the working conditions of rural doctors. However, the reform effectiveness varies across regions, and rural doctors continue to face immense occupational stress. Therefore, before discussing the work behaviors of rural doctors, it is crucial to gain an in-depth understanding of the current state of rural healthcare in Guangdong and analyze how the urban-rural healthcare gap affects the quality of rural healthcare services.

1.2.1 Overview of Guangdong province

Guangdong Province, as an economic powerhouse and populous region in southern China, serves as both a core engine driving China's economic growth and a vital hub for medical resources. With a population exceeding 110 million and a complex demographic structure, the province exhibits significant regional disparities in economic development. According to the *Guangdong Statistical Yearbook 2022* (Guangdong Provincial Bureau of Statistics, 2022), the Pearl River Delta region boasts advanced economic development and relatively well-developed medical facilities. In contrast, the eastern, western, and northern regions lag economically and suffer from scarce medical resources, with rural areas experiencing particularly weak healthcare services.

The uneven distribution of healthcare resources between urban and rural areas is especially pronounced across Guangdong Province. About 70% of the medical resources are concentrated in urban areas, including numerous grade A tertiary hospitals and advanced diagnostic

equipment. In contrast, rural health stations and clinics lack basic medical equipment and drug supplies, making it difficult for rural residents to get access to disease prevention, diagnosis, and treatment (Guangdong Provincial Bureau of Statistics, 2022). This resource imbalance not only affects health outcomes of the residents but also exacerbates disparities in access to healthcare between urban and rural residents, further affecting the overall quality of life for rural residents (Wang & Li, 2021).

To be specific, the uneven distribution of healthcare resources in Guangdong is reflected in several aspects. First, in terms of medical infrastructure, urban hospitals and medical institutions generally have advanced equipment and technological capabilities, while rural clinics and village health stations have rudimentary facilities, sometimes lacking even basic diagnostic tools (Liu & Zhang, 2020). Second, in terms of medical personnel allocation, the number of rural doctors is insufficient and their professional skill levels are relatively low, making it difficult to effectively meet growing healthcare demands (Guangdong Provincial Bureau of Statistics, 2022). According to statistics of 2023, 81% of personnel in rural health stations in Guangdong have an educational level below junior college, with only 19% holding a bachelor's degree or above (Chen & Wu, 2023). These figures indicate significant room for improvement in the academic standards and professional competence of rural doctors, which directly affects their ability to diagnose and treat complex diseases effectively.

In addition, the coverage of healthcare services in rural areas is limited. The shortage of medical resources is manifested not only in diagnostic equipment and personnel but also in drug supply and disease prevention systems. Many remote village health stations face drug shortages, with insufficient supplies of medications for common and frequently occurring diseases, which hampers effective disease control (Li & Zhou, 2022). This situation was particularly evident during the COVID-19 epidemic when the lack of medical resources further increased the difficulty for rural residents to obtain quality healthcare.

To address this imbalance, the Guangdong provincial government has implemented several policy measures in recent years. These include promotion of the hierarchical diagnosis and treatment system, subsidies for rural doctors, and gradual improvement of equipment and drug supplies in rural health stations (Zhang & Huang, 2022). These policies have alleviated some pressure on healthcare services in rural areas, making healthcare more accessible to residents. However, despite some progress, rural healthcare in Guangdong still faces numerous challenges. In particular, in the remote areas of eastern and western Guangdong, the allocation of medical resources remains an urgent issue to be addressed (Guangdong Provincial Bureau of Statistics, 2022).

1.2.2 The role and current state of rural doctors in Guangdong

Rural doctors play an indispensable role in the primary healthcare system of Guangdong. They not only provide routine medical services to rural residents but also shoulder responsibilities in public health management, health education, and disease prevention. In rural areas with limited medical resources, the work of rural doctors directly affects the health and healthcare coverage of rural residents. However, rural doctors in Guangdong face numerous challenges in their working environment and career development.

1.2.3 Distribution and number of rural doctors

According to the Guangdong Provincial Health Commission, by April 2023, there were approximately 25,000 rural doctors in the province, mainly distributed in township health centers, village clinics, and community health service centers (Lin & Zhao, 2023). These doctors provide basic medical services to millions of rural residents, responsible for the diagnosis and treatment of common and frequently occurring diseases, chronic disease management, and maternal and child health. However, the number of doctors is far from sufficient to meet the substantial healthcare needs in rural areas. The shortage is particularly acute in remote regions such as eastern and northern Guangdong. For example, in the city of Heyuan, each rural doctor serves over 3,000 residents, significantly higher than the benchmark recommended by World Health Organization (Li, 2022).

This imbalance between the number of doctors and the population they serve forces many rural doctors to work under excessive pressure, requiring them to handle multiple tasks simultaneously, including diagnosis, prevention, and public health management. With the increasing demand for chronic disease management amid an aging population, the workload of these doctors has grown even heavier (Huang & Li, 2022). As society ages, the role of rural doctors will become increasingly important, making it crucial to find ways to alleviate their workload.

1.2.4 Working conditions and challenges

The working environment of rural doctors is significantly more challenging than that of their urban counterparts. They provide medical services under conditions of scarce resources and outdated equipment. Data show that medical equipment in village health stations across the province is generally outdated, and some health centers in remote areas lack basic diagnostic tools, such as ultrasound and electrocardiogram machines (Liu & Chen, 2021). Unstable drug

supply is also a key issue restricting rural doctors' diagnostic capabilities, common medications for prevalent illnesses are frequently in short supply at village clinics, preventing doctors from effectively treating certain common conditions (Wang & Zhao, 2023).

Moreover, literature review shows that rural doctors generally have lower educational qualifications and professional skills (Chen & Wu, 2023), limiting their ability to competently handle complex diseases. These figures indicate that the professional competence of rural doctors urgently needs enhancement, and the lack of professional training opportunities affects the quality of rural healthcare services.

The career development prospects for rural doctors are also very limited. Although Guangdong has introduced some incentive policies in recent years, offering subsidies and rewards to retain more doctors in rural areas, the actual effects have been limited. Many rural doctors still face challenges such as limited promotion channels and few opportunities for professional development (He, 2023). Data show that among doctors in rural health stations in Guangdong, 53.4% hold junior professional titles, while those with intermediate and senior titles are very few, accounting for only 0.9% and 0.1%, respectively (Lin & Zhang, 2022). The unreasonable professional title structure directly impacts rural doctors' career development paths, leading many to change professions or resign, further exacerbating the brain drain of medical talents in rural areas.

1.2.5 Rural healthcare reform in Guangdong and its impact

To address these issues, the Guangdong provincial government has implemented a series of healthcare reform measures in recent years, aimed at enhancing the quality of rural healthcare services and improving the working environment for rural doctors. The implementation of the hierarchical treatment system, for instance, is designed to rationally divert patients and reduce the workload of rural doctors (Guangdong Provincial Bureau of Statistics, 2022). Additionally, the government has implemented subsidy policies to increase rural doctors' income and reduce turnover rate. However, despite these well-intentioned policies, their actual implementation effectiveness varies significantly across different regions (Zhao & Li, 2023).

For example, in the relatively developed Pearl River Delta region, the implementation of the hierarchical treatment system and improvement of medical equipment has yielded significant results, greatly improving doctors' working environment. In contrast, policy implementation efficiency remains low in remote areas of eastern and northern Guangdong, where equipment shortages and unstable drug supplies persist as prominent issues (Wang & Zhang, 2023). Therefore, research on rural doctors should pay more attention to regional

disparities, particularly to help decision makers enhance policy implementation in remote areas.

In summary, as key providers of primary healthcare services, rural doctors not only offer medical care but also take on multiple roles in disease prevention and health education. Their work behavior directly influences the quality and efficiency of healthcare services. In resource-scarce and challenging rural environments, doctors' proactive work behavior is particularly important. This study aims to analyze the significance of rural doctors' work behavior, the specific challenges they face, and how trust affects their work behavior, thereby exploring effective pathways to enhance their work efficiency.

1.3 Research problem

Rural doctors are the cornerstone of primary healthcare services, and their work behavior directly impacts the quality of medical services and the health of residents. In resource-scarce rural areas, proactive work behavior among doctors is particularly crucial. By proactively identifying problems and taking necessary actions, rural doctors can enhance the quality of healthcare services more effectively. However, rural doctors in Guangdong Province currently face significant challenges, including resource shortage, high work pressure, job burnout, and limited career development opportunities. These factors collectively affect their work motivation and behavioral patterns. Therefore, stimulating proactive work behavior among rural doctors is key to improving the quality of rural healthcare services.

Among the various factors influencing rural doctors' work behavior, trust is a variable that cannot be ignored. Trust can be categorized into different levels, including institutional trust, interpersonal trust, and self-trust. Institutional trust refers to doctors' trust in government and medical systems, interpersonal trust involves the trust between doctors, patients, and colleagues, and self-trust is the confidence doctors have in their professional abilities. Trust can improve the work environment and potentially increase doctors' motivation and sense of responsibility. However, the impact of trust on work behavior is often realized through complex pathways, with job satisfaction potentially serving as a crucial mediating variable in this process. Therefore, investigating how trust and job satisfaction jointly influence rural doctors' proactive work behavior is of great practical significance for optimizing the rural healthcare system and improving healthcare service quality.

1.3.1 Importance of rural doctors' work behavior

In rural areas with limited medical resources, doctors' work behavior directly affects the

accessibility and effectiveness of healthcare services. Rural doctors not only provide medical services but also play multiple roles in health education, disease prevention, and public health management. In this context, proactive work behavior among rural doctors becomes especially important. Proactive work behavior involves not only completing assigned tasks on time but also taking the initiative to address challenges and exceed job requirements to improve healthcare quality (Parker et al., 2019). Analyzing the work behavior of rural doctors in Guangdong Province can provide important insights for future improvements in healthcare quality.

Research indicates that proactive work behavior among rural doctors can significantly enhance the quality of healthcare services. For instance, when managing complex cases, physicians who proactively propose personalized treatment plans better meet patients' health needs. Furthermore, proactive work behavior can mitigate the negative impacts of resource shortage by fostering innovation and improving work processes, thus enhancing service efficiency. Therefore, stimulating proactive work behavior among rural doctors is central to enhancing the quality of rural healthcare services.

1.3.2 Key factors influencing rural doctors' proactive work behavior

Despite the critical role of proactive work behavior (PWB) in improving healthcare quality, rural doctors in Guangdong Province still face numerous challenges that constrain their performance. First, work pressure and job burnout are major challenges for rural doctors (Yang & Wang, 2022). Due to understaffing, many doctors must simultaneously treat large numbers of patients, leading to excessive fatigue. Second, resource scarcity and insufficient drug supply impose further limitations on doctors during diagnosis and treatment (Zhao & Chen, 2023). In addition, the relatively low educational level of many rural doctors and the lack of professional training opportunities hinder the development of their professional competence, thereby reducing their PWB.

Trust, as an important variable in the work environment, may play a crucial role in doctors' PWB (Li & Zhang, 2022). Institutional trust can provide doctors with a sense of security and professional assurance, interpersonal trust can improve the work atmosphere, and self-trust can enhance doctors' ability to cope with challenges and boost their confidence. However, this impact may not operate directly. Job satisfaction, which is a comprehensive assessment of the work environment and self-value, might mediate the relationship between trust and proactive work behavior (Wang & Li, 2022). High levels of job satisfaction can motivate doctors to engage actively in their work, going beyond basic requirements to deliver higher-quality

services. Therefore, exploring how trust influences rural doctors' PWB through job satisfaction is of great importance.

Trust is a core element of all social systems, which is manifested primarily as institutional trust, interpersonal trust, and self-trust among rural doctors. Institutional trust can enhance doctors' confidence in the medical system, reduce their anxiety about policies and work pressure, and thereby increase their job satisfaction (Liu & Zhao, 2023). Interpersonal trust can enhance doctors' sense of responsibility and engagement by improving relationships with patients and colleagues, leading to higher job satisfaction (Wu & Li, 2022). Self-trust serves as an internal driver for doctors, boosting their enthusiasm and positivity towards their work by enhancing their self-efficacy and professional confidence (Zhang & Wang, 2023). Job satisfaction may play an important mediating role between these three dimensions of trust and PWB.

It is proposed in this study that institutional trust, interpersonal trust, and self-trust can influence rural doctors' PWB through job satisfaction. Strengthening trust helps doctors better cope with work challenges and, by improving job satisfaction, further increase their work motivation and professional identity, thus promoting the expression of proactive work behavior (Li & Wang, 2022). By analyzing the mechanisms through which trust and job satisfaction affect rural doctors' work behavior, this study aims to provide a theoretical basis for optimizing the rural healthcare service system.

1.4 Research questions

Based on the analysis of the background and influencing factors of rural doctors' PWB in Guangdong Province, this study aims to explore how institutional trust, interpersonal trust, self-trust, and job satisfaction affect the PWB of rural doctors. To better understand the relationship between trust, job satisfaction, and work behavior, key research questions are proposed as follows.

1.4.1 The relationship between trust and rural doctors' PWB

Question 1: How does institutional trust, interpersonal trust, self-trust affect rural doctors' PWB?

Institutional trust refers to the degree to which doctors trust government policies and medical institutions. This research question aims to explore whether rural doctors with higher institutional trust exhibit more PWB, including whether they are more willing to explore

innovative methods to improve healthcare quality when resources are limited.

Interpersonal trust mainly involves the interaction and trust between doctors, patients, colleagues, and superiors. This study aims to analyze whether higher interpersonal trust can improve work climate, reduce doctor-patient conflicts, and further stimulate doctors' work motivation and perceived responsibility, thereby prompting them to adopt more proactive behaviors.

Self-trust reflects the confidence doctors have in their own professional competence. This research question focuses on whether doctors with higher confidence in their competence are more likely to take on additional responsibilities and exhibit stronger proactive work behavior in the face of work stress.

1.4.2 The relationship between trust and job satisfaction

Question 2: What roles do institutional trust, interpersonal trust, and self-trust respectively play in rural doctors' job satisfaction?

Job satisfaction is an important factor influencing doctors' work behavior, and trust may be a key variable affecting job satisfaction. Exploring the different impacts of institutional trust, interpersonal trust, and self-trust on job satisfaction can help understand the role of trust in doctors' professional experience. The purpose of this question is to identify how each dimension of trust influences doctors' satisfaction, thereby providing more targeted suggestions for improving rural doctors' job satisfaction.

1.4.3 The relationship between job satisfaction and PWB

Question 3: How does job satisfaction affect rural doctors' PWB?

Job satisfaction reflects doctors' overall evaluation of their work environment, content, compensation, and development opportunities. Studying the relationship between job satisfaction and PWB helps reveal whether doctors with higher satisfaction are more likely to engage in their work proactively and exhibit autonomous behavior. Through this question, we aim to understand the motivational role of job satisfaction in doctors' work enthusiasm, and provide a basis for improving the work environment and conditions for rural doctors.

1.5 Research purpose

1.5.1 Core objective

The core objective of this study is to systematically explore the proactive work behavior of rural doctors in Guangdong Province and analyze how trust (institutional trust, interpersonal trust, and self-trust) affects key work behaviors such as proactive work behavior through the mediating role of job satisfaction. To be specific, this study aims to uncover to which extent trust affects rural doctors' work behavior, either independently or jointly, through the mediator of job satisfaction. By developing measures for trust and job satisfaction, this research explores the independent and mediating effects of different dimensions of trust on rural doctors' work behavior. It provides policymakers with targeted incentive strategies to promote rural doctors' work enthusiasm, thereby improving the quality of healthcare services.

1.5.2 Empirical objectives

1.5.2.1 Understand the mechanism linking trust to proactive work behavior

Through empirical analysis, the study explores how the three dimensions of trust (institutional trust, interpersonal trust, and self-trust) affect rural doctors' proactive work behavior through job satisfaction. We propose that improving such behaviors is crucial for enhancing the quality of rural healthcare services.

1.5.2.2 Evaluate the differential impacts of trust on proactive work behavior

This study analyzes whether different dimensions of trust affect rural doctors' proactive work behavior differently. For example, institutional trust may carry greater weight in fostering job satisfaction than interpersonal trust which could be more directly linked to other variables such as the quality of social interactions with colleagues and patients.

1.5.2.3 Provide scientific basis for policy formulation

The research findings will provide data support and theoretical basis for enhancing rural doctors' work effectiveness. By exploring how different dimensions of trust affect rural doctors' behaviors through job satisfaction, this study can assist policymakers in designing more effective incentive and support policies. These policies focus on specific behaviors related to proactive work engagement, a construct rooted in higher-order concepts like trust, thereby enhancing the stability and motivation of rural doctors.

Chapter 2: Literature Review

2.1 Rural doctors

2.1.1 Historical changes in rural healthcare system of China

Before the founding of the People's Republic of China, most of the doctors active in rural areas were predominantly traditional Chinese medicine practitioners and witch doctors, and both the National government and Beiyang government adopted a repressive attitude towards this group. This was because the government wanted to promote the use of 'scientific new medicine' rather than the old traditional Chinese medicine and witchcraft to achieve the evolution of civilization. This situation changed with the founding of the People's Republic of China.

According to Z. Li and Li (2019), in the late 1960s, the Chinese government shifted its focus of healthcare work to rural areas through the Directive No. 626. Grass-roots medical institutions were gradually set up in all areas on the basis of rural communes, with management systems such as "village-run and village-controlled", "village-run and township-controlled", and "village-run and township-connected", marking the establishment of a vast cooperative medical network. Through these management models, the Chinese government propelled cooperative medical care to its peak, and a three-tiered rural healthcare system spanning counties, townships, and villages has been established. The system absorbed and transformed a large number of barefoot doctors, and this initiative was promoted as a political mission. Regarding occupational entry requirements, the Chinese government mandated the selection of impoverished farmers and their children with favorable political backgrounds (without consideration for local realities) as candidates for barefoot doctors. They were trained to master basic healthcare knowledge and primary medical skills, undertake healthcare duties, and participate in productive labor. Whether serving as privately practicing physicians or collectively employed public doctors organized by the government, they were no longer independent practitioners. Instead, they became collective employees directly integrated into the collective, unable to practice independently outside the collective framework.

During the 1960s and 1970s, China's rural cooperative medical system experienced rapid expansion. In 1965, the government explicitly shifted the focus of healthcare work to rural areas. Between 1971 and 1977, the coverage rate of rural cooperative medical care in administrative

villages soared from 20% to 90%, reaching an unprecedented number of beneficiaries. During this period, barefoot doctors shouldered the responsibility of providing primary healthcare services through the cooperative medical network.

Since the Third Plenary Session of the 11th Central Committee, the structure of the rural economy in China has undergone extensive transformation, with the household contract responsibility system gradually replacing the collective economic model. This major shift in the economic system triggered a chain reaction, leading to a gradual reduction of the rural cooperative medical funds and a corresponding decline in insurance coverage. As the economy developed, some farmers were able to earn more income and began to opt for urban healthcare services. Income growth has struggled to keep pace with rising healthcare demands, exacerbating issues of accessibility and affordability. The existing rural cooperative medical system has become ill-suited to the new economic environment. During the economic reform period, rural cooperative medical coverage declined sharply, hitting a historic low of 5.5% in 1986. The cooperative medical system entered a trough period, with many rural doctors changing their careers. Some continued to practice medicine but shifted their income sources to pharmaceutical sales and clinical services (Tian et al., 2010).

In 2002, the Central Committee of the Communist Party of China and the State Council jointly issued the *Decision on Further Strengthening Rural Health Work*, which explicitly proposes to gradually establish a new rural cooperative medical system centered on major disease coverage, with the goal of achieving basic coverage by 2010. The government adopted a “pilot-first, national promotion later” approach to steadily advance the implementation of the new rural cooperative medical system. It continuously explored solutions to farmers’ difficulties in accessing medical care, and enhanced their capacity to cope with major disease risks at the institutional level. Since 2003, China has launched pilot projects for the New Rural Cooperative Medical System nationwide. The experiences gained in these pilot areas have provided valuable insights for nationwide implementation. By 2005, 122 million farmers had benefited from reimbursement subsidies under the New Rural Cooperative Medical System, and this figure rose to 1.942 billion by 2013. However, as the system was promoted across different regions, several issues gradually emerged, such as limited coverage of diseases (only covering serious illnesses), low reimbursement rates, and complicated reimbursement procedures, which hindered the full realization of the intended policy objectives (Zhao & Gao, 2006).

In 2009, the Central Committee of the Communist Party of China and the State Council jointly issued the *Opinions on Deepening the Reform of the Medical and Health Care System*,

which marked the beginning of a new round of reform of China's medical and health care system (hereinafter referred to as the "new medical reform" (Chen et al., 2010). The development process of the new medical reform plan reveals that the original reform proposal from the Ministry of Health initially followed a "market-oriented" approach. It was not until March 2005 that then-Premier Wen Jiabao called for a thorough overhaul to standardize medical service fees and the order of drug procurement and sales, aiming to effectively address the difficulties in accessing medical treatment and high costs of medical treatment for the public. The *Opinions on Deepening the Reform of the Medical and Health Care System* explicitly set the goal of "gradually achieving universal basic medical coverage", and for the first time proposed the idea of "reforming the drug markup policy and implementing zero-markup drug sales", thus guaranteeing the supply of basic medical and health care services in rural areas.

2.1.2 Difficulties in the development of rural doctors in China

C. Y. Zhang et al. (2016) explored the severity of the problems in the field of rural doctors in China based on literature analysis. By retrieving 308 relevant articles from China National Knowledge Infrastructure (CNKI), they identified the top four problems in descending order of severity: low educational qualifications, inadequate training mechanisms, lack of pension security systems, and an aging workforce. Zhou et al. (2016) highlighted the challenges faced by rural doctor teams, including disproportionate income relative to workload, slow diagnostic and treatment processes, increased professional risks, insufficient talent replenishment, inadequate retirement security mechanisms, and superficial continuing education. Zhou et al. (2016) highlighted the challenges faced by rural doctors, including disproportionate income relative to workload, slow diagnostic and treatment processes, increased professional risks, insufficient talent replenishment, inadequate retirement security mechanisms, and undesirable continuing education. Xie et al. (2020) analyzed the current state of rural doctor development in Anhui Province through questionnaires and interviews, identifying problems such as overall structural imbalance, low levels of support, and weak service capabilities. X. Zhang et al. (2016) explored management of rural doctors in District H of Beijing. Through field observations and in-depth interviews, they identified problems such as unclear management responsibilities, absent incentive mechanisms, unreasonable structure of public health and basic medical services, and deficiencies in clinical skills and social security for rural doctors. In addition, another study included in the thesis published by C. Y. Zhang et al. (2016) found that rural doctors practicing in village health clinics face challenges such as aging workforce, lack of successors, insufficient motivation for continuing education, low technical proficiency, and

non-standardized diagnosis and treatment. Tian et al. (2010) pointed out that in the context of the current medical reform, ensuring salary security for rural doctors is a crucial task for stabilizing the rural doctor workforce and promoting the implementation of healthcare reform measures.

Current development of the rural doctors reveal multiple challenges, as documented by empirical studies, including declining job satisfaction (Chen et al., 2015), increased turnover intention (S. J. Zhang, 2014), severe aging of the team, and insufficient capacity to adopt modern medical technologies. These issues have led to phenomena such as “instability,” “unsustainability,” and “weak emergency response capabilities” in primary healthcare provision at the village level (Cao & Mi, 2020; Wu et al., 2021). In this regard, most of the existing studies attribute the development difficulties of rural doctors to the absence of incentive mechanisms such as remuneration, pension and promotion opportunities.

In terms of remuneration, some studies have concluded that remuneration incentives (both the amount and method of incentives) have a more significant impact on the supply of healthcare services (Chen et al., 2020). Prior to the 2009 medical reform (Document No. 6 of the Central Committee [2009]), rural doctors primarily earned income through reasonable markups on pharmaceutical sales. In 2014, the former National Health and Family Planning Commission, the National Development and Reform Commission, and the Ministry of Education jointly issued the *Interim Measures for the Administration of Rural Health Clinics*, which states that rural health clinics included in the essential medicines system shall procure and use essential medicines as required, and implement centralized procurement and zero-markup sales of essential medicines. The implementation of this policy has led to changes in the income structure of rural doctors. Following the implementation of the new medical reform, the zero-markup drug sales policy has reduced the primary income source for rural doctors—profit margins from drug sales (Chen et al., 2015). Deng et al. (2017) found through a survey across 14 provinces (municipalities and autonomous regions) in China that 42.4% of rural doctors perceived their income as disproportionate to their compensation. Among them, 60% specifically reported a significant decline in income following the implementation of the essential medicines system. In Shandong Province, Sun et al. (2016) found that after implementing the essential medicines system, the average annual income of rural doctors dropped to 13,624.9 yuan—only 60% of pre-reform levels and equivalent to just 36% of ideal income. This income situation severely undermined the service motivation of grassroots healthcare workers in rural areas.

In terms of pension and promotion opportunities, research indicates that although the

participation rates and implementation of pension insurance for rural doctors vary from province to province, the overall level of their pension remains low. For instance, L. Q. Zhang et al. (2014) found through survey data from 24 counties (cities, districts) across 12 provinces in China that while 81.4% of surveyed rural doctors participated in insurance, only 57.1% of them participated in the New Rural Social Pension Insurance (which includes both the New Rural Social Pension Insurance and the Urban Resident Social Pension Insurance). Furthermore, the protective effect of this insurance was inadequate. Zhou et al. (2016) found that 41.2% of rural doctors do not participate in any pension insurance, and 38.2% of rural doctors participate in the New Rural Social Pension Insurance. However, the low contribution amounts, with basic pensions falling below 100 yuan per month, struggle to meet their retirement needs. Moreover, constrained by institutional limitations, rural doctors cannot get access to this system nor be incorporated into the unified social security system. They can only rely on government-funded payments to purchase services, which remains insufficient to address their retirement needs (Deng et al., 2017). In terms of career promotion, since rural doctors lack clear and reasonable identity, they cannot enjoy the same formal employment status as those in township health centers. Their promotion pathways are consequently restricted. This situation has led to a lack of confidence in their job satisfaction and career prospects, thereby making them more inclined to change careers or switch jobs (S. J. Zhang, 2014).

2.2 Status of primary healthcare services in other countries

2.2.1 US patient-centered medical home

After years of development, primary health services in the United States have gradually evolved into a mature and widely adopted service model: the patient-centered medical home (PCMH). According to Jackson et al. (2013), this model prioritizes the overall health of patients, with primary care physicians playing a pivotal role in coordinating multidisciplinary teams to provide comprehensive primary care services throughout the entire treatment process. Its ultimate goal is to promote long-term health and enhance the quality of life for patients. One of the key characteristics of the PCMH model is its patient-centered approach to care. By establishing long-term physician-patient relationships, PCMH provides continuous and comprehensive health management services, and develops personalized treatment plans for patients throughout this process.

While the PCMH model shares similarities with traditional family medicine, such as

integrating multidisciplinary fields like biomedical, clinical, and psychological medicine, and emphasizing patient autonomy in medical decision-making, the PCMH places greater emphasis on community service operations (Stange et al., 2010). In a PCMH, patients can choose a fixed medical team composed of various specialists who work together to provide comprehensive medical services. In contrast, traditional family medicine typically involves smaller service teams consisting of family doctors and a nurses. The PCMH model features clearer division of labor, with specialists responsible for specific medical domains, so as to make sure that patients receive comprehensive, coordinated, and personalized health management plans.

Research indicates that the PCMH model has demonstrated significant effectiveness in improving healthcare quality and patient satisfaction. For instance, a 2007 study demonstrated that as this model became widely adopted, childhood vaccination rates increased significantly, fully validating its effectiveness in disease prevention and enhancing public health awareness (Allred et al.2007). In addition, PCMH can optimize the efficiency of health information exchange between different healthcare institutions, and reduce redundant tests and the waste of medical resources, which in turn lowers misdiagnosis rates and healthcare costs, and provides patients with more precise and economical medical services (Smith et al., 2024; Stockbridge et al., 2014).

Davies (2021) noted that with the aging of population and annual rise in healthcare costs, administrative expenses, and physician salaries, healthcare spending in the United States has also surged dramatically. As a result, the U.S. government and healthcare system have been focusing on enhancing primary care services. By strengthening preventive care and health management measures, they ensure continuity and accessibility of healthcare services, and strive to reduce overall healthcare expenditures. According to data from 2010, approximately one-third of U.S. physicians (around 209,000) were engaged in primary care services, including internists, family doctors, pediatricians, nurse practitioners, and physician assistants. Currently, the team-based primary care model is gradually replacing the traditional physician-centered model, with team compositions becoming increasingly diverse. In addition to physicians, the team includes advanced practice nurses, physician assistants, pharmacists, social workers, dietitians, and health coaches. They believe that only through teamwork can they comprehensively understand patients' health needs, provide higher quality and more comprehensive medical services, and ultimately improve patients' overall health outcomes.

2.2.2 UK national health service

Directly managed by the Department of Health, the National Health Service (NHS) is a core component of the UK's social welfare system. The core principle of the NHS is to provide comprehensive, high-quality, and free healthcare services to all residents, ensuring that access to healthcare resources is not limited by individual income levels. All citizens are entitled to equal access to healthcare provided by the government (Papanicolas et al., 2019). This service philosophy establishes the important role of NHS as a universal health safety net and makes it one of the most widely recognized public health systems in the world.

Within the NHS framework, general practice holds a pivotal position in the UK healthcare system. General practitioners account for 42% of the total physicians in the UK, with approximately 60,000 actively working on the front lines of healthcare. As the cornerstone of the UK healthcare system, they bear primary responsibility for primary care services. The training and certification system for general practitioners is highly developed, ensuring their efficiency and professionalism in primary healthcare services. Although general practitioners only utilize 9% of the UK's healthcare resources, they meet 90% of primary care needs. This efficient operation not only saves a significant amount of healthcare resources for the UK but also enhances the social and economic status of general practitioners, providing patients with convenient and reliable healthcare services. This model has promoted the popularization of general practice, elevated the overall healthcare level of the UK, and created an equitable and accessible healthcare environment, fulfilling the shared expectations of the government, physicians, and patients.

General practitioners play a pivotal role in the UK healthcare system, particularly within primary care and the hierarchical healthcare system. The UK implements a strict community-based initial diagnosis system. All residents must first register and sign a contract at a general practitioner clinic to become a patient of a general practitioner before they can enjoy NHS services for free. Unless facing emergencies such as accidents, urgent cases, or acute cardiovascular events, patients typically require an initial diagnosis from a general practitioner, who then determines whether referral to a specialist or hospital is necessary (Hou et al., 2014). Even when patients receive emergency treatment, follow-up care and health management remain the responsibility of their contracted general practitioner (Yip & Hsiao, 2014). This system not only ensures the rational allocation of healthcare resources but also effectively enhances the professional responsibility of general practitioners and the continuity of care.

Approximately 90% of primary healthcare patients are treated at GP clinics, a high retention

rate attributed to various factors. First, the NHS provides stable financial support to GPs through regular payments based on the number of patients registered with them, covering primary care services and referral fees. Second, general practitioners must pay a fixed fee to referral service agencies for each patient they refer, incentivizing them to resolve patient issues within the clinic whenever possible and reduce unnecessary referrals. This not only improves general practitioners' case handling capabilities but also lowers healthcare costs. Meanwhile, patients have the right to choose their own general practitioners. If the general practitioners fail to provide satisfactory service or appropriate referrals, patients can select another physician during the next contract period (Hou et al., 2014; Yip & Hsiao, 2014). This flexible mechanism safeguards patient rights and limits situations where GPs might be reluctant to refer patients due to cost control. In addition, general practitioners in the UK can freely set up clinics without administrative restrictions on the number of practices, which promotes a market-driven mechanism that encourages quality and excellence. Physicians who are unwilling to provide quality services or who shirk responsibility will be eliminated from the market, further enhancing the service standards of general practitioners.

2.2.3 Portugal national health service

The primary official regulatory bodies are the Ministry of Health (Ministro de Saúde) and the Directorate-General of Health (Direção-Geral de Saúde, DGS). In addition, the Health Regulatory Authority (ERS), as an independent public institution, oversees the activities of all healthcare providers, including public, private, and social health institutions.

Portugal's primary care and the overall healthcare system consists of three coexisting systems: the National Health Service (Serviço Nacional de Saúde, SNS), special social health insurance programs for specific professional groups (health subsystems), and private health insurance. It is a mixed model of public and private service providers, where primary care functions as the key gatekeeper to specialist and secondary care through general practitioners, similar to the UK model (Fronteira et al., 2025).

The SNS (Serviço Nacional de Saúde) is a tax-based system that provides comprehensive healthcare coverage to all residents of Portugal (Fronteira et al., 2025). In addition, 20% to 25% of the population receives supplementary health insurance coverage through medical subsystems and voluntary health insurance (De Almeida Simões et al., 2017).

2.2.4 Cuba

Since 1984, Cuba has launched the Family Doctor Program, aimed at providing residents with more accessible and comprehensive healthcare services (Gorry, 2013). This initiative is not only a significant reform of Cuba's healthcare system but also a successful model in global public health. Through continuous optimization, the Family Doctor Program has been progressively promoted across Cuba, successfully achieving the World Health Organization's goal of "Universal Health Coverage" by 2000 and marking a globally significant public health milestone ahead of schedule. Despite economic sanctions and other crises, Cuba's healthcare system has maintained a high level of operational efficiency and is regarded as one of the most advanced public health systems in the world. The World Health Organization has repeatedly praised Cuba's healthcare service system as a model that other countries can learn from (Gorry, 2013).

Cuba adopts a three-tiered triage system, which covers different levels of medical services from community to national level. The core of this system consists of family doctors and community polyclinics, which are responsible for primary healthcare services, while provincial and national hospitals provide more specialized and complex medical care. It is noteworthy that primary healthcare constitutes over 80% of the entire healthcare system, encompassing the diagnosis, treatment, and prevention of common and prevalent diseases. Within this system, family doctors shoulder the bulk of primary healthcare responsibilities, each serving hundreds of households. Their daily tasks include regular health check-ups, psychological counseling, and disease prevention. Family doctor clinics are typically located within communities to facilitate access to medical services, and the government provides housing for doctors to ensure they can focus on community health management.

According to Leon (2018), Cuba has also established community polyclinics, with one clinic serving every 10 to 40 family doctors within their respective jurisdictions, providing residents with more comprehensive healthcare services. According to data from Cuba's Ministry of Public Health in 2020, there is one doctor for every 122 residents and one nurse for every 128 residents, with over 11,000 family clinics and 449 community polyclinics nationwide. This extensive network of medical institutions ensures that Cuban residents have convenient access to high-quality healthcare services. Family doctors are not only familiar with the health status of each resident but also participate in long-term monitoring and analysis of the community's overall health. Through specialized programs such as maternal and child health initiatives, cervical cancer screening, and tuberculosis prevention and control, they have

effectively enhanced public health standards.

Moreover, Cuba's healthcare system has achieved remarkable results in disease prevention and public health surveillance. Through these programs, family doctors can promptly identify potential health issues and intervene early, which helps significantly reduce disease incidence rates. This system not only helps maintain a high level of health among Cuban residents but also provides valuable experience for other countries. Cuba's success demonstrates that even under relatively limited economic conditions, an effective public health system can still deliver high-quality medical care and disease prevention services to the entire population.

2.2.5 South Korea

The hospital system in South Korea is categorized into four levels based on scale and function: primary hospitals, ordinary hospitals, general hospitals, and tertiary general hospitals (Kim et al., 2018). Primary hospitals (hospital-level medical institutions) include private clinics as well as government-managed health centers and health clinics. These hospitals are characterized by small scale, typically lack of inpatient departments with no more than 30 beds, and primarily offering of outpatient services. According to statistics from the South Korean Ministry of Health and Welfare in July 2019, primary hospitals account for 94% of all the hospitals, underscoring their pivotal role in the healthcare system of South Korea.

According to official data, as the level of hospitals increases, the proportion of outpatient costs borne by patients also rises. The bulk of outpatient services is concentrated in primary hospitals, with patients only being referred to higher-level hospitals when their conditions exceed the capabilities of primary care. This tiered healthcare system effectively alleviates pressure on higher-level hospitals and makes primary hospitals the preferred choice for most patients. Despite physician shortage, the system has proven remarkably effective, as evidenced by its exceptionally low preventable mortality rates (Yoon et al., 2024).

In South Korea, primary hospitals are mainly composed of privately operated specialty clinics, where doctors must hold valid medical licenses. Most physicians must complete a one-year internship and four years of residency training before obtaining specialty certification. Therefore, these clinics can provide highly specialized outpatient services, such as pediatrics, otolaryngology, internal medicine, gynecology, and dentistry. Patients can directly visit the appropriate specialty clinics based on their symptoms, which not only improves the efficiency of medical services but also effectively optimizes the allocation of medical resources, ensuring that patients receive timely and accurate diagnosis and treatment.

In rural areas of South Korea, where private clinics struggle to expand on a large scale, the government ensures access to basic healthcare services by investing in the establishment of health subcenters and clinics. Medical personnel at these institutions typically include physician and nurses, most of whom are public servants. The mandatory military service system of South Korea supports primary healthcare services, with many service members possessing medical or nursing qualifications working at various health subcenters. They utilize their professional skills to provide medical services to local residents. This mechanism effectively addresses the shortage of medical resources in rural areas.

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Chapter 3: STUDY 1-The Influencing Factors of Rural Doctors’ Proactive Work Behavior: A Grounded Theory Approach

3.1 Introduction

As gatekeepers of China’s primary healthcare system, rural doctors play an irreplaceable role in promoting the construction of a Healthy China and implementing the rural revitalization strategy. They are not only healthcare providers for rural residents but also a crucial link in implementing grassroots healthcare policies. Their work behaviors will directly affect the accessibility and effectiveness of healthcare services in rural areas.

In recent years, with the deepening advancement of the medical reform in China, the working mode of rural doctors has shifted from passive execution to proactive service. Their proactive work behaviors directly affect the quality and efficiency of primary healthcare services. The proactive work behavior of rural doctors encompasses not only completing assigned tasks on time but also taking the initiative to address challenges and exceeding job requirements to enhance healthcare service quality. This finding is consistent with that of Parker et al. (2010).

Up to now, the imbalance in the distribution of medical resources between urban and rural areas remains prominent, with resource scarcity posing significant pressures and challenges for rural doctors (Du et al., 2024). Even within the economically developed Guangdong Province, development disparities persist between the Pearl River Delta region and the eastern, western, and northern parts of the province. Consequently, current research on rural doctors in China predominantly focuses on dimensions such as their professional competence, doctor-patient relationships, job satisfaction, and turnover intention, with little systematic research on their work behaviors, particularly proactive work behaviors.

To address this research gap, this study adopts a qualitative approach based on interviews and the three-level coding of grounded theory. With rural doctors in Guangdong Province as the respondents, we analyzed and identified the proactive work behaviors of rural doctors and their influencing factors. This study aims to provide valuable insights for promoting the development of primary healthcare personnel and addressing the “last kilometer” challenges in primary healthcare services.

3.2 Literature review (study 1)

The 2025 National Health Work Conference emphasized that primary healthcare should focus on promoting integrated urban-rural development and advancing balanced regional growth. It is necessary to carry out proactive planning to advance the construction of the medical security system, strive to achieve universal outpatient medical service coverage in resource-constrained counties and districts, and enhance the quality and efficiency of primary healthcare services. As a vital component of the primary healthcare system, the development and construction of the rural healthcare service system hold paramount importance. Rural doctors play a pivotal role within this system, serving not only as healthcare providers for rural residents but also as a critical link in implementing grassroots healthcare policies. Their work behavior will directly affect the accessibility and effectiveness of rural healthcare services. Against this backdrop, the proactive work behavior of rural doctors is particularly significant.

In recent years, with the deepening of China's medical reform, the working environment and service quality of rural doctors have attracted wide attention. The uneven distribution of medical resources between urban and rural areas remains a prominent issue, with rural doctors facing immense professional pressures and challenges in the context of resource scarcity. Even within the economically developed Guangdong Province, development disparities exist between the Pearl River Delta region and the eastern, northern, and western regions of Guangdong. Existing research predominantly focuses on correlational issues such as rural doctors' competence, doctor-patient relationship, job satisfaction, and turnover intention, with insufficient studies on their work behaviors, particularly proactive work behaviors. In view of this, this study adopts the grounded theory research method and takes Guangdong Province as an example to systematically analyze the proactive work behaviors of rural doctors and their influencing factors, which will provide a theoretical basis for optimizing the rural healthcare service system and promoting the quality and efficiency of primary healthcare services.

3.2.1 Current status of research on rural doctors in China

3.2.1.1 Development of the team of rural doctors in China

Regarding the development of the team of rural doctors, Zhang (2024) proposed that there are multiple challenges in this area, and it is necessary to adhere to the principles of government leadership, market support, and social integration. Measures such as establishing a long-term talent recruitment mechanism, enhancing the diagnostic and treatment capabilities and career

prospects of rural doctors, strengthening professional skills training, boosting professional identity, and improving the rural healthcare system with Chinese characteristics should be implemented to promote the stable development of the rural doctor team and support rural revitalization (Zhang, 2024). Gou et al. (2024) conducted research on the current state of rural doctor development in Chongqing, and proposed countermeasures to enhance the quality of rural doctors.

Currently, the Guangdong Provincial Government (CPC Guangdong Provincial Committee, 2023) has formally approved and launched the “High-Quality Development Project for 100 Counties, 1,000 Towns, and 10,000 Villages”. As a key initiative under the rural revitalization strategy, this project comprehensively advances the transformation and upgrading of rural areas through three pillars: targeted economic development, infrastructure upgrading, and digital innovation. Guangdong Province has specifically selected 122 counties, 1,609 towns, and 26,500 villages to implement a comprehensive approach that integrates modern agricultural technologies, promotes e-commerce platforms, enhances rural industrial clusters, and supports cultural preservation. Taking advantage of the advanced technological ecosystem and strong industrial base of Guangdong, the project is dedicated to narrowing the urban-rural gap, boosting farmers' incomes, and fostering an entrepreneurial ecosystem. It aims to forge a sustainable development pathway aligned with the economic transformation strategy of Guangdong, and ultimately help achieve high-quality and balanced development across all rural areas in Guangdong.

3.2.1.2 Consultation behavior of rural doctors in China

The act of diagnosis and treatment by rural doctors refers to the activities of rural doctors in primary rural healthcare institutions to diagnose and eliminate diseases, alleviate symptoms, reduce suffering, improve function, prolong life, and aid patients in restoring health through various examinations, medication administration, instrument operation, and surgical procedures. It encompasses specific actions such as diagnosis, treatment, and care performed by healthcare professionals within their respective fields of expertise. This study primarily explores rural doctors' patient consultations, physical examinations, commonly used diagnostic and therapeutic techniques, disease diagnosis, treatment methods, and medical expenses. X. H. Wang et al. (2009) found that medication, intravenous therapy, and diagnosis are three weak links in the clinical practices of rural doctors; the urgency and severity of illnesses encountered by rural doctors are generally low; they tend to adopt a single form of diagnostic and therapeutic techniques; their treatment methods primarily rely on Western medicine, with limited use of

traditional Chinese medicine; and intravenous infusion costs constitute a significant portion of patients' medical expenses (Wang et al., 2009).

3.3 Job satisfaction

As for the job satisfaction of rural doctors, Jiang and Liu (2024) indicated that the current low sense of identity and job satisfaction among this group severely hampers their development and growth. To enhance rural healthcare service quality, attention should be paid to the emotional well-being of rural doctors. With closely-knit county-level medical communities as the context, H. X. Zhang (2023) systematically analyzed the current status of perceived organizational support, job satisfaction, and turnover intention of rural doctors, and explored the influence mechanisms of perceived organizational support and job satisfaction on turnover intention, aiming to provide scientific reference for reducing turnover rates among rural doctors and building an efficient and stable rural doctor team.

3.3.1 Theoretical basis of job satisfaction: two-factor theory

The classic Two-Factor Theory, also known as the Motivator-Hygiene Theory, was proposed by Herzberg et al. in 1959. Hygiene factors refer to external elements that prevent employee dissatisfaction in the workplace. Typically external, concrete, and material in nature, they encompass company policies and management practices, supervisory approaches, salary levels, interpersonal relationships, workplace safety and comfort, job status, and benefits. Motivators, however, focus on the intrinsic nature of work and are closely tied to the job content itself, mainly including opportunities for performance, challenging tasks, intellectual stimulation, the pleasure and sense of accomplishment derived from work, recognition and rewards based on outstanding performance, social recognition, and opportunities for personal growth and development. These factors can stimulate employees' aggressiveness, enhance work enthusiasm, and ultimately improve work efficiency (Herzberg et al., 2011).

3.3.2 Existing research on job satisfaction

The concept of job satisfaction was first proposed by Hoppock (1935) based on the Hawthorne Experiment. He believes that job satisfaction represents the degree to which employees feel fulfilled in their subjective perceptions of the external work environment, both psychologically and physiologically. This experience can be directly reflected in the workplace. Research on

job satisfaction started earlier in the Western countries. Different scholars have employed various research methods based on their research scope and focus, and proposed distinctive definitions.

Vroom (1964) argued that the key to job satisfaction lies in the alignment between the actual working conditions of employees and their psychological expectations. When expectations go unmet, dissatisfaction arises; when expectations align with reality, pleasure ensues. This emotional experience between reality and expectation constitutes the core element of job satisfaction. In the mid-to-late 1960s, Porter et al. found that job satisfaction represents an assessment of the gap between the value employees expect to receive and the actual value of their work. In the mid-1970s, Hackman and Oldham (1976) defined job satisfaction as a pleasant or positive psychological state during work. Locke (1976) believes that job satisfaction is a pleasant or positive emotional state during work, while MacKenzie et al. (1998) contend that job satisfaction reflects an employee's degree of preference for the current job. Langton and Robbins (2007) proposed that job satisfaction is an individual's attitude toward work, and there is a linear relationship between this attitude and job satisfaction.

Although research on job satisfaction by Chinese scholars started relatively late, they have also put forward different views and definitions based on China's national conditions. Chen and Shi (2001) argue that job satisfaction is a comparative emotional experience arising from the contrast between actual and expected gains during work. When the comparison outcomes are satisfactory, the emotional experience and satisfaction will be higher. Zeng and Qin (2003) defined job satisfaction as the attitude of enterprise employees toward their current work. Yang (2006) proposed the concept of dimensionality of job satisfaction, and he argues that job satisfaction is a comprehensive feeling, which exists in different dimensions, and when the satisfaction of different dimensions is added up, it will form the overall satisfaction with the current job. Xin and Li (2020) define job satisfaction as an emotional response employees exhibit toward their current job. Luo and Ma (2021) contend that for enterprises to achieve stable and sound development, they must begin by enhancing employee satisfaction and promptly adjust management strategies based on changes in employee satisfaction, thereby propelling the enterprise into a phase of vigorous growth. Nie et al. (2021) found that employee job satisfaction directly influences their work attitude. When job satisfaction is high, employees become enthusiastic about their work. Therefore, positions with high job satisfaction help employees maintain a positive psychological state and motivate them to proactively work hard for the company.

Over the past few decades, Chinese and foreign scholars have conducted systematic

research on job satisfaction. Despite variations in research findings, these definitions share a common core: job satisfaction represents employees' perception of their work, and the intensity of this perception directly influences their current job performance. Xu (1977) even proposed three definitional frameworks: the comprehensive definition (job satisfaction is an employee's attitude towards the current work itself and the organizational work environment), the gap definition (job satisfaction is a psychological gap, mainly focusing on the discrepancy between actual and expected benefits), the reference framework definition (job satisfaction is highly personalized and subjective, with each individual possessing their own reference standards and evaluating their work experience through comparative assessments across different dimensions). Although more than 40 years have passed since Xu's (1977) definition of job satisfaction was proposed, its comprehensive overview still encompasses most current research findings. Through comparison of these three types of definitions, it can be seen that the reference framework definition aligns more closely with the reality of employees in modern corporate management. In other words, employee satisfaction refers to their attitudes toward various aspects of their work or the aggregate of these attitudes.

Currently, research on job satisfaction in China shows a fragmented trend, especially concerning grassroots doctors, with the focus primarily on influencing factors such as personal traits, work environment, social relationships, professional cognition, and income. A survey conducted in Chongqing revealed that gender, department, weekly workload, type of workplace, education level, professional title, family support, and occupational passion are significant factors affecting the job satisfaction of general practitioners. Notably, female physicians, those with heavy workloads, and those with low family support reported lower levels of satisfaction (Zou et al., 2019). Research in Yinchuan indicated that colleague relationships, community support, benefits, and turnover intention exert a significant impact on job satisfaction (Wang et al., 2023). Research in Tianjin indicates that age, promotion opportunities, work stress, and income level are key factors influencing job satisfaction of general practitioners (Luo et al., 2015). A similar study in Guangdong emphasizes that annual income, administrative position, core status, and home-based bed services also significantly influence job satisfaction (Hao et al., 2022).

3.3.3 Dimensions and measurement of job satisfaction

Research on job satisfaction can be categorized into two perspectives: unidimensional and multidimensional. The unidimensional perspective views job satisfaction as a comprehensive and holistic indicator without distinguishing specific dimensions. In contrast, the

multidimensional perspective subdivides job satisfaction into multiple dimensions for separate evaluation. Since satisfaction is fundamentally a reflection of psychological states and emotions, which are difficult to be quantified directly, both Chinese and foreign scholars have primarily relied on the observational method and questionnaire survey as the indirect measurement tool for decades. In particular, the questionnaire survey method has been widely adopted due to its simplicity of implementation and ability to provide quantifiable assessments. In practical application, commonly used measurement tools are listed as follows.

(1) Job Description Inventory (JDI): It is a satisfaction assessment scale that evaluates employee satisfaction based on five dimensions: job content, compensation, promotion opportunities, and relationships with supervisors and colleagues. The total score across these five dimensions represents the employee's overall job satisfaction.

(2) Minnesota Satisfaction Questionnaire (MSQ): This questionnaire is a more comprehensive measurement tool available in both long and short versions. The long version is typically used, covering 120 topics in 20 aspects. Scores from each aspect are weighted and statistically aggregated to yield an overall satisfaction score, enabling a comprehensive assessment of employee job satisfaction.

(3) Peter's Needs Satisfaction Questionnaire: This open-ended questionnaire primarily addresses specific issues encountered in management processes through open-ended questions and responses. The scale is mainly applicable for managerial investigation and research.

(4) Likert Scale: The Likert scale is a five-point scale comprising a set of statements, each rated from highest to lowest as: Very Satisfied, Satisfied, Neutral, Dissatisfied, and Very Dissatisfied, corresponding to scores of 5, 4, 3, 2, and 1 respectively. The total score for each set of statements reflects the respondent's attitude toward a specific item or their varying status on the scale.

3.3.4 Relationship between competence, doctor-patient relationship and job satisfaction and turnover intention among rural doctors in China

Jiang et al. (2018) proposed that the professional competence of rural doctors should be significantly enhanced, investment in their training should be increased, the 'exit' mechanism for them should be improved, their workload on public health services should be reduced, and efforts should be made to let rural doctors refocus on the basic healthcare services. Yang and Lu (2023) found that highly emotional workers perceive better physician-patient relationships but exhibit higher turnover intention, and vice versa. Therefore, attention should be paid to the physician-patient relationship among rural doctors, and emotional management should be

strengthened to reduce turnover intention.

Existing research has explored the link between the doctor-patient relationship and antibiotic abuse in rural areas. According to Yu (2014), rural doctors are directly responsible for the problem of antibiotic abuse in rural China. As antibiotic treatment becomes the primary profit model for village clinics in small towns, this practice leads to specific doctor-patient interactions, and, on the other hand, gives rise to high-risk behaviors that undermine these interactions, namely, medical malpractice.

Jing and Huang (2016) analyzed from the perspective of rural patients, noting that in the social environment of acquaintances, rural doctors tend to accommodate patients' requests for increased medication doses. The root cause lies in the interchangeability of the two social roles within the rural physician-patient relationship. During the provision of medical services, the rural doctors serve as the guardian of the rural patients; however, to ensure the benign operation of rural medical institutions, rural doctors must gain the patients' recognition. Thus, the rural doctors are both protectors of the patients and the objects of their protection.

3.4 Method

3.4.1 Procedure and sample

3.4.1.1 Location

Renhua County and Wuhua County were selected from northern and eastern Guangdong respectively as the target areas for the interview. The northern and eastern part of Guangdong were chosen because this province experiences unbalanced development as the south is more developed compared to these regions. These counties were selected because they represent the typical situation in that geography namely as regards lower GDP per capita, lower demographic density (as per 2020, these counties have only 102.8 (Wuhua) and 34.5 (Renhua) people per square Km compared to 639 people average in the province of Guangdong), and higher age distribution.

3.4.1.2 Eligible interviewees

The key interlocutors for this study are the rural doctors as the main body. Additionally, the director, managers and staff of the respective county health commissions also play a critical part in the system, and were, therefore, considered as important for this study. The county health commission is responsible for the work of rural doctors leadership and staff, towns and

townships, doctors, medical personnel and nursing staff, school medical students. Therefore, the president and vice-president of town health center, were also selected for interview together with other medical personnel and medical students.

3.4.1.3 Procedure

A duly request of authorization was submitted with detailed description of the study and after obtaining, official arrangements were made to conduct the interviews taking advantage of training events that gather rural doctors in the same place. During the event, rural doctors and other interlocutors were invited to participate in the study. Around 15% to 20% of total rural doctors voluntarily contacted to be interviewed. Therefore, interviews were mainly conducted in person, one-to-one field interviews following a semi-structured design with rural doctors, and medical students. As per villagers and medical leaders from the health commission and health center, panel interviews were chosen, all based on voluntary participation and with guarantees of confidentiality.

The interviews were conducted in a combined format of one-by-one and group interviews. One-by-one interviews were conducted first, followed by group interviews after the information load was essentially saturated.

3.4.1.4 The participants

A total of 53 people were interviewed in-depth. Among them, there are 18 women and 35 males, with an average age of 50 years, age span of 21 to 65 years; 35 (66%) with the longest working years of 42 years and the shortest less than 1 year; with the consent of the interviewees, the interview time with each interviewer is about 20~30 minutes, and the time of each panel is controlled at 1-2 hours, and the audio was converted into document and collated, totaling about 106000 words. Among the interviewees, 40 were conducted one-by-one and these comprehend 17 rural doctors, 10 medical students, 9 villagers and 4 medical leaders from the health commission and health center. The remaining 13 were interviewed in a group format and were mostly rural doctors and government officials.

3.4.2 Research method

This study used a mixed-method research design that integrates qualitative interview and grounded theoretical analysis.

Interviews are the most common method for data collection in qualitative research in healthcare contexts (Gill et al., 2008). Among various interview formats, semi-structured

interviews are the most commonly used (Dicicco-Bloom & Crabtree, 2006). Semi-structured interviews are not bound by pre-designed scripts. Instead, they can be adapted flexibly according to the interview topic, ensuring that all relevant issues can be covered. Unlike structured interviews, semi-structured interviews can flexibly adapt to the interviewee's conversational rhythm and even help uncover unexpected topics to enrich research content. Compared to unstructured interviews, semi-structured interviews avoid the risks of missing important issues, deviating from research objectives, or creating inconsistencies with other interviews that may arise from overly free-form discussions. Due to the flexibility, semi-structured interviews can be conducted individually or in group settings (Dicicco-Bloom & Crabtree, 2006).

The script for a semi-structured interview is a key factor determining its quality, as it can not only enhance the reliability of the interview, but also affect its effectiveness. According to Kallio et al. (2016), question design should avoid leading respondents toward specific answers and open-ended dialogues are encouraged (so to avoid yes or no answers). The content should be concise and clearly articulated, and the respondents should feel that they are invited to delve into their personal experiences and emotions. Icebreaker activities are typically prepared to help the respondents build trust, as trust is the foundation for obtaining genuine and candid information.

Based on Ravitch's (2011) research framework, the questions were designed based on a systematic literature review to deepen understanding of the topic, so as to achieve accumulative extension based on the existing frontier findings. Specifically, the study focuses on the theme of rural doctors' proactive work behaviors, with reference to relevant literature and the research purpose. The questions were designed based on potential categories emerging from the literature review, and the specific context of rural healthcare in China was also considered. Following the guidelines of Kallio et al. (2016), the initial draft of the interview script was revised and refined after expert discussion.

Grounded theory was chosen because this study aims to understand the feelings, thoughts, activities, and decisions of rural doctors by capturing their perceptions of the entire healthcare system within their daily lives, so as to reveal their daily experiences and the meaning. It is a field-based analytical method (Charmaz, 2003).

Grounded theory follows a set of steps to progressively derive theoretical significance and construct a theoretical framework. According to Corbin and Strauss (1990), grounded theory aims to construct a theoretical framework through data, emphasizing that only through in-depth analysis of empirical materials can the theoretical framework gradually take shape. This process

is inductive and bottom-up, and is achieved through the gradual condensation of data. Unlike grand theories, grounded theory does not rely on researchers' pre-established hypotheses for logical deduction. Instead, it begins with data and unfolds gradually through inductive analysis (Corbin & Strauss, 1990; Glaser, 1965). Any theory must be traceable to its original data sources and grounded in empirical facts. Grounded theory scholars maintain that only theories derived from data possess true vitality. When a theory aligns with the data, it gains practical value and can guide concrete actions.

Grounded theory places particular emphasis on the researcher's theoretical sensitivity. Throughout the research design stage and the data collection and analysis process, researchers must remain constantly attentive to their own preconceptions, existing academic achievements, and the theoretical cues emerging from the data. This sensitivity helps maintain focus and direction during data collection, and in the analysis stage, it prompts researchers to seek concepts that succinctly encapsulate the essence of the data, especially when the data itself exhibits a dispersed or loose structure (Bowen, 2008; Heath & Cowley, 2004).

According to Glaser (1965), the core analytical logic of grounded theory lies in comparison. It advocates continuous comparison and contrast between data and theories to distill categories and their characteristics based on data associations and theoretical insights. On this basis, Corbin and Strauss (1990) and Walker and Myrick (2006) recommend that researchers first conduct comparative analysis of data by conceptual category. To be specific, after completing the coding and categorization of materials, researchers must compare coded segments both within and across categories to identify the characteristic attributes of each category. Second, researchers should integrate various categories and their attributes, and compare them by examining their interrelationships to elucidate these connections in a coherent manner. The third step involves outlining a preliminary theoretical framework by defining the theory's content and scope, then validating it by revisiting the original materials and gradually refining the theoretical system through iterative optimization. Through the series of processes, researchers will ultimately form a complete theoretical system.

A deep understanding of semantics implies that analysis should not stop at mechanical linguistic coding. Instead, it should advance to a theoretical coding stage by identifying key constructs and establishing hypothetical relationships between them (Coyne, 1997; Walker & Myrick, 2006). Once the constructs are identified, the relationship between them (axial coding) will be revealed. Eventually, there will be a core category that encompasses most research findings. If multiple potential core categories emerge during the initial analysis stage, the continuous comparison method can be employed to link related categories, and those with

weaker associations can be removed (Corbin & Strauss, 1990).

Given the diversity of data, while preserving the original research objectives, there should be room for unexpected goals and themes that emerge within the material, and the research process should not be terminated until information saturation (Corbin & Strauss, 1990; Walker & Myrick, 2006).

3.4.3 Interview outline

Based on previous literature review and analysis, we designed an interview outline aimed at collecting data from two complementary perspectives: the views of frontline rural doctors and the administrators of county-level health bureaus and township health centers.

We chose to propose similar questions to both groups because it facilitates triangulation and reveals discrepancies between everyday experiences and administrative perspectives, which may provide a basis for us to extract useful information for subsequent research.

In the interview outline for rural doctors, questions progressively expanded from roles and responsibilities to human resources and institutional constraints, then to personal factors and practical needs (Table 3.1). The interview first clarifies the functions of rural doctors (clinical diagnosis and treatment, public health tasks, and coordination) and assesses whether the scale and geographic distribution of human resources meet rural needs. The outline then delves into the operational constraints affecting public health work, and examines individual motivation, retention intention, workload, job stability, and satisfaction. Finally, the outline focuses on compensation and benefits and the training system, and analyzes the frequency of access to professional development opportunities and the existing gaps.

Table 3.1 Outline of interview on rural doctors

Outline of interview on rural doctors
1. In your view, what is the role of rural doctors in China's primary healthcare system? What tasks do they mainly undertake? In your opinion, what role can rural doctors play in improving the primary healthcare system?
2. In your view, is the scale and distribution of the rural doctors sufficient to meet rural residents' healthcare needs? What consequences will arise if the needs are not met?
3. In your work, have you encountered challenges, especially in addressing public health issues? What factors constrain your work?
4. What motivated you to take up this job? Why did you originally choose to become a rural doctor? Has that motivation changed? If so, how?
5. How are your current workload and job stability? Are you satisfied with your current work? What factors influence your satisfaction?
6. To what degree are you willing to stay in your current position? What expectations or plans do you have for your future career?
7. How are your salary and benefits? What incentives and benefits do you receive? What gaps exist compared with your personal expectations?

Outline of interview on rural doctors

8. What is the current situation regarding your training and skills development? How frequent is it? Is there room for improvement? In what areas is strengthened training or more support needed?
 9. What resources and support can the government provide for you?
 10. How is the current situation of college-graduate rural doctors serving at the grassroots level in China?
 11. Are the medical facilities and equipment in the village clinics sufficient? Have you encountered shortage of medical resources, and how does it affect your work?
 12. In general, what shortcomings and deficiencies exist in the medical skills and competencies of the rural doctors?
 13. How do you collaborate with other health institutions and professionals to ensure villagers' health issues and rural public health problems are properly addressed?
 14. What digital/information technologies are currently applied in your work? How important is information technology for improving the efficiency and quality of healthcare services?
 15. In your work setting, what specific benefits does application of information technology to primary care bring? What obstacles might be encountered in promoting and applying IT?
 16. How confident are you in learning and adapting to new health information technologies?
 17. What factors or conditions might encourage you to adopt information technology more proactively? What policy support is needed in the future to enable health IT applications?
 18. What measures or policies has the government taken to improve the development of rural doctors? What are the impacts on you?
 19. What is your view on the policies of "college-graduate rural doctors" and "recruited by county, administrated by town, worked in village"? How are they implemented locally? What are the strengths and problems?
 20. Finally, what expectations and suggestions do you have for the future development of the rural doctors? What further support is needed, especially in the context of Guangdong's "Hundreds of Counties, Thousands of Townships, Tens of Thousands of Villages" initiative (also known as the "Bai-Qian-Wan Project")?
-

Subsequent items focus on available resources, facility and equipment provision, gaps in clinical capabilities, and collaboration with other healthcare institutions. The final part focuses on digital health: the current status of information technology application, perceived benefits, barriers to technology adoption, confidence in adopting new technologies, and policy support needed. This section concludes by examining the impact of existing policies, such as university graduates serving as rural doctors and county-town-village health resource allocation schemes, and proposing expectations and recommendations for future human resource development under the Bai-Qian-Wan Project.

This section is similar the questionnaire for rural doctors but the perspective has been shifted to the administration level (Table 3.2). It covers role positioning and task allocation, staffing and skill requirements, workload and stability, compensation and incentive mechanisms, and training and career development systems. The administrators are also required to evaluate government resource allocation, infrastructure development, and the responsibilities of rural doctors in public health (health education, disease surveillance, and disease prevention), and they are asked to give specific cases or successful experiences. Finally, the administrators

are required to evaluate the target policy (recruited by county, administrated by town, worked in village) and propose recommendations for future development of the Bai-Qian-Wan project.

Table 3.2 Outline of interview on county health commission officials

Outline of interview on county health commission officials
1. In your view, what is the role of rural doctors in China's primary healthcare system? What tasks do they mainly undertake? What role can they play in improving the primary healthcare system?
2. In your view, is the scale and distribution of the rural doctors sufficient to meet rural residents' healthcare needs? What consequences will arise if the needs are not met?
3. In your view, do rural doctors encounter challenges in their work, especially in addressing public health issues? What factors constrain their work?
4. In your view, how are rural doctors' current workload and job stability?
5. What do you think about rural doctors' current salary and protections? What incentives and benefits exist?
6. In your view, how can rural doctors' job satisfaction be improved?
7. What is your view on the training and career development of the rural doctors? Is there room for improvement?
8. What resources and support can the government provide to rural doctors?
9. How is the current situation of college-graduate rural doctors serving in the grassroots level of China?
10. Are medical facilities and equipment in village clinics adequate? Have there been shortages of medical resources, and how does that affect rural doctors' work?
11. Are the rural doctors sufficiently professional and skilled? In general, is there an issue of insufficient clinical competence?
12. What roles do rural doctors play in health education, epidemic surveillance, health management, and disease prevention? How can they better perform these roles? Could you share any work experiences or success cases in these areas?
13. What measures or policies have already been taken to improve the quality of the rural doctors? What positive impacts have they produced?
14. What is your view on the policies of "college-graduate rural doctors" and "recruited by county, administrated by town, worked in village"? How are they implemented locally? What are the strengths and what problems exist?
15. Finally, what expectations and suggestions do you have for the future development of the rural doctors? What further support is needed, especially in the context of Guangdong's "Hundreds of Counties, Thousands of Townships, Tens of Thousands of Villages" initiative (Bai-Qian-Wan Project)?

3.4.4 Interview quality control

To ensure the reliability of interview results, this study implemented the following quality control measures: developing interview outlines prior to the interview, training participating researchers, cross-checking responses repeatedly, and conducting summaries to maximize understanding of interviewees, thereby ensuring the accuracy of raw data

Prior to formal interviews, researchers explained the purpose of the interviews in detail to participants. Data collection proceeded only after obtaining participant consent and ensuring the confidentiality of interview content. The average interview duration with each participant was approximately 20-30 minutes, with each session lasting 1-2 hours. After obtaining consent,

interviews were audio-recorded by other participating researchers in a conference room to ensure thorough information extraction and prevent loss of effective question responses.

Following each interview, raw data was promptly organized to prevent loss of critical information. Word documents were generated through the iFlyTEK translation system, followed by further compilation and proofreading of translated data by researchers. Basic respondent information was recorded and analyzed using Excel.

3.4.5 Theoretical saturation test

Theoretical saturation testing indicates that no new categories or relationships can be identified through additional data (Albalá-Genol et al., 2023). This study collected a total of 45 sets of data, with the first 33 interview datasets used for analysis. The remaining 12 datasets were recoded and compared against existing codes. No new concepts or categories useful to the research emerged during data analysis, indicating that the model established in this study achieved good theoretical saturation. First, the primary interview data and secondary data were processed and analyzed using Excel 2016 and Word 2017. Subsequently, the converted Word documents were imported into MAXQDA, where the raw data underwent three-level coding based on the grounded theory. Data were then read, summarized, coded, and refined through open coding, spindle coding, and selective coding to construct theoretically relevant concepts and categories (Baldwin & Fellingham, 2013). During the analysis process, the research team arranged for two researchers to independently code the data simultaneously. A third party supervised and reviewed the process until the agreement rate between the two coders exceeded 95%, which led to the final coding outcomes.

3.5 Results (study 1)

This study employed a three-level grounded theory coding analysis based on interview data from 53 rural doctors and related personnel, including 24 rural doctors, 10 rural doctor administrators, 9 villagers, and 10 medical students. The study preliminarily constructed a three-dimensional trust theory model based on the theoretical framework of rural doctors' proactive work behavior, and classified the main factors influencing their proactive work behavior into three dimensions: macro-system trust, meso-interpersonal trust, and micro-trust. The analysis of each coding was presented using frequency of occurrence (F) and number of occurrences (N). F indicates the number of times a coding was mentioned, while N indicates the total number of respondents who mentioned that coding.

3.5.1 Open coding

Open coding is the preliminary analysis of raw data. Its core principle involves breaking down materials collected in an open-minded manner into meaningful phrases, sentences, or paragraphs with annotations, followed by reconceptualization through new concepts for subsequent conceptualization and categorization (Gale et al., 2013). Following the standard process of research on grounded theory, we randomly selected 3/4 of the literature data for theory construction, and the remaining 1/4 for testing theoretical saturation. Through MAXQDA, we systematically analyzed and compared contents reflecting proactive work behaviors of rural doctors in Guangdong Province within the included materials, ultimately generating 105 initial concepts and 43 preliminary categories. Because of the limited length of this thesis, only a portion of the results are presented here, and “N+number” indicates specific interviewees (See Table 3.3). This table presents some of the core findings in the open coding of this study. The “selective coding” dimensions listed on the left correspond to the key categories requiring prioritized attention during subsequent theoretical saturation validation. The “axial coding” in the middle and the “open coding” on the right sequentially display the main categories after classification, along with the initial concepts and annotated expressions derived from the original interview data. For example, under the primary category of trust in the healthcare system, the coding contents associated with the concept of “inadequate compensation for rural doctors” integrate issues reflected in the interview records, including low personal income, reduced revenue from medical services, and difficulties in maintaining household livelihoods. These scattered data fragments are further conceptualized into categorical units with analytical value. This presentation not only embodies the inductive nature of open coding but also clearly illustrates the correspondence between raw data, initial concepts, and preliminary categories.

Table 3.3 Open coding results

Open coding	Original statement
A1 Inadequate level of remuneration	Rural doctors generally report that their incomes are low and that it is difficult for them to make ends meet. For example, rural doctors in Wuhua County mentioned that even after taking into account income from consultations, subsidies for public health services and provincial financial subsidies, the total annual income is only between 40,000 and 80,000 yuan, which is still insufficient to sustain their families. 1. “I originally worked as a village official before becoming a rural doctor. Thirteen years ago, my workload was heavy, but in recent years, improved transportation, enhanced services at the county hospital, higher literacy among villagers, greater emphasis on newborn care, and increased reliance on diagnostic equipment have led to a steady decline in patient volume at the village clinic, resulting in reduced income.”

Open coding	Original statement
A2 Insufficient and delayed financial subsidies	2. “Revenue from medical services is minimal, with annual total income typically around 50,000 yuan, and we are primarily sustained by government subsidies.”
	1. Rural doctors at Danxia Subdistrict Health Station said that subsidies are always delayed, and regardless of village size, all stations receive the same amount of subsidy, which is unfair to doctors in larger villages.
	2. “Although the government provides an annual subsidy of 25,000 yuan, it is often delayed, and the distribution criteria fail to adequately account for our actual workload and the population size we serve.”
	3. Rural doctor #1 (Wuhua symposium): The subsidies remain unpaid to this day. Neither the county nor the village committee has provided us with rural doctor subsidies.
	4. Dr. Wu from Zhengtian Township Health Station stated that although subsidies for rural doctors have increased year by year, they are still relatively low compared to urban doctors and it is difficult for us to meet basic living needs.
	5. Dr. Zhang from Tanwei Village, Zhoushan Town, Zhoushan City stated that due to the lack of subsidy, I have had to supplement my household income through part-time work like growing peanuts, which has somewhat impacted my provision of medical services.
	6. Our village has a rural doctor who has worked in an underserved village for 16 consecutive years, yet his subsidies remain unpaid to this day. This has severely impacted his livelihood and work motivation.
	7. In sparsely populated areas like Renhua, we may only see a handful of patients each year. With subsidies and clinic income combined, annual earnings range from just 30,000 to 50,000 yuan.
A3 Subsidy payments do not adequately take into account regional differences and realities	8. We have been filling in the gaps in the village for 16 years, yet my subsidies for 2016 and 2017 still haven’t been paid out.
	1. Wuhua County has formulated a subsidy policy based on the circumstances of grassroots rural doctors. Prior to 2022, each village under their jurisdiction received an annual subsidy of 20,000 yuan, and from 2023, the subsidy was adjusted to 25,000 yuan. However, controversy exists because the subsidy standard remains the same for both densely populated and sparsely populated villages. 2. Although the government provides an annual subsidy of 25,000 yuan, payments are often delayed, and the payment standards fail to adequately account for the actual workload of rural doctors and the population size they serve. 3. Although the subsidy is generally disbursed annually, the approval and review criteria are extremely stringent. Many conditions are barely met, yet we are compelled to enforce them, which places significant pressure on us.
A4 Restrictions on procurement of medicines	1. ‘Rural doctors have reflected to us that their use of medicines is restricted by the catalogue of essential medicines, and many commonly used medicines cannot be procured. Some new and potent drugs cannot be provided to villagers because they are not included in the catalogue, and villagers can only be advised to go to higher-level hospitals to purchase them.’
	2. Our village has a large number of patients with chronic illnesses. Sometimes they bring prescriptions from the county hospital to get their medications, but we don't have those drugs here. We hope medical insurance can cover a wider range of medications, especially common drugs and those used for chronic disease management.
A5 Medical insurance level restrictions	1. Director Chen, deputy director of operations at the township health center stated that due to restrictions in medical insurance coverage, certain medications can only be used at higher-level hospitals. Township health centers and village clinics are unable to procure these drugs. As a result, some illnesses that could be treated at the primary care level must be referred to

Open coding	Original statement
	higher-level hospitals due to medication limitations. 2. “Some of our medications are procured from pharmaceutical companies in Shaoguan, not directly by our hospital. The same drug sells for 19 yuan at the health center, while the manufacturer sells it for only 5 yuan. We resell it to patients at just 10 yuan. The price of medications at the health center is relatively high, and medical insurance cannot cover this price difference.” 3. “Excessively high drug procurement costs force rural doctors to raise prices, which increases the financial burden on villagers.”
A6 Village health center environment	The village clinic is stifflingly hot in summer and leaks during the rainy season. After construction, no one is responsible for maintenance, and we have to bear all utility costs by ourselves.
A7 Insufficient and outdated medical equipment	Although some rural health centers in Wuhua County are equipped with basic medical devices, many of these devices, such as electrocardiogram machines and blood glucose meters, are outdated and unable to meet modern medical needs. Some rural health centers in remote areas even lack basic laboratory equipment.
A8 Inadequate information technology equipment	Many rural health centers lack computers and information systems, forcing rural doctors to rely on paper records. This not only increases their workload but also reduces efficiency. A rural doctor in Wuhua County said that we still write medical records and prescriptions by hand, and we hope to introduce more advanced information systems.
A9 Identity and establishment issues	Most rural doctors are not included in the official staffing system and are classified as “informal personnel excluded by the budgeted posts,” with no job security, which undermines their career stability. Although policies exist to incorporate qualified rural doctors into the official staffing system, numerous difficulties arise during implementation. 1. You once pointed out that the aforementioned positioning is designed to align with township healthcare work. We rush to the front lines, charge into the fray, and break through the encirclement. But ultimately, to which department does our work in townships belong? Personally, I believe this positioning is inappropriate.
A10 Occupational risk issues	For example, a villager developed a hangnail after visiting the doctor. Three and a half hours later, the patient left, and subsequently the village doctor suffered significant financial losses.
A11 Limited opportunities for training and further education	Despite regular trainings organized by the government and township health centers, the content remains limited and the formats lack relevance and practicality. Rural doctors hope for more opportunities to receive further training at higher-level hospitals to enhance their diagnostic and treatment capabilities.
A12 Public health evaluation under pressure	Rural doctors need to shoulder a heavy burden of public health responsibilities, including chronic disease follow-ups and health record management. Rigorous evaluations of these tasks and the heavy workload have reduced the time that rural doctors can dedicate to basic medical services. 1. We have to undergo annual evaluations, in which troublesome issues are constantly proposed like physical examination rate and knowledge mastery rate. Because our elderly patients often cannot remember explanations during consultations or recall details during physical examinations. When making follow-up calls after the examination, the inspectors will claim that this is not right and you are fabricating results. In addition, numerous issues exist with the physical examination rate. Many elderly individuals have cognitive biases regarding blood draws during physical examinations. They are reluctant to undergo blood tests and even consider incomplete blood draws as equivalent to not having undergone the physical examination at all. This phenomenon places additional pressure on us. 2. Establishment of resident health records: it is difficult to establish health records based on the proportion of permanent residents. For

Open coding	Original statement
A13 Lack of welfare benefits	instance, despite the presence of signs indicating health centers, the public lacks trust and exhibits high levels of resistance. Some believe that I have no health issues, and visiting a clinic might imply that someone else is ill. This attitude causes some people to feel repelled. Some people think that we lack relevant services, while others believe that the medical profession brings bad luck. Regardless, I have no health issues, so I am unwilling to come for a consultation. 1. This is primarily reflected in the upgrading of medical security, particularly regarding pension security. Nowadays, many elderly people aspire to retire, but due to the lack of a pension system, some individuals, even after decades of work experience, cannot receive retirement benefits. This situation is deeply distressing. For instance, while rural teachers are entitled to pensions, rural doctors do not have the same benefits. 2. “When Renhua County implemented its urban-rural resident medical insurance program, rural doctors could independently choose their coverage plans: the county government covered half the cost, while the doctors paid the other half. For instance, selecting an annual pension insurance plan costing 1,800 yuan requires 15 years of contributions to become eligible. The primary challenge currently lies in age structure—difficulty in paying premiums leads to insufficient enrollment, while non-payment results in a lack of coverage. If you pay premiums for less than 15 years, you must make substantial back payments; otherwise, you can neither enroll nor receive benefits.” 3. “Many professions today face the predicament of lacking the ‘five insurances and one housing fund,’ leaving us with no security whatsoever.” 4. If the government can provide adequate support, including equipment, medicines, and compensation packages, and strengthen training and guidance, university-trained rural doctors have every potential to build trust in the primary healthcare system.
A14 Poor alignment between training and capacity enhancement	1. “Training courses are just like lectures. To be honest, the content is even more useless. The more I listen, the more I realize it’s all empty talk.” 2. “I find in-person training sessions far more effective. Online courses and lectures are just plain useless.” 3. “We not only offer in-person training in Wuhua District but also arrange for internal assessments. If you don’t pay close attention, you won’t pass the test and will have to retake it. For those over 50, dealing with this is a hassle. Some online courses have excessive content and are incredibly cumbersome to operate.”
A15 Professional title and qualification	Although some rural doctors have attained higher academic and professional qualifications through self-study or continuing education (such as practicing physician certificates or assistant practicing physician certificates), obtaining these credentials has not significantly increased their income or career advancement opportunities. “I obtained both an IV therapy practitioner certificate and a practicing physician certificate, but it did not lead to any income growth.”
A16 Lack of clarity of identity	The legal status of rural doctors remains ambiguous. They are neither formally employed nor entirely self-employed. This blurred identity places them in an awkward position when it comes to enjoying relevant policies and benefits. 1. You said that according to the positioning of us by the township government, we should charge to the forefront and make a frontal breakthrough, right? But now, what exactly is our role? I cannot even figure out my own position.
A17 Unclear career prospect	Although we can obtain a medical practitioner's license, there is no clear career promotion after obtaining the license, and our salaries do not increase as a result.
A18 Pension security measures	Some rural doctors called for rural practitioners to be integrated into the institutional system and granted equal treatment and protections as township

Open coding	Original statement
A19 Insufficient policy support	health center physicians. However, due to limited institutional capacity and financial constraints, this demand tends to be difficult to fulfill. “Our pension security is extremely low, and we have virtually no guarantee after retirement.” Although a series of policies to support rural healthcare development have been formulated, issues such as inadequate policy implementation and delayed funding disbursements are common in practice. A rural doctor in Wuhua County said that the policy of recruiting college graduates as rural doctors sounds promising, but retaining talents proves challenging in practice.
A20 Lack of incentives	Currently, there is a lack of effective incentives to encourage rural doctors to improve the quality and efficiency of their work. For example, public health service subsidies are typically tied to workload rather than service quality, so that some rural doctors sacrifice quality in pursuit of quantity.
A21 Professional integrity	1. Rural doctors generally possess a strong sense of responsibility, viewing themselves as the “gatekeepers” of villagers' health and dedicating themselves wholeheartedly to their roles. For instance, they often provide 24-hour on-call services, and during the Covid-19 epidemic, they even conduct door-to-door temperature tests and screenings despite the risk of infection. In addition to offering basic healthcare services, they are also responsible for public health publicity and health education, which fully demonstrates their deep concern and responsibility for villagers' well-being. 2. Rural doctors adhere to professional ethics, as they do not exaggerate conditions but truthfully inform patients about treatment outcomes and risks. As the deputy director of operations stated, when dealing with critically ill patients, rural doctors honestly inform them of their condition and associated risks, and recommend referrals to avoid medical disputes. 3. Rural doctors earn villagers' trust and support by patiently answering their questions and meticulously conducting health education. This relationship of trust encourages villagers to cooperate more willingly with rural doctors, thus increasing participation in public health services. 4. Professional ethics motivate rural doctors to pursue excellence in their work and continuously improve service quality. They actively participate in training to enhance their medical skills, so as to ensure high-quality healthcare services for the villagers. For example, rural doctors learn new knowledge and skills through online courses and on-site training to strengthen their diagnostic and treatment capabilities.
A22 Professional commitment	1. Many rural doctors choose to stay in their hometowns to serve the villagers, and even with modest incomes, they remain steadfast in their posts. They view rural healthcare as a mission, dedicating themselves selflessly without expecting rewards. For instance, some rural doctors state that even though working elsewhere might offer higher pay, they still choose to stay in the rural areas because that is where they are needed most. 2. Professional commitment underscores the importance of medical safety. Rural doctors strictly adhere to operational protocols in their work to ensure the safety of medical procedures. For instance, when performing high-risk procedures like intravenous infusions, they meticulously verify medications and dosages to guarantee absolute precision. This cautious attitude effectively reduces the risk of medical incidents, and safeguards the life safety of villagers.
A23 Professional compliance	Essential medicines list and medical insurance policies: The deputy director of operations points out that township health centers and rural doctors must adhere to the essential medicines list and medical insurance policies when prescribing medications, and are prohibited from arbitrarily prescribing non-listed drugs. This limits the flexibility of rural doctors' diagnosis and treatment to some extent, but also ensures medication safety and cost-effectiveness. 2. Standardized antibiotic use: There is strict tiered management of antibiotic use to ensure rational medication and eliminate abuse. 3. Standardized diagnosis

Open coding	Original statement
A24 Professional accountability	and treatment procedures and documentation: The rural doctors must maintain detailed records of the patient's diagnosis and treatment process, including medical history, diagnosis, and treatment plan, so as to ensure that the quality of medical care is traceable. 4. The rural doctors must strictly adhere to medical ethics and shall not practice medicine illegally. A number of interviewed rural doctors stated that when faced with critically ill patients, they would thoroughly explain the condition, treatment plan, and associated risks, and recommend prompt referral to a higher-level hospital to avoid misdiagnosis or delayed treatment. This standardized practice not only safeguards villagers' health but also upholds the professional image of rural doctors. It reflects not only a sense of responsibility toward patients but also embodies the professional duty of respecting life and ensuring informed consent.
A25 Geographical factor	When dealing with public health emergencies, rural doctors will strictly adhere to confidentiality principles and will not disclose patients' personal information or medical conditions to irrelevant parties. In the case of emergencies or serious illnesses, villagers' trust empowers rural doctors to take decisive action with greater confidence. For instance, one doctor observed severe lower-limb venous edema in a villager. Though the patient initially showed little concern, he eventually trusted the doctor's advice and underwent surgical treatment (Doctor 1 interview). This trust alleviates the doctor's hesitation during treatment, enabling them to proactively implement necessary interventions.
A26 Concerns of rural doctors	When villagers trust the rural doctors, they are more likely to follow medical advice, take medication on schedule, and attend follow-up appointments punctually, which reduces disease recurrence due to non-compliance and unnecessary waste of medical resources. In addition, this trust helps minimize conflicts between doctors and patients caused by misunderstandings or miscommunication (see Doctor 1 Interview, Doctor 3 Interview). Rural doctors can provide services in a more harmonious working environment, thereby improving their work efficiency and job satisfaction.
A27 Patient compliance	In public health services, villagers' trust in rural doctors facilitates more effective communication of health promotion and disease prevention information. For instance, when conducting follow-ups with chronic disease patients, rural doctors can more conveniently obtain accurate health status information from villagers, so that they can develop more targeted interventions (Doctor 1 interview, Doctor 7 interview). This trust-based information exchange helps enhance the quality and effectiveness of public health services.
A28 Bidirectional transmission of information	The trust of villagers serves as a crucial driving force for rural doctors to continuously enhance their medical skills and service standards. To maintain and deepen this trust-based relationship, rural doctors proactively engage in training to learn new medical techniques (see Doctor 2 and Doctor 9 interviews). Some rural doctors interviewed stated that it was precisely because of villagers' trust and needs that they took the initiative to learn new techniques, such as applying traditional Chinese medicinal ointments, to improve treatment outcomes. By enhancing their capabilities, they hope to better meet the health needs of the villagers.
A29 Spontaneous medical skill enhancement	Rural doctors must collaborate closely with higher-level medical institutions in their daily work, such as reporting public health follow-up data. When strong trust exists among colleagues, rural doctors are more inclined to report follow-up data to higher-level institutions promptly and accurately, so as to ensure the timeliness and accuracy of the information.
A30 Information sharing	

Open coding	Original statement
A31 Mutual assistance between medicine and technology	During a public health follow-up, a rural doctor promptly reported a hypertension case identified during the visit to the township health center due to strong trust among colleagues. The township health center responded swiftly, and arranged further examinations and a treatment plan for the patient, which effectively prevented the condition from worsening. During monthly training sessions organized by township health centers, since rural doctors have established sound relationships of mutual trust, they will engage more actively in discussions and exchanges. Together, they will enhance their medical skills and share insights and experiences in diagnosis and treatment. This positive learning environment stimulates curiosity and work enthusiasm among rural doctors, which promotes collective advancement in medical techniques and ultimately elevates their overall diagnostic and treatment capabilities.
A32 Improvement of communication	In the communication between rural doctors and township health centers or county-level hospitals, if a solid foundation of trust is established between the two parties, communication will be more efficient when handling public health incidents or emergency medical situations. This trust relationship helps reduce the extra workload and time costs caused by information asymmetry or misunderstandings, enabling rural doctors to focus more on patient diagnosis, treatment, and follow-up care.
A33 Performance appraisal	1. In the interview, some rural doctors mentioned that public health service is an important part of their daily work. Support and evaluation from higher-level hospitals help them clarify their work direction and improve their work efficiency. 2. Trust and support from higher-level institutions motivate rural doctors to more actively fulfill public health responsibilities, including chronic disease management, health education, and follow-up physical examinations. 3. In public health programs, if higher-level institutions provide clear guidance and reasonable evaluations, the work efficiency and completion rates of rural doctors will be significantly improved.
A34 Assistance and guidance	1. Some rural doctors mentioned that when encountering difficult cases, they promptly seek assistance from higher-level hospitals and can more effectively address the condition after receiving professional guidance. “When I encounter problems in my work, I immediately communicate with higher-level hospitals, health centers, and other institutions to seek help and support. I believe they will offer solutions.” 2. When rural doctors encounter difficulties during diagnosis and treatment, professional guidance from higher-level hospitals can enhance their confidence, making them more willing to try new treatment approaches. 3. Higher-level hospitals send specialist physicians to the primary healthcare institutions for consultations and technical guidance. This initiative not only improves the diagnostic and treatment capabilities of rural doctors but also strengthens their ability to handle complex cases.
A35 Support with caution	1. When I feel the care and recognition from the government, I will not feel any discomfort even if I have to stay at the grassroots level for a long time. 2. Rural doctors stated that although the current working conditions are limited, the support and care from the higher authorities fill us with confidence for the future, and we are willing to continue serving at the grassroots level. 3. Rural doctors believe that the trust and support from higher authorities motivate them to deliver primary healthcare services with greater confidence and initiative, thereby improving treatment quality and patient satisfaction. 4. Huang Ping, public health section chief of the township health center, points out that we maintain close collaboration with rural doctors, and jointly enhance the quality and efficiency of public health services through regular instruction and inspection.

Open coding	Original statement
A36 Medical service capacity	1. The medical skills of the rural doctor team are inadequate, such as failing to update and master new technologies in a timely manner, which affects treatment outcomes. This lack of confidence in their professional abilities may cause rural doctors to avoid or refer certain complex conditions, thereby reducing their initiative and timely assistance to villagers. 2. Limited professional competence causes some rural doctors to lack confidence in their diagnostic and treatment abilities, resulting in conservative practice. They may prefer managing common and frequently occurring illnesses and tend to refer complex cases to higher-level hospitals to avoid risks from misdiagnosis or improper treatment. This conservative approach restricts their initiative and innovation in practice. 3. When faced with the need to enhance professional skills, rural doctors who are confident in their abilities are more willing to participate in training and continuing education to improve healthcare service levels. For example, one rural doctor stated that as long as we have the opportunity and capability, we can go to county-level hospitals or higher-level hospitals for a period of study and training, which is our goal. (Quoted from an interview record at a township health center workshop). 4. During diagnosis and treatment, highly competent rural doctors often demonstrate greater decisiveness in risk management. For instance, one doctor noted that when encountering potential risks, he/she would judge based on experience whether to handle the case or promptly refer it. This proactive attitude of taking responsibility and timely reporting not only highlights their medical commitment but also reflects their firm confidence in their professional capabilities.
A37 Basic public health service capacity	1. After completing follow-ups and management for chronic conditions like hypertension and diabetes, I will proactively communicate with villagers and provide health instruction if I have more knowledge in this field. 2. Dr. Wu said that I have participated in multiple trainings to enhance public health service capabilities, and I am particularly skilled at handling chronic diseases such as hypertension and diabetes. Villagers also recognize my professional competence. 3. Delivering basic public health services requires not only professional competence but also a positive service attitude. Initially, villagers were skeptical of my work. However, through patient explanations and regular follow-ups, they gradually recognized the value of my efforts and their benefits for personal health, and therefore became willing to support my work.
A38 Self-learning capacity	In the interview, several rural doctors said that through continuous learning and professional development, they have gained greater confidence in serving villagers, and therefore proceed with their work in a more proactive manner. For example, one of them said that I not only taught myself techniques such as traditional Chinese physiotherapy and acupuncture, but also continuously improved my medical skills through overseas training and certification.
A39 Social identity	1. Although the position of rural doctor is not large in scale, it has indeed helped numerous farmers resolve many problems. 2. Apart from diagnosing and treating illnesses, rural doctors also provide complementary services, which significantly benefit the physical and mental health of the elderly. 3. Villagers repeatedly mentioned in interviews that when conflicts or misunderstandings arise among villagers, the rural doctor will help resolve the issues through mediation and communication. 4. Student 5: Rural doctors play a vital role at the grassroots level, and I have great respect for them. 5. I believe rural doctors are the primary providers of primary healthcare services in rural areas, bearing the responsibility of offering essential medical care to rural residents. Simultaneously, as the nerve endings of the rural healthcare system,

Open coding	Original statement
A40 Family identity	they serve as the guardians of the last kilometer of rural medical care. Rural doctors play a crucial role in alleviating employment pressure on urban hospitals, addressing difficulties in accessing medical resources, and mitigating high healthcare costs.
	1. My family has always supported me, and without their help, none of this would have been possible. Honestly, when others come looking for you, you have to stop what you are doing and help them first even if you are cooking a meal. This family has given me tremendous support, because I cannot take on too much work, and have little time for my children.
	2. Rural doctors bear immense pressure, yet my family's understanding and support motivate me to persevere.
A41 Policy support recognition	3. The director of the township health center emphasized that rural doctors cannot do their work without family support and they need to balance work and family life.
	1. The government's annual subsidies and benefits for rural doctors continue to increase, and another reason is that training programs for rural doctors are also on the rise. 2. Currently, the government provides an annual subsidy of 25,000 yuan. While this amount is not substantial, it remains a form of security. 3. Support from national policies, social recognition, and reasonable compensation are crucial safeguards for rural doctors to gain professional trust.
	1. Villagers come to me when they experience minor illnesses or pain, and I serve as the health gatekeeper within the village healthcare system.
A42 Value of professional recognition	2. Rural doctors are of vital importance, acting as the first line of defense for villagers' health. With the promotion of the rural revitalization strategy, the prospects for rural doctors will continue to improve.
	3. Rural doctors hold a vital position as the primary healthcare choice for the public. They are responsible for disease prevention, health education, and other promotion activities, and play a key role in public health work such as follow-ups for chronic diseases like hypertension and diabetes.
	4. Despite the small scale of the group, rural doctors do solve numerous problems for many rural residents. With large numbers of illiterate people in rural areas, inconvenient access to medical care, and limited treatment conditions, it would greatly facilitate their healthcare needs if we could provide medical services. Feedback from many elderly patients shows they are deeply grateful to me. Dr. Wu said that at least you can treat patients here, so that I no longer have to worry about my children taking me to and from the hospital or taking me to the doctor for treatment. By solving these basic problems, patients will experience significant improvement, and they will be very grateful for this. I think rural doctors have solved many health problems for the villagers.
A43 Rural community identity	5. My daughter is also engaged in the healthcare industry, and is currently working in the public health section of the county health bureau. I also encourage my son to study traditional Chinese medicine.
	1. The doctor left me a phone number. When I experience symptoms that prevent me from walking, I would call him, and he would come to my home to help me contact the doctor on duty.
	2. The village has a health station staffed with medical personnel, which can provide care to the grassroots level, especially for groups like the elderly and children, so that they can receive the fastest treatment when they fall ill.
	3. The rural doctor is passionate about dancing and often invites villagers to join him at night in the square. The elderly residents trust him deeply, and therefore almost everyone comes.
	4. The rural doctor shoulders the heavy responsibility of caring for the elderly and those with mental health conditions. He measures villagers' blood pressure

Open coding	Original statement
	and blood sugar levels on a quarterly basis, and it can be said that he bears the entire responsibility for the care of the village's elderly population. 5. The villagers are very cooperative with his work, as most are relatives or old neighbors he has known for years.

3.5.2 Axial coding

The core task of axial coding lies in identifying and establishing connections between conceptual attributes, thereby revealing the organic relationships among different parts of the data. Through axial coding, the subcategories obtained from open coding can be integrated into higher-level and more abstract main categories. In this study, a total of eight main categories were identified. After systematic analysis and generalization, three core categories were ultimately extracted: institutional trust, interpersonal trust, and self-trust. The details are shown as per Table 3.4.

Table 3.4 Results of axial encoding

Core category	Fundamental category	Initial category
Institutional trust	B1 trust in the healthcare system	A1 Inadequate level of remuneration, A2 Insufficient and delayed financial subsidies, A3 Subsidy payments do not adequately take into account regional differences and realities, A4 Restrictions on procurement of medicines, A5 Medical insurance level restrictions, A6 Village health center environment, A7 Insufficient and outdated medical equipment, A8 Inadequate information technology equipment, A9 Identity and establishment issues, A10 Occupational risk issues, A11 Limited training and further learning opportunities, A12 Public health evaluation under pressure
	B2 trust in the policy system	A13 Lack of welfare benefits, A14 Poor alignment between training and capacity enhancement, A15 Titles and qualifications, A16 Lack of clarity of identity, A17 Unclear career paths, A18 Establishment and safeguards, A19 Insufficient policy support, A20 Lack of incentives
	B3 trust in professional orms B4 physician-patient trust	A21 Professional integrity, A22 Professional commitment, A23 Professional compliance, A24 Professional accountability, A25 Geographical factor, A26 Rural doctors' concerns, A27 Patient compliance, A28 Bidirectional transmission of information, A29 Spontaneous medical skill enhancement
Interpersonal trust	B5 peer-to-peer trust	A30 Information sharing, A31 Mutual assistance in medicine and technology, A32 Improved communication
	B6 trust in superiors	A33 Performance appraisal, A34 Assistance and guidance, A35 Support and care
	B7 trust in professional competence	A36 Medical service capacity, A37 Basic public health service capacity, A38 Self-learning capacity
Self-trust	B8 value-added trust	A39 Social identity, A40 Family identity, A41 Policy support recognition, A42 Professional recognition of value, A43 Rural community identity

3.5.3 Selective coding

Zastrow et al. (2018) divided the social ecological model into three levels: micro, meso, and macro. The micro system refers to the specific environment in which an individual exists. The meso system encompasses smaller-scale social groups such as family, workplace, and peer communities. The macro system includes broader social networks, primarily exploring the interactive relationships between individuals and their environments. This framework aims to assist research subjects in addressing challenges or resolving personal and environmental issues, and ultimately proposes targeted solutions or strategies.

During the selective coding phase of this study, we employed Zastrow's socio-ecological framework to categorize primary themes into a three-tiered system. The macro-system (institutional trust) corresponds to external environments such as policy systems and healthcare frameworks. Its initial themes, such as "insufficient and delayed financial subsidies" and "restrictions on drug procurement", reflect structural constraints imposed by macro-level institutions on the motivation of rural doctors. The meso-system (interpersonal trust) encompasses interactions among patients, colleagues, and superiors. Themes like "patient compliance" and "assistance and guidance" demonstrate how social networks empower or constrain individual behavior. The micro system (self-trust) focuses on personal competence and professional identity, and reveals how intrinsic motivation drives proactive behavior through "trust in professional competence" and "value-added trust". This classification establishes three core dimensions influencing the development of proactive work behavior among rural doctors.

Social ecology theory emphasizes the interactivity among different social strata (Colquitt et al., 2007). It is found that the stability of policy support (such as subsidy distribution) directly influences the frequency and quality of interactions between rural doctors and villagers. Insufficient policy support undermines rural doctors' occupational security, thereby reducing their self-efficacy. Enhancing trust between doctors and patients can increase villagers' satisfaction with primary healthcare services, thereby driving policy optimization. In the meantime, positive social relationships help strengthen individual occupational identity. Physicians with high self-confidence are more likely to proactively improve doctor-patient relationships and promote policy improvements through practice, creating a virtuous cycle. Through the three-tier classification framework of social ecosystem theory, this study not only systematically reveals the multidimensional factors influencing rural doctors' proactive work behavior but also elucidates the dynamic interaction mechanism among institutional trust,

interpersonal trust, and self-trust, which provides a theoretical basis for improving rural doctors' proactive work behavior through coordinated optimization. The details are shown as per Figure 3.1.

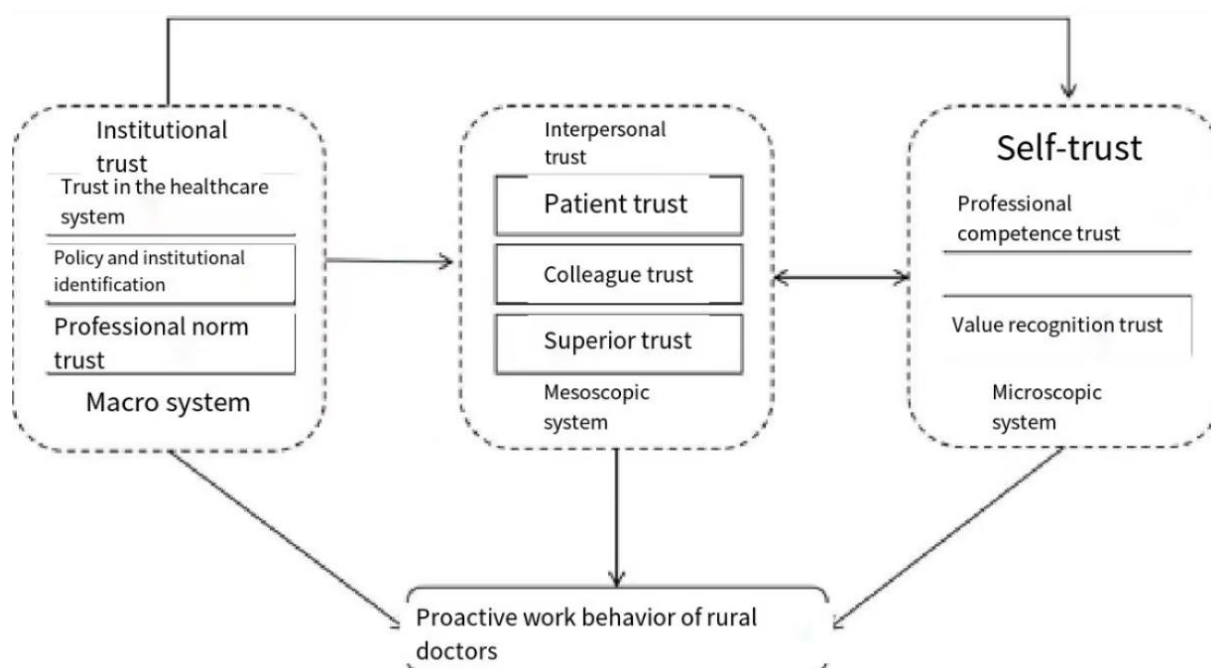


Figure 3.1 Influencing factor model of 3D trust on proactive work behavior of rural doctors

3.5.4 Institutional trust is the cornerstone of the rural healthcare service system

Institutional trust primarily refers to the trust rural doctors place in external factors such as the healthcare system, policy system, and professional standards. As a reflection of external environmental stability, institutional trust directly influences rural doctors' perceptions of their work environment, policy support, and resource acquisition. This study categorizes institutional trust into three dimensions: trust in the healthcare system, trust in the policy system, and trust in professional standards.

According to interview data, the vast majority of rural doctors (37 female, 24 male), rural medical administrators (25 female, 10 male), villagers (3 female, 6 male), and medical students (8 female, 9 male) believe that the policy system influences rural doctors' proactive work behavior. A favorable policy system directly affects rural doctors' work environment, compensation, or career development. Some respondents further suggested that rural doctors' trust in healthcare system improvement, equitable resource allocation, and policy implementation positively influences their proactive work behavior to a certain extent. In addition, a minority of respondents believe that trust in professional norms and ethical standards established within the medical industry is also a factor affecting rural doctors' proactive work

behavior. The details are shown as per Table 3.5.

Table 3.5 Institutional trust frequency

	Source	Fundamental category	F	N
Institutional trust	Rural doctor	Trust in the healthcare system	19	12
		Trust in the policy system	37	24
		Trust in professional norms	5	3
		Total	61	24
	Rural medical administrator	Trust in the healthcare system	6	6
		Trust in the policy system	25	10
		Trust in professional norms	3	3
		Total	34	10
	Villager	Trust in the healthcare system	1	1
		Trust in the policy system	3	6
		Trust in professional norms	1	2
		Total	5	9
	Medical students	Trust in the healthcare system	5	4
		Trust in the policy system	8	9
		Trust in professional norms	4	3
		Total	17	10

3.5.5 Interpersonal trust is the link between the medical service and collaboration of rural doctors

Interpersonal trust primarily refers to the trust relationships between rural doctors and their patients, colleagues, and superiors. Among rural doctors, interpersonal trust encompasses the following dimensions: patient trust, colleague trust, and superior trust. According to interview data, most rural doctors (F=21, N=18) and rural medical administrators (F=16, N=10) believe that trust in superiors and leadership is the primary factor influencing proactive work behavior among rural doctors. A minority of respondents view patient-doctor trust as one influencing factor. However, most villagers (F=10, N=9) and medical students (F=4, N=4) pointed out that mutual trust between doctors and patients is one of the important driving forces of rural doctors. Very few believe that trust from superiors affects the proactive work behavior of rural doctors, which contradicts the views of rural doctors and rural medical administrators. In addition, some respondents believe that trust among rural doctors and their colleagues facilitates teamwork, enhances overall medical efficiency and service quality, and thus positively influences rural doctors' proactive work behavior. The details are shown as per Table 3.6.

Table 3.6 Frequency of interpersonal trust

	Source	Fundamental category	F	N
Interpersonal trust	Rural doctor	Doctor-patient trust	6	4
		Peer trust	14	12
		Superior trust	21	18
		Total	41	24
	Rural medical administrator	Doctor-patient trust	6	6
		Peer trust	4	4
		Superior trust	16	10
		Total	26	10
	Villager	Doctor-patient trust	10	9
		Peer trust	3	3
		Superior trust	2	1
		Total	15	9
	Medical students	Doctor-patient trust	4	4
		Peer trust	3	3
		Superior trust	3	3
		Total	10	10

3.5.6 Self-trust is the internal driving force for the career development of rural doctors

Self-trust primarily refers to rural doctors' recognition and confidence in their own abilities, value, and career choices. It embodies their intrinsic motivation and self-confidence. Doctors with higher self-trust may pursue professional development and personal growth more actively, such as proactively learning new knowledge and improving medical skills. In addition, they are more likely to maintain a positive attitude and take action when facing challenges and difficulties. Among the rural doctors, self-trust encompasses two aspects: trust in professional competence and trust in value identification. In this interview, the majority of rural doctors (F=39, N=16), rural medical administrators (F=18, N=9), medical students (F=8, N=7), and all villagers (F=9, N=9) believe that trust in professional competence involves recognition of rural doctors' technical skills and diagnostic capabilities. Such trust helps strengthen rural doctors' confidence in their work, improves the quality of medical services, and thus generates positive impacts. Furthermore, a minority of rural doctors (F=3, N=2), some rural medical administrators (F=8, N=8), villagers (N=4), and medical students (F=5, N=8) believed that professional identity (the recognition and social prestige derived from one's occupation) significantly impacts rural doctors' professional value and confidence. This sense of identification makes rural doctors confident in their contribution to the health and well-being of rural residents. It also serves as one of the factors motivating positive work behaviors among rural doctors. The details are shown as per Table 3.7.

Table 3.7 Frequency of self-trust

	Source	Fundamental category	F	N
Self-trust	Rural doctor	Trust in professional competence	39	16
		Trust in value identification	3	2
		Total	42	24
	Rural medical administrator	Trust in professional competence	18	9
		Trust in value identification	8	8
		Total	26	10
	Villager	Trust in professional competence	9	9
		Trust in value identification	5	4
		Total	14	9
	Medical students	Trust in professional competence	8	7
		Trust in value identification	8	8
		Total	16	10

3.6 Discussion and conclusion (Study 1)

The primary findings of this study do not highlight variables of widespread concern (such as job satisfaction), but instead reveal a deeper underlying structure, namely, trust, which we judge to be the foundation for all other variables. This trust is manifested in three levels: institutional trust, interpersonal trust, and self-trust. Trust expresses an individual's confidence (namely, willingness to take risks) in the healthcare system as a whole, relevant policies and institutions, professional norms, patients, colleagues, and hierarchical relationships. At the micro level, it is manifested as reliance on one's own professional competence and trust in the value recognition provided by significant others (family, friends, fellow villagers). This finding aligns with literature on trust, which emphasizes its central role in society as a whole and across various domains of personal and professional life (Murray et al., 2010).

PWB is another construct embodied in the coding, indicating a willingness to transcend role specifications and mere task execution. Consequently, individuals demonstrating PWB contribute greater value to the system than those who passively accept instructions. This PWB serves as a safeguard against the system's inherent limitations (both unforeseen circumstances not covered by regulations and resource shortages). By enhancing PWB, rural doctors may obtain more meaningful work, as previously discovered in general studies (Frese & Fay, 2001).

The report indicates that while low compensation levels, insufficient funding, and problems with distribution standards remain consistent with previous findings, these challenges appear to be offset by strong social cohesion (World Health Organization, 2016). To some extent, this reflects a relatively moderate to high level of self-trust, specifically manifested in the trust that village doctors have in gaining social recognition and esteem.

The findings of this study strongly indicate that future research should go beyond treating

job satisfaction as the primary predictor and instead focus on the dimension of trust. Such research should encompass three types of trust and may shift the focus from the commonly studied job satisfaction to compensation satisfaction, as the latter plays the most critical role in practice and is more helpful in understanding the real circumstances of frontline workers. Similarly, studies using PWB as the dependent variable hold value for both theoretical development and decision-making. This behavior serves not only as a vital resource for managing primary healthcare systems under normal conditions but also as an indispensable additional force in the event of crises, as exemplified by the case of rural doctors successfully responding to the epidemic in China in 2019 (Li, 2022).

Based on these findings, Study 2 will treat the multidimensional trust of rural doctors and PWB as key variables to more accurately understand the actual situation in this field, and salary satisfaction as a reasonable intervening variable. We believe that by focusing on these underlying variables, a conceptual framework that goes beyond the limitations of existing models can be constructed. Given the interrelated nature of the studies, we will not elaborate on specific analyses at this stage, reserving them for subsequent discussions.

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Chapter 4: STUDY 2-Proactive Work Behavior in Rural Doctors: A Mediation Multilevel Model based on Trust and Compensation Satisfaction

4.1 Literature review

Literature review will start by focusing on the key construct that emerged from the first study, proactive work behavior. In this regard we will start by exploring its conceptual definitions, its dimensions, measurement and antecedents. We will then, within these antecedents, highlight the role of job satisfaction to motivate the first hypothesis, and proceed to develop the theories of trust, its definitions, the dimensions of trust and the factors explaining it. Departing from a socio-ecological systems theory view, we introduce and explore the macro level (institutional trust), the meso level (interpersonal trust) and the micro level (self-trust) with due hypotheses derived from these three levels focused on proactive work behavior. Finally, the role of job satisfaction as an antecedent of proactive work behavior and a consequence of trust is also developed. The literature ends by showing the conceptual model and all the hypothesized relationships it entails.

4.1.1 Proactive work behavior

4.1.1.1 Definition of proactive work behavior

In the initial stages of organizational research, most scholars focused on how employees adapt to various demands and changes in the workplace. Studies from this period emphasized the “passive state” of employees within organizations, specifically how they adjust to work requirements driven by external environments. For example, Hackman and Oldham (1976) explored under what conditions individuals could better adapt to their environment and complete work tasks through internal motivation. Early research themes generally centered on how individuals cope with task and environmental changes within organizations, with less emphasis on the exercise of proactivity. However, as research progressed, scholars gradually began to focus on "how to encourage employees to exhibit more proactivity at work" and to investigate the impact of this proactivity on work outcomes.

One of the earliest focus was placed on proactive personality by Bateman and Crant (1993), while later, Parker (1998) suggested that employees' perceptions of their ability to handle work tasks that go beyond technical requirements, that are more challenging, and broader in scope can significantly enhance work efficiency. This proactivity is reflected in the ability to anticipate potential problems in advance, take on more responsibilities, and introduce innovative methods to complete tasks. Proactivity not only means responding to existing work challenges but also actively embracing future difficulties and opportunities in the workplace.

With a deeper understanding of proactivity in work settings, many scholars have proposed different definitions. Frese et al. (1996) describe individual proactivity as a behavior that is long-term oriented and task-focused, emphasizing that individuals can be self-driven in their work rather than merely operating passively according to work requirements. According to their perspective, individual proactivity has several key characteristics: alignment with organizational goals, long-term planning, goal orientation, perseverance in the face of difficulties, and the presence of spontaneity and foresight. This proactivity is not merely a reaction to existing tasks but rather a positive, anticipatory work behavior.

Crant and Bateman (2000) provided a further definition of proactive behavior, stating that it refers to individuals changing the status quo through proactive actions, seeking enhancement and improvement, rather than merely passively adapting to their work environment. This behavior includes challenging oneself, breaking conventions, and is not limited to actions outside of one's role; proactivity within one's role is equally important. Frese and Fay (2001) further expanded this concept, suggesting that individual proactivity is a way of behaving that involves actively overcoming obstacles and difficulties, taking spontaneous actions, and anticipating challenges in order to ultimately complete work tasks. They argue that proactivity can be viewed from three aspects: self-starting, proactive behavior, and overcoming barriers. Regardless of the perspective from which scholars define proactive behavior, there is a core consensus that proactivity is self-driven behavior characterized by foresight regarding future challenges. Proactivity is not merely a reaction to current work; it also involves individuals actively anticipating and responding to future changes in their work, with a focus on long-term planning and goals.

Proactive work behavior was first to be mentioned by Parker et al. (2006), who refer to it as entailing two dimensions: "proactive idea implementation" and "proactive problem solving" which refer to voicing or self-implementing an idea to improve the workplace, and to initiate a future-oriented action to prevent a problem in an unusual and nonstandard way. This leading author in this topic further refined the concept of proactive work behavior by underlining its

self-initiated nature, causing change to oneself or the situation instead of accommodating change or maintaining the status quo, and that are future focused rather than reactive (Parker et al., 2010). In a recent publication reviewing proactive work behaviors literature, Parker et al. (2019) define it as self-initiated and future oriented behaviors individuals take at work that are intended to improve work by self-improving, revising work tasks, solving problems and changing the situation.

Among these definitions and approaches to proactivity at work, scholars have explored the concept of proactivity from different angles. Bateman and Crant (1993) have introduced concepts such as "individual proactivity" and "proactive personality" from the perspective of personality traits, emphasizing that proactivity is an inherent characteristic of an individual's personality, i.e., dispositional in nature. Other scholars have examined the manifestations of proactivity at work from a behavioral perspective. As stated, Parker et al. (2006) were the first to formalize the behavioral approach to proactivity at work. From a research perspective, proactive personality can be viewed as a precursor variable to proactive behavior, while proactive behavior represents the concrete manifestations of an individual's proactive personality at work. Although they approach the topic from different angles, both belong to the same field of study and highlight the importance of proactivity in individual performance. Griffin et al. (2007) approached the changing definitions of individual performance behaviors in contemporary organizational behavior, viewing proactivity as a crucial component of individual performance. They noted that as the work environment becomes more complex and uncertain, individual proactivity becomes increasingly important for enhancing work performance and improving organizational functioning.

4.1.1.2 Dimensions of proactive work behavior

From the perspective of behavioral objectives, Frese et al. (1997) categorized employees' proactive behaviors into a unidimensional structure, consisting of seven items. This classification was proposed early on and, due to its simplicity and ease of application, has significant value in various contexts, particularly providing an important theoretical foundation for researchers in early organizational behavior studies. Over time, researchers have gained a deeper understanding of proactive behaviors and have further developed multidimensional classifications.

In the first formalized conceptions of proactive work behavior, Parker et al. (2006) acknowledged the two dimensions of proactive "idea implementation" and "problem solving" which were further on adopted by Wei and Pan (2012).his classification is especially suitable

for complex and dynamic work environments, emphasizing employees' ability to respond positively and solve problems when facing environmental changes. Furthermore, Grant and Ashford (2008) refined the categorization of employees' proactive behaviors, dividing them into five dimensions: form, purpose, frequency, timing, and strategy. This multidimensional classification method reveals different manifestations of proactive behavior in the workplace from a more detailed perspective. Through this classification, researchers can analyze how employees demonstrate their proactivity in various work contexts, thereby providing targeted guidance for enhancing organizational efficiency and fostering individual employee development.

From different organizational levels, Griffin et al. (2007) proposed literature that proactive behaviors of employees should be analyzed from three levels. First, at the individual level, employees demonstrate proactivity by completing their core tasks in better ways, which helps enhance the quality and efficiency of work. Second, at the team level, proactivity can be reflected in employees suggesting measures or ideas that can improve team efficiency, helping the team complete tasks more effectively. Finally, at the organizational level, proactive behaviors may manifest as employees proposing suggestions for improving overall organizational efficiency, such as improvements to administrative processes or optimization of organizational structures.

In line with Griffin et al.'s (2007) proposal, Parker and Collins (2010) also divided employee proactive behaviors into three major categories, which are essentially based on individual, team, and organizational level analyses. The first category is individual proactive behavior, encompassing work behaviors such as suggesting ideas and promoting innovation; the second category involves employees proactively offering strategy-related suggestions to their superiors from a team perspective, aiming to facilitate the achievement of overall strategic goals through team suggestions; the third category pertains to proactive matching behaviors between individuals and their environments, primarily reflected in individuals proactively changing themselves to better adapt to changes in the organizational and external environments. These behaviors include enhancing personal skills and acquiring new knowledge to ensure that individuals possess sufficient adaptability in a dynamically changing work environment. Through this hierarchical analytical approach, researchers can systematically explore the forms and functions of proactive behaviors at different levels.

Belschak and Den Hartog (2010) also proposed a similar three-tier structure, categorizing proactive behaviors into self-directed proactive behavior, organization-directed proactive behavior, and socially directed proactive behavior. This classification further refines the

orientation of proactive behaviors, emphasizing that employees can exhibit proactivity not only from a self-interest perspective but also from the viewpoint of the overall organizational benefit or social responsibility. This classification helps us better understand how employees balance individual and collective interests at work, enabling them to make behavior choices beneficial to both the organization and society.

Through these different levels of classification and definition, scholars have explored the essence and manifestations of employee proactive behavior from multiple perspectives. These studies not only provide organizations with a theoretical framework for understanding and managing employee proactive behavior but also offer strong theoretical support for effectively motivating employees and improving organizational performance in practice. Whether at the individual level or at the team and organizational levels, proactive behavior plays a crucial role in the workplace, helping organizations cope with complex external challenges and internal changes.

4.1.1.3 Measurement of proactive work behavior

Frese et al. (1997) earlier proposed a questionnaire for measuring employee proactive behavior, which includes seven items and only one dimension, and is currently the most widely used employee proactivity test scale in China.

Incorporating the multidimensional nature of the concept and matching their three-level conceptualization, Griffin et al. (2007) proposed that the measurement of employee proactive behavior should also reflect these levels. Their measurement scale comprehends nine items, three per level. At the individual level, the items focus on how to complete core tasks using improved methods; at the team level, the items address how to enhance the working methods of the unit to improve overall team efficiency; and at the organizational level, the items pertain to employees offering their views and suggestions on how to enhance internal organizational efficiency.

Parker et al. (2010) also endorsed the three-dimensional model of employee proactive behavior, but measured it mainly from a strategic perspective, individual perspective, and individual and environment matching perspective, and established an employee initiative behavior test questionnaire including eight items.

This hierarchical measurement approach provides systematic theoretical support for a more comprehensive understanding of employee proactive behavior, aiding in more effective management and evaluation in practice.

Bindl and Parker (2011) developed a 16-item proactive behavior scale in their work on four

dimensions: conceptualization of goals, formulation of plans, implementation of actions, and feedback on results.

In China, researchers have also developed corresponding measurement tools based on relevant studies conducted internationally. For example, Xue et al. (2012) proposed a structured scale for measuring team proactivity. This scale includes three dimensions: collective intelligence, collaboration, and adaptability, reflecting the collaborative and adaptive capabilities of team members in their work, with an overall reliability coefficient of 0.79. The scale consists of 31 items specifically designed to measure the proactive behaviors exhibited by teams in their work, making it suitable for assessing overall team performance and proactivity. Additionally, Xu (2013) developed a multi-dimensional employee work proactivity test scale, focusing on teachers as the research subject. This scale addresses the proactive behaviors of teachers, covering five dimensions: teaching mastery, proactive communication, innovative behavior, remonstrated behavior, and career management, with a total of 21 items. This measurement tool specifically designed for teachers provides significant theoretical and practical support for research on employee proactivity in the education sector, offering a new perspective for assessing the work proactivity of teachers.

Overall, there are relatively few test scales for employee proactive behavior developed by Chinese researchers, and the more widely used scales are those created abroad, like the ones for individual behavior (Parker et al., 2006) and for work-unit-oriented proactive behavior (Griffin et al., 2007; Wu et al., 2018) which showed suitable psychometric quality with a Chinese sample. A review of measurement instruments showed that the scale of Griffin et al. (2007) is the most widely used in research (Satwika et al., 2025).

4.1.1.4 Antecedents of proactive work behavior

In today's organizational context, individual proactivity is becoming increasingly important, and scholars have conducted extensive inquiries into its underlying motivations. According to the existing literature, the motivations for proactive behavior can be primarily divided into two main categories. The first category pertains to personal traits (individual-level factors), where individuals with certain traits are more inclined to work spontaneously and proactively. The second category focuses on environmental characteristics (situational-level factors). Crant and Bateman (2000) noted in their summary that the variables included in the former encompass proactive personality, self-efficacy, sense of responsibility, work engagement, and achievement motivation. In contrast, the latter includes factors such as organizational culture and systems, managerial support, and institutional prompts.

Firstly, individual factors mainly refer to demographic characteristics as well as psychological characteristics related to the employees themselves.

The main influencing factor of proactive behavior is proactive personality (Bateman & Crant, 1993), which is taken as stable due to its dispositional nature. Parker et al. (2006) established individual, work environment drivers of proactive work behavior from the perspective of cognitive drive mechanisms, with the influencing factor from the individual perspective being proactive personality, and the drivers from the perceived work environment perspective being work autonomy, colleague trust, and organizational support.

In China, Liang (2021) conducted a questionnaire survey on knowledge-based employees in two cities, Beijing and Guangzhou, and found that the work initiative behavior of male employees was significantly higher than that of females, but there was no significant difference in employee work initiative behavior in terms of the employees' length of service, age, and education. Yang and Yang (2018) explained the employees' proactive behavior, and they believed that employees face two kinds of stressors at work: challenging and blocking. The blocking stressors will suppress the employees' work initiative and make them more inclined to show passive work behavior, while the challenging stressors are more likely to make the employees show work initiative because of the existence of incentives to succeed in the challenge behavior. The type of pressure faced is different, and the work initiative shown by the employees is naturally different.

Secondly, contextual factors refer to features arising from the organizational climate and management interventions.

A study by Parker et al. (2006) found that initiative and passivity coexist in individuals in organizations and that organizations influence employees' initiative through flexible role orientation, proposing that role breadth self-efficacy, control assessment, alternative tendencies, and flexible role orientation positively influence proactive behavior. Factors such as organizational socialization strategies, job compensation, empowerment, trust climate, social norms, alignment of personal values with corporate values (Crant & Bateman, 2000), perceived organisational support (Caesens et al., 2016) and corporate culture (Frese & Fay, 2001), leader-member exchange (Janssen & Van Yperen, 2004) and other factors influence proactive behavior. For example, perceived career development opportunities, and perceived procedural fairness are effective predictors of proactive behavior and career inclination when moderated by employees' organizational commitment (Crawshaw et al., 2012). Job involvement (e.g., energy, dedication) plays a fully mediating role between job resources (e.g., job control, feedback, job variability) and proactive behavior (Salanova & Schaufeli, 2008).

In Chinese studies, contextual factors are mainly related to the leadership style, organizational climate, and job characteristics in the work environment. Sun et al.'s (2020) empirical study found that the training provided by enterprises for employees can significantly and positively stimulate employees' proactive behaviors at work, and that this stimulating effect is related to the task context, and the higher the autonomy an individual obtains in an organization, the stronger the stimulating effect of the training on employees' proactive behaviors at work. Another study conducted by Yang et al. (2016), on the other hand, found that a spiritual leadership style that values employees and is able to endow them with spiritual traits such as personal significance and a sense of excellence significantly and positively predicts employees' proactive behaviors on the job, and that organizational self-esteem and psychological capital partially mediate in the relationship. Kong et al. (2020) proposed that inclusive leadership style can also positively predict employees' proactive behavior at work, in which organizational self-esteem plays a partial mediating role.

4.1.1.5 Job satisfaction as a predictor of proactive work behavior

As stated, proactive work behavior refers to self-initiated, anticipatory actions that employees take to create change in their work environment or personal performance, often involving initiative-taking beyond standard job requirements (Grant & Ashford, 2008; Parker et al., 2010). This behavior includes seeking improvements, innovating processes, and persisting through challenges to enhance organizational outcomes (Belschak & Den Hartog, 2010). It is essential for organizational agility and innovation and therefore its stronger and manageable antecedents are important. One of such antecedents is job satisfaction. It is reasoned that job satisfaction can foster proactive work behavior, particularly by encouraging employees to take initiative.

Job satisfaction, defined as a positive emotional state resulting from one's appraisal of their job or job experiences (Ge et al., 2011), acts as a motivational driver that propels employees toward discretionary efforts, such as initiating changes or pursuing innovative ideas (Wrzesniewski & Dutton, 2001).

Satisfied employees experience higher levels of psychological engagement, which reduces barriers to initiative-taking and promotes behaviors like problem-solving and opportunity-seeking (Deng et al., 2018). For instance, when employees are content with their roles, they are more likely to engage in "job crafting", i.e., they will actively reshape tasks to align with personal strengths and interests, which inherently involves taking initiative (Wrzesniewski & Dutton, 2001).

Li and Yan's (2019) research shows that this satisfaction creates a positive feedback loop, where initiative leads to further satisfaction and sustained proactivity. Moreover, in high-satisfaction environments, employees feel empowered to voice suggestions and experiment without fear of reprisal, directly linking satisfaction to proactive initiative (Fuller et al., 2006).

Job satisfaction can refer to an overall emotional state but it may also refer to how specific features at work contribute as facets to that state. One of the key issues in human resource management is compensation and reward. From a Social Exchange Theory (Blau, 1964), human interactions in daily life as well as within work settings, are based on reciprocity rules where one exchanges resources with the others in a way that is mutually beneficial. Within formal work settings, one clear demonstration of such exchange occurs under the form of compensation.

This can take many tangible or intangible forms (e.g., salary, bonus, praise, award, recognition by superiors and peers) but it is always required as a matter of equity motivation (Adams, 1965). Although a classic theory, equity is a lasting construct in organizational research that gained traction and establish a strong presence in current research (Prieto et al., 2023) taking the same assumptions of the original theory (Adams, 1965) where equity is taken as a fundamental motive in human life. The sense of compensation fairness can relate to how much it matches the performance inputs (Homans, 1961) as well as how much the comparative rewards with colleagues preserves a sense of proportion or equality from a distributive viewpoint (Adams, 1965). Likewise, a sense of compensation fairness may target the whole system with a focus on rules that guide decision-making of managers (Cropanzano et al., 2001). Overall, compensation fairness expressed at the performance-match, social comparison, and system rules are important factor in work life. A major effect of fairness at work concerns job satisfaction. In a study exploring the mechanisms of supervisor fairness effects in organizations, Adamovic (2023) found that negative emotions bridge such fairness perception with employees' job satisfaction.

As research on job satisfaction evolved, researchers alternate between approaching job satisfaction as a comprehensive global construct or taking it as the result of several facets (Judge et al., 2017). Among these facets, one can distinguish between satisfaction with work content, with payment, or career prospects, but also satisfaction with relational dimension entailing the direct supervisor and colleagues (Bowling et al., 2018). Some other specific aspects of work have been targeted namely fringe benefits, contingent rewards, operating conditions, and communication in addition to pay, promotion, supervision and coworkers (Landay et al., 2024).

Although it is clearly more frequent to find published research that adopted the general measurement of job satisfaction as compared to facets of job satisfaction, there is advocacy that

such facets offer a finer understanding of the factors that can be managed to produce optimal levels of satisfaction at work. In an empirical research intended to explain how work passion accounted to job satisfaction and its facets, Landay et al. (2024) found that the accounted variance was similar among the several facets as well as with the global measure. Moreover, in discussing the comparative validity of global versus facet-composite job satisfaction scales, Bowling and Zelazny (2022) found similar predictive ability for global job satisfaction scales and facet-composite scales urging researchers not to discard any of these.

This does not provide evidence of the technical advantage of focusing on satisfaction facets but it also does not preclude the argument that a finer understanding of such facets will enable decision makers to better identify which precise aspects of work should be changed so to efficiently leverage satisfaction and work outcomes.

Empirical studies support a strong link between overall job satisfaction and proactivity, where satisfied employees are more inclined to exceed role expectations (Deng et al., 2018). Job satisfaction was found to mediate the relationship between proactive personality traits and actual behaviors, ensuring that inherent tendencies translate into initiative-taking actions (Erdogan & Bauer, 2005; Seibert et al., 1999). Compensation satisfaction, as a facet of job satisfaction, may enhance this by signaling fairness and value, motivating employees to reciprocate through proactive efforts (Colquitt et al., 2001). This positive association shows how compensation-related satisfaction can foster a sense of security, encouraging employees to invest in proactive initiatives like process improvements. Therefore, we hypothesize that:

H1: Job satisfaction with compensation will be positively associated with higher proactive work behavior

In a similar manner, literature on compensation satisfaction also diversified by acknowledging the several forms of compensation and rewards that could be targeted by individuals to build their own sense of satisfaction. Williams et al. (2008) distinguish between compensation form (pay versus benefits) and compensation focus (outcomes versus procedures). In crossing these one can single out several issues with compensation satisfaction, namely satisfaction with pay level (crosses both pay and outcomes), satisfaction with level of benefits (crossing benefits with outcomes), satisfaction with pay structure, pay raises, variable pay procedures (that crosses pay and procedures), and benefit administration satisfaction (that crosses benefits with procedures). Accordingly, we specify two sub-hypotheses from the first hypothesis as follows:

*H1a: Job satisfaction with **salary** will be positively associated with higher **proactive work behavior***

*H1b: Job satisfaction with **benefits** will be positively associated with higher proactive work behavior*

4.1.2 Theories of trust

4.1.2.1 Definitions of trust

In the process of building social connections and promoting communication and interaction, trust plays a crucial role and has become a focal point of research in various disciplines. Scholars in psychology, sociology, and organizational behavior have provided diverse definitions of trust from their respective disciplinary perspectives (Table 4.1). Experts in psychology Rotenberg (2019) view trust as a key factor in enhancing the efficiency of interpersonal interactions and the effectiveness of social mechanisms. They focus on analyzing the characteristics of the trustor and the trustee and explore the individual psychological processes involved in the formation of trust. Sociologists such as, Fukuyama (1995), on the other hand, consider trust to be an implicit collective resource within social relationship networks, whose presence can effectively facilitate the smooth functioning of social systems. In the field of organizational behavior (Jones & George, 1998), trust is seen as an element that can create tangible value for organizations.

Despite the different emphases that scholars in various fields place on the understanding of trust, there are commonalities. Many scholars generally agree that the core characteristic of trust is its vulnerability, while risk and interdependence are two fundamental conditions that constitute trust. Risk refers to the perceived probability of potential loss by decision-makers, while interdependence means that the realization of group interests relies on others, with the degree of interdependence directly affecting the depth of trust. However, if trust lacks emotional and moral support, the trusting party may be inclined to engage in opportunistic behavior. Therefore, the establishment of trust must be based on rational expectations to avoid blind reliance, and it must also harness emotional and moral strengths to cultivate and reinforce the trust relationship between parties.

Table 4.1 Different definitions of trust

Scholar	Definition of trust
Erikson (1950)	Trust refers to a belief in the goodness of others or a healthy quality of character.
Mellinger (1956)	Trust refers to the occasion when the trustor believes in the intentions and motives of the trustee and the trustee's words are true.
Deutsch (1958)	Trust is actually a response to a situation, it is an individual psychology and personal behaviour determined by the contextual stimuli, and the level of trust between the trusting parties will change as the situation changes.

Scholar	Definition of trust
Rotter (1967)	Trust is a conceptualized expectation that an individual identifies with another person's words, promises, and verbal or written statements as reliable.
Luhmann (1979)	Trust is one of the mechanisms that simplifies complexity.
Coser (1984)	Trust is an expectation of the behavioral performance of others around you that is acquired during social interactions. Trust is a positive expectation of the motives of the other person in order to respect him or her in a risk-taking situation.
Sabel (1993)	The essence of trust lies in the behavioral dimension, defined behaviorally as follows: when one party possesses the ability to monitor or control another, choosing to relinquish this capacity instead exposes their own vulnerabilities, thereby placing their interests at risk of being harmed by the other party.
Mayer et al. (1995)	Trust is an expectation that emerges from a community that behaves in a disciplined, honest and co-operative manner, and relies on the rules that people share and the quality of the group's members.
Fukuyama (1995)	Building trust enhances cooperation among people, improves team performance, and ultimately fosters a highly effective team.
Jones and George (1998)	Trust is the abandonment of supervision of another person based on a belief in his or her predictable and relevant competence, high moral character, and good intentions.

4.1.2.2 Trust dimensions

Research on trust within organizations can be divided into intraorganizational and interorganizational trust (Schilke & Lumineau, 2023). The first concerns trust within the organization, which is primarily reflected in empirical studies as individuals' trust in colleagues, management, and the organization as a whole. The second, also known as cross-organizational trust, is observable in empirical research focused on one organization's trust in another organization. According to literature, the current understanding of the nature of internal trust within organizations in both Chinese and international academic circles mainly encompass three perspectives (Figure 4.1).

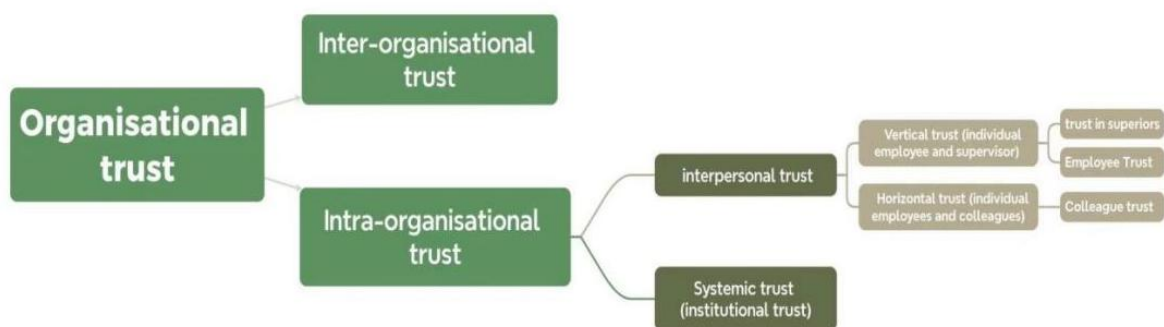


Figure 4.1 Organizational trust division

The first perspective holds that internal trust within organizations is a trust relationship formed between organization members and the organization itself. Mishra and Mishra (1994) categorize it into two types: downward trust and upward trust. This represents a mutual,

bidirectional trust relationship. Xi et al. (2004) proposed that organizational trust is a one-dimensional trust from members towards the organization, where members are the trustors and the organization is the trustee.

The second perspective divides trust within organizations into two structural dimensions: interpersonal trust and system trust. Mayer (1995) argue that trust within organizations can encompass trust in individuals (such as supervisors or colleagues), specific groups (such as management or work teams), or the entire organization. Costigan et al. (1998) further differentiated it into institutional trust and interpersonal trust; the former is based on employees' recognition of organizational decisions and rules, while the latter relies on signals conveyed by the trustee through language, actions, and other means.

The third perspective posits that organizational trust can be classified into horizontal trust and vertical trust (Podsakoff et al., 1990). Horizontal trust refers to trust among colleagues, while vertical trust involves employees' trust in supervisors and top management. Chinese scholars such as Qi and Hong (2006) also support this viewpoint, asserting that organizational trust comprises interpersonal trust and system trust, where interpersonal trust includes both vertical and horizontal dimensions, and system trust refers to employees' confidence in organizational decisions and management standards.

4.1.2.3 Outcomes of trust in organizations

Trust is a valuable asset at all levels, societal, interorganizational, intraorganizational, interpersonal and even intraindividual, because it is a foundation for decision-making in risk situations. In the larger scope of social relations, Schilke et al. (2021) stress that trust is the “glue that holds society together” (p. 239). Drawing on overarching theories such as the Social Exchange Theory (Blau, 1964; Cropanzano & Mitchell, 2005), trust is seen as the cornerstone upon which the principle of reciprocity is built among social interactions. This reciprocity leads to stronger social bonds and a sense of solidarity among individuals in society (Molm et al., 2007).

Richmond et al. (2024) advocate that trust is especially important in healthcare because patients are vulnerable, and to guarantee health equity (i.e. that all individuals have equal access to health services) it is important that trust in the public health and in the health care system is built.

This centrality of trust as a key construct and general social asset is also mirrored in workplace settings. Within organizations, trust has been reported to foster individual and team performance (Colquitt et al., 2007; Feitosa et al., 2020), contextual performance such as

organizational citizenship behaviors (Zhao & Li, 2021) but also important innovation-related outcomes such as team knowledge sharing and learning (Breuer et al., 2016), creativity (Lee et al., 2018) and innovative behavior (Clegg et al., 2002; Ng, 2017).

In close relationship with these outcomes, proactive work behaviors play a major role. As stated, proactive work behavior involves initiative-taking beyond standard job requirements which implies a certain level of risk-taking. Moreover, risk taking is a defining conceptual feature of trust and therefore, it is reasonable to posit that proactive work behaviors would be very much diminished in low-trust contexts. This has been evidenced by Parker et al. (2006) who found that trust in co-workers foster proactive work behavior. Based on this, we hypothesize that:

H2: Trust will be positively associated with higher proactive work behavior

Considering the dimensions of trust (institutional, interpersonal, and self) literature review will now focus on specifying the sub-hypotheses entailed in this hypothesis 2.

4.1.3 Social-ecological systems theory

Bronfenbrenner (1992) developed a model of individual development that emphasizes the importance of the interaction between individuals and their environment. Originally the ecological systems theory (EST) divided an individual's ecological system into four basic categories: microsystem, mesosystem, exosystem, and macrosystem. The microsystem refers to the environment that individuals face most directly, such as the family, which is one of the most immediate environmental systems. The mesosystem involves the interconnections between various systems, primarily consisting of friends, the environment, schools, or other communities. The exosystem refers to systems that individuals do not directly participate in but which nonetheless influence their developmental processes. The macrosystem encompasses broader cultural contexts. More recently Neal and Neal (2013) add the fifth dimension, time, which focuses on how individuals make different choices in relation to their environment over time, as they accumulate knowledge and experiences during their growth.

Overall, EST suggests that individuals are embedded in diverse environments from birth; if individuals can establish good interactions with their environments and among the various systems, they will maintain a better physiological and psychological state. Conversely, if interactions are poor, it may negatively affect the individual's physical and mental well-being.

With a different focus, Zastrow et al. (2018) roughly abridge the social ecological systems model to three main levels: micro, mezzo, and macro. These overlap with those originally

proposed by Bronfenbrenner (1992) but with a revised focal lens. The micro system refers to the specific environment in which an individual is situated; the mezzo system involves smaller social groups such as family, occupation, and peers; and the macro system refers to broader social systems beyond the mezzo level that entail e.g. policy and culture levels. This system primarily studies the interactive processes between individuals and their environments, aiming to help subjects cope with difficulties or resolve issues related to themselves and their surroundings, thereby proposing targeted solutions or strategies.

4.1.3.1 Macro: institutional trust

From a macro level perspective, trust has been conceived differently. It was proposed as a form of "system trust," which serves as a mechanism to simplify the complexity of social interactions (Luhmann, 1979) as well as "social morality" approaching trust as an expectation for maintaining a moral social order (Coser, 1984). Moreover, it was also conceived as a general confidence in the reliability of a system (Giddens, 1991) as well as, from the perspective of social relational structures, proposed as arising from commonly adhered moral norms based on a shared understanding of morality (Fukuyama, 1995). Although terminology varies as "system trust" (Luhmann, 1979), "social trust" (Earle & Cvetkovich, 1995) or "institution-based trust" (Zucker, 1986) it is not difficult to find several core features about trust: it is closely related to people's interaction activities; it is influenced by social structure, institutions and cultural norms; and it is the anticipation and certainty of the future (Tao & Wang, 2006). It can be defined as the "individuals' evaluations of the expected utility of institutions performing satisfactorily" (Lubbers, 2025).

The relationship between institutions and trust is quite complex, involving two causal relationships: institutions are both the foundation of trust and the object of trust (Fang, 2009). Institutional trust is built on the foundation of social mechanisms and represents a general trust in social structures and systems, emphasizing institutions rather than individual characteristics or the relationship between parties. Scholars such as Luhmann (1979), Zucker (1986) and Coser (1984) point out that institutional trust is based on the institutional mechanisms of society and does not rely on direct interactions between individuals. Zhang (2000) argues that trust can exist independently of individuals and may be fostered through mechanisms such as market transactions, judicial systems, or credit systems, allowing even interactions between strangers to proceed smoothly relying on these institutions. This model of trust does not depend on specific legal or institutional provisions but is based on trust in the entire legal system. Therefore, institutional trust is a form of non-personal social regulations that simplifies the

complexity of social interactions through legal penalties and preventive mechanisms (Luhmann, 1979).

Additionally, institutional trust can also emerge in literature as referring to the confidence directed toward specific institutions themselves. The level of trust individuals have in various institutions varies according to their understanding of the content, execution processes, and outcomes of those institutions, reflecting a pattern similar to interpersonal trust (Zou et al., 2012).

Accepting this circular causality between institutions and macro level trust, literature converges on the fact that trust is based on the effective execution and operation of institutions, and not all institutions can enhance trust. Stable psychological expectations rely on trust in institutions, especially regarding externally imposed top-down institutions and the formal organizations executing these institutions; individuals need to assess whether they trust the institutions themselves. Zhai and Xue (2014) argue that trust in institutions is closely related to the operational mechanisms of those institutions and presumes that all parties involved in exchanges will adhere to specific norms. Under this premise, institutions can effectively reduce trust risks and enhance the predictability of actors' behaviors. Therefore, the effective functioning of institutions and the generation of trust depend on the relatively consistent recognition of the institutions by social members and their general adherence to institutional norms.

Due to the critical importance of macro level trust, there has been plenty research on its factors. This research has been exploring this focusing on two aspects: first, the behavior of institutional executors, and second, the results or effects of institutional execution. Sztopka (1999), in his work "Trust: A Sociological Theory," points out that in the context of systemic trust, people not only expect beneficial actions from citizens but also anticipate that various institutions and organizations within the social structure will play a positive role. In terms of institutional trust, individuals trust those who formulate constitutions, execute governmental functions, and oversee the operation of these institutions, such as members of constitutional courts, court members, parliamentary committee members, media representatives, integrity officials, and election committee members. Zou (2014) argues that institutional trust reflects people's positive expectations regarding the behavior of institutions and their executors. Based on personal experiences and perceptions, individuals evaluate the performance of institutional agents during the execution process, assess the alignment of these agents with their own interests, and determine the extent to which they can trust the institutional executors.

From another angle, the factors have been explored focusing on the results or effects of

system implementation. From this perspective, according to Zou (2014), the differences in individuals' levels of institutional trust stem from their depth of understanding of information related to institutional commitments and their evaluations of the fulfillment of these commitments. Individuals' trust in different institutions will vary based on their level of knowledge regarding the specific content of institutional commitments, the state of their realization, and other related information, resulting in a distribution similar to that seen in interpersonal trust. As reasoned by Fang (2009), in the process of building institutional trust, when trust holders encounter a specific institution, they will first weigh costs and benefits based on the information conveyed by the institutional rules. Whether the institution can achieve its expected goals and meet needs will determine their attitude toward trust and, in turn, influence their trusting behaviors. Research by Zhang (2000) on the concepts of institutional trust among the Taiwanese public and its foundational elements reveals that the establishment of institutional trust should be based on three core factors: first, the recognition of collective efficacy, meaning whether the institution has the capacity to fulfill its assigned responsibilities. Second, the adherence to agent ethics, which refers to whether individuals in office can uphold the obligations associated with their roles or positions, such as adhering to principles of fairness and justice, balancing individual rights with the rights of others, and fulfilling the responsibilities of an agent in accordance with the principal's best interests. Third, the effectiveness of arbitration and remedy mechanisms, which pertain to the capacity for dispute resolution between individuals, between individuals and legal entities, or between legal entities. When conflicts arise between agents and principals, whether the arbitration system has the ability and willingness to address disputes; when an agent's actions harm the principal's interests, whether effective remedial measures exist; and whether there are sufficient channels for appeal when individual actors have disputes with specific responsible authorities.

An important feature of research that informs on construct, such as institutional trust, is how it has been measured. Literature shows that scholars typically assess it from two perspectives: the institution itself and its executors. Wu (2019) chose farmers' trust in village officials and their trust in agricultural waste resource utilization policies as indicators of institutional trust. To make it easy for farmers to understand and accept, the measurement of trust in village officials was phrased as, "I trust village officials very much; if they suggest participating in agricultural waste resource utilization, I am willing to try." Trust in the institution and policies was expressed as, "I believe that the agricultural waste resource utilization system and policies will receive government support" and "I believe everyone will comply with the relevant systems," with the level of trust ranging from 1 (completely distrust)

to 5 (very trustful). Li and Gao (2024) developed a set of measurement scales for institutional trust, focusing on assessing businesses' trust in laws, regulations, standards, and norms. They argued that institutional trust is a second-order reflective variable that encompasses institutional completeness, enforceability, and stability. For example, items measuring businesses' trust in institutional completeness include, "Businesses believe these regulations cover all areas of the pharmaceutical industry" and "Businesses trust that these regulations have no loopholes.". Some Chinese scholars referenced Robinson's (1996) method to design seven items from the perspective of organizational system fairness, justice, strength, and concern for employees. Han et al. (2017) and Sheng (2019) respectively used this questionnaire to measure systemic trust and institutional trust.

These measures show two viewpoints about institutional trust: trust in the agents and their virtues (Han et al., 2017; Robinson, 1996; Wu, 2019), and trust in regulatory instruments (Li & Gao, 2024; Wu, 2019). Still, the existing measures may be incomplete if one considers Mayer's (1995) model of trust which proposes competence, benevolence, and integrity of the agents and the system.

4.1.3.2 The effect of institutional trust on proactive work behavior

At present, research in China on the impact of institutional trust on proactive work behaviors, is scarce. Meanwhile, some scholars explore the impact of institutional trust on negative work behaviors.

Zhu (2022) found that there is a negative correlation between institutional trust and accountability pressure, i.e., the higher the degree of institutional trust of grassroots cadres, the lower their accountability pressure. There is a negative correlation between institutional trust and cadres' intention to avoid responsibility, i.e., the higher the degree of institutional trust of grassroots cadres, the lower their intention to avoid responsibility. The negative moderating effect of institutional trust is obvious, i.e., under high institutional trust, the explanatory power of accountability pressure on cadres' intention to avoid responsibility becomes weaker. From the perspective of various dimensions, institutional trust has a significant negative moderating effect between institutional pressure, hierarchical pressure, role conflict and grassroots cadres' intention to avoid responsibility, and a non-significant moderating effect between workload dimension and grassroots cadres' intention to avoid responsibility.

Conversely, institutional trust has been associated to positive outcomes. You et al. (2023) proposed that for researchers, lower institutional trust makes the exercise of autonomy face heavy obstacles and requires a lot of energy to reduce risks. When institutional trust is high,

researchers can become active participants in internal rule-making and academic self-regulation through peer review and co-decision-making, thus feeling more autonomous. Sheng (2019) proposed that institutional trust can significantly and positively influence employee initiative behavior. Based on this we hypothesize that:

H2a: Institutional trust will be positively associated with higher proactive work behavior

4.1.3.3 Meso view: interpersonal trust

Based on the larger conception of trust as an individual's response to specific situations (Deutsch, 1958), Rotter (1967) narrowed the scope to interpersonal trust, having been the first to introduce this construct in sociological theory. It refers to an expectation formed by individuals during interactions with others through verbal communication, eye contact, written statements, and oral expressions. In line with this, Johnson-George and Swap (1982) proposed that interpersonal trust is a confidence or expectation regarding specific interpersonal relationships, while McAllister (1995) suggested that interpersonal trust encompasses cognitive trust, which is based on the perceived credibility and reliability of others, and emotional trust, which is based on emotional investment and care. Additionally, Betts et al. (2013) regarded interpersonal trust as a universal expectation that individuals believe others or groups are trustworthy. In China, Yang and Peng (1999) introduced the concept of interpersonal trust and localized it, defining it as individuals' sense of security regarding both parties fulfilling their responsibilities during interactions. Lin (2021) further argued that interpersonal trust is a belief based on cognitive abilities, a sense of cooperation, and emotional motivations.

Luhmann (1979) considered interpersonal trust as one of the important dimensions of trust, alongside institutional trust (or system trust). From a neo-functionalist perspective, Luhmann argues that the function of trust is to simplify the complexity of social interactions, and interpersonal trust is built upon emotional connections and familiarity between individuals. Generally, interpersonal trust refers to the belief that others, especially colleagues or supervisors, are reliable, honest, and will act in a way that benefits mutual interests (Mayer et al., 1995). It is crucial in work environments where collaboration and cooperation are essential. Interpersonal trust helps to reduce uncertainties and enhance communication, which in turn facilitates smooth working relationships and effective team dynamics (Huppert, 2010). As research has progressed, scholars have increasingly diversified the dimensions of interpersonal relationships.

In exploring the dimensionality of interpersonal trust, Uslaner (2002) highlight general trust versus particular trust. Particular trust refers to an individual's confidence and expectations

regarding familiar members with whom they have close relationships, while general trust pertains to an individual's trust in strangers or the majority of people in society. Lewis and Weigert (1985) differentiate between cognitive trust and affective trust. This classification focuses on the level of interpersonal communication and relationships, emphasizing rationality and emotion as the two core dimensions in the composition of trust. Cognitive trust refers to trust formed through rational analysis of another's credibility, while affective trust is built on emotional connections such as care, affection, and emotional investment, also observed within organizational settings (McAllister, 1995). Coser (1984) also has a profound influence on the classification of interpersonal trust; he divides interpersonal trust into three types: trust in moral and natural order, trust in the performance capabilities of the trusted individual, and trust in the individual's ability to fulfill their responsibilities comprehensively. In China, Yang and Peng (1999) distinguished interpersonal trust into character trust and competence trust, arguing that competence trust means that it is the ability to complete a thing to the object of trust, and character trust is a private relationship measured by whether it is good for oneself. Additionally, Liu et al. (2023), took innovative teams as the research object and divided interpersonal trust into threat trust and relational trust based on the trust establishment process.

Depending on the number of dividing dimensions, they can be categorized into two or three dimensions (Table 4.2):

Table 4.2 Delineating dimensions of interpersonal trust

Structure	Scholars	Dimension
two-dimensions	McAllister (1995)	Cognitive trust, emotional trust
	Yang and Peng (1999)	Trust in other people's abilities, trust in other people's character
	Liu et al. (2023)	Threatening trust, relational trust
three-dimensions	Shapiro et al. (1992)	Deterrent Trust, Understanding Trust, Recognition Trust
	Lewicki and Bunker (1995)	Calculative trust, understanding trust, identity trust
	Kalkman and de Waard (2017)	High trust, medium trust, low trust

Interpersonal trust can also be approached from the perspective of one's perception about his or her social support. Social support is the "provision of instrumental aid, information, or emotional sustenance to an individual" (House et al., 1988) which means that it is a fundamental construct perspective from the Social Exchange Theory (Blau, 1964) as it represents the available social resources one can count on and one is willing to offer others based on reciprocity. Interpersonal trust can be defined at this fundamental level in a collectivistic society, where individuals conceive themselves as being fundamentally interdependent with a sense of reciprocity and obligation to others, with collective objectives taking priority over individual ones (Triandis & Gelfand, 2012). For this reason, mutual perceptions of social support define

its very collectivistic nature. Social support can provide a better understanding of interpersonal trust because it relates with the most critical moments in one's personal life and social life, in times of need, where social support is the currency of interpersonal trust that holds one's life and society's resilience.

In exploring the predictors of interpersonal trust, researchers have focused organizational and individual level factors. Research shows that organizational communication has a significant impact on interpersonal trust. Good communication frequency and methods can promote the establishment of relationships, create a trustful climate, and enhance the perception of both parties' abilities (Li & Yan, 2019). Wang et al. (2014) found that formal communication significantly affects interpersonal trust, while informal communication has a greater impact on emotional trust, with less noticeable effects on ability trust. Additionally, communication satisfaction is correlated with positive emotional behaviors. Zhou (2016) suggested that communication can enhance team cohesion by establishing trust-oriented communication methods, fostering psychological contracts and a sense of belonging, thereby promoting team trust.

Alongside organizational communication, research has found that organizational fairness has a positive effect on interpersonal trust. When the sense of fairness within an organization is high, members are more likely to interact, and trust relationships are more easily established (Wang & Ying, 2022). Yang (2017) argued that the higher the perceived fairness of selection processes and promotion channels within a company, the stronger the trust employees have in the organization and its members. Conversely, when employees perceive unfairness, their sense of trust significantly declines.

Among individual level predictors of interpersonal trust, trust propensity has deserved attention. It refers to an individual difference that results from differences in life experiences, personality traits, and cultural backgrounds. Trust propensity exhibits a stable intrinsic nature that determines the potential level of an individual's trust in others. According to Mayer and Gavin (2005), individuals that have a more positive view of people and events are more willing to have an attitude of trust in other people or systems. Huo and Ma (2008) found that individual trust propensity does not have a significant effect on employees' trust intention, but it significantly affects employees' perception of leadership trustworthiness and trust based on the enterprise IT system.

Adding to the individual level predictors of interpersonal trust, researchers focused on the characteristics of the trusted party, such as professional skills and personal qualities. Trust in supervisors was conceived by Butler Jr (1991) as depending on the supervisor's perceived

competence, effectiveness, consistency, integrity, loyalty, openness, commitment to achievement, receptiveness to suggestions, fairness, and self-confidence.

Mayer (1995) trust model proposes that trust is built on three dimensions of the trusted party: competence, benevolence, and integrity. Competence refers to the level of skill and competitiveness an individual demonstrates in a specific area. Research by Zheng (1999) in the Chinese context indicates that about 50% of studies highlight competence as an important factor influencing trust. Moreover, the author also notes that a superior's trust in subordinates relies more on relationship, loyalty, and competence, while a subordinate's trust in their superior is primarily influenced by relationships, benevolence, and integrity.

Moreover, transformational leadership has a positive impact on interpersonal trust, Lin and Hu (2019) argue that transformational leaders enhance employees' sense of identification through encouragement and role modeling, thereby increasing trust. Zhao and Li (2021) posit that the sense of identification is crucial in establishing trust, and transformational leaders elevate the level of trust between superiors and subordinates through their personal charisma. Jin and Guo (2024), based on social exchange theory, point out that traits such as integrity and kindness in transformational leaders strengthen employees' trust in leadership decisions and enhance trust through empowerment and employee participation.

Again, measurement options are informative on the construct of interpersonal trust. Early scales such as Rotter's (1967) Interpersonal Trust Scale highlight the reliability of others' actions, commitments, or statements as the key focus of interpersonal trust. The dual focus on affective and cognitive trust is also present in McAllister's (1995) scale. In China, Zimet et al.'s (1988) scale was translated by Jiang (2001) as an expression of interpersonal trust. This scale covers several sources of social support, namely leaders, coworkers, family, and friends. The actions target support concerning work issues, sharing concerns, receiving emotional support, and being cared by others.

4.1.3.4 The effect of interpersonal trust on proactive work behavior

Sheng (2019) pointed out that trust in leadership and among colleagues can positively influence employee proactive behavior through role breadth self-efficacy. Additionally, leadership empowerment strengthens the positive relationship between organizational trust and employee self-efficacy, meaning that the higher the level of leadership empowerment, the stronger the promoting effect of trust on employee proactive behavior. Thus, interpersonal trust significantly influences work behaviors such as knowledge transformation sharing, as well as innovation.

As regards knowledge sharing, it is long known that when interpersonal trust levels are

high, information sharing is more accurate, timely, and complete, whereas lower trust levels often lead to distortion or concealment of information (Zand, 1972). This led Standing and Benson (2000) to argue that trust is a prerequisite for knowledge sharing. Reinforcing this contention, Levin and Cross (2004) found that trust based on competence and benevolence has a positive impact on knowledge transfer within organizations. In China findings converge as Gao et al. (2005) pointed out that interpersonal trust regulates knowledge transfer by influencing individuals' emotional and cognitive processes in the same line as Xu's (2007) suggestion that employee trust indirectly affects the willingness to share knowledge through organizational identification. Empirical findings do show that team trust positively influences knowledge sharing through individuals' sense of efficacy (Lu, 2006).

Another researched outcome of interpersonal trust is innovative behavior. Nahapiet and Ghoshal (1998) studied the positive role of trust in intellectual capital exchange and innovation, highlighting that trust is an important dimension of social capital that can promote innovation within organizations. Zhou (2008) found that internal trust within R&D teams indirectly affects the innovative performance of team members. Le (2013) found that trust within organizations has a positive impact on employee innovation behavior, especially under the influence of cognitive and emotional trust. Shi (2017) further demonstrated that trust within organizations positively affects both employee innovation behavior and psychological safety, with psychological safety partially mediating the relationship between trust and innovative behavior, particularly in the influence of trust on the execution of innovative ideas.

Based on this, we hypothesize that:

H2b: Interpersonal trust will be positively associated with higher proactive work behavior

4.1.3.5 Micro: self-trust

Self-Trust, used in the field of psychology, refers to the feelings of trust in oneself and one's own decisions that arise when a patient is more open to experience (2003). Self-trust refers to the psychological process and state in which an individual is confident in oneself, and entails both self-esteem and self-efficacy, where self-esteem is understood as a person's sense of global self-worth and self-efficacy, i.e., confidence in a person's ability to perform a specific behavior or set of behaviors in a given context (Bandura, 1977). In its measurement, there must be attention to cultural sensitivity, for example, Jiang et al. (2023) conducted a study on the validation of Rosenberg's (1965) self-esteem scale in China to propose a shorter version that excludes 3 items based on cultural bias.

Adopting an ontological view of self-trust development, Earl (1987) links self-trust to the

relationship with the secondary caregiver (usually the father), whereas a broader, more general sense of trust and interactional reliability appears to be associated with a close bond with the mother.

The currently burgeoning academic literature on trust, health and healthcare has so far paid little attention to self-trust (Taylor et al., 2023) potentially due to the conceptual proximity with self-efficacy, which is a much widely adopted construct.

Still, there is a scarcity of relevant studies focused on this construct, both generally in the international domain as well as in China. In the field of medicine, Grob et al. (2023) argue that self-trust is essential to the well-being of people with chronic illnesses and caring for them, suggesting that 'self-trust' means that one is both trusted and extends trust. Walton (2021) discusses the relational aspects of self-trust in people with deep brain stimulation (DBS, a neurological intervention based on computer-brain interface), focusing on the tuning of stimulation parameters and the future potential of autonomic stimulation.

4.1.3.6 Self trust as a predictor of proactive work behavior

Currently, research on self-trust and its impact on proactive work behaviors is limited, with most studies focusing on the area of overconfidence. The influence of overconfidence on work behaviors is mainly explored within decision-making and innovative behaviors. Also related to self-trust, but only conceptually overlapping, is the construct of Core Self Evaluation which includes self-trust.

Another proxy to self-trust that was examined concerns the impact of overconfidence on investment behavior. Heaton (2002) introduced the "CEO optimism hypothesis" which is one of the earliest theories to incorporate overconfidence into corporate decision-making and explain biases in investment behavior. This hypothesis posits that even in the absence of information asymmetry and agency costs, managers' overconfidence can lead to biased estimates of project returns and risks, thereby affecting investment behavior. Managers often overestimate corporate earnings and believe that the market undervalues the company, resulting in excessive investment during periods of ample cash flow and insufficient investment during periods of cash flow scarcity due to a refusal to seek external financing. Wu et al. (2008) utilized data from Chinese listed companies to find that managers' overconfidence is negatively correlated with corporate merger performance, although their learning ability can mitigate this negative impact. In the same line, Liu and Liang (2017) further investigated the negative effects of overconfidence on corporate overseas mergers and acquisitions. This is also extensive to dividend distribution decisions. Deshmukh et al. (2013) suggested that overconfident managers

tend to suppress the level of corporate dividends, with this negative impact being more pronounced in companies with few growth opportunities, low cash flow, and high levels of information asymmetry. This was also observed in Chinese listed companies where a significant positive correlation between managers' overconfidence and dividend distribution levels was reported by Chen et al. (2010).

The bias originated by managerial overconfidence has been also researched as regards corporate innovation behavior. Galasso and Simcoe (2011) were the first to relate managerial overconfidence with corporate innovation behavior, proposing the Career Concern Model, which suggests that managers' overconfidence promotes corporate innovation. This was also reported in Chinese listed companies, especially in high-tech and state-owned enterprises (Lin & Wang, 2014; Wang et al., 2013).

Simsek et al.'s (2010) study on the relationship between CEO core self-evaluation found it fosters higher firm entrepreneurial orientation but only in dynamic environments, and in a similar manner, a meta-analytic study on the outcomes of core self-evaluations by Burkhard et al. (2023) reported a positive effect on firm performance via strategic risk taking.

Overall, self-trust is a positive motivator that enables individuals to act and take initiative. We therefore hypothesize that:

H2c: Self-trust will be positively associated with higher proactive work behavior

4.1.4 The central mediator role of job satisfaction

One important attitudinal construct that has gained prominence in organizational behavior research, reputedly having been the most studied attitude variable (Judge et al., 2017) is job satisfaction due to its intervening role in a diverse array of conceptual models. Taking stock on the research on job satisfaction (Judge et al., 2020) reviewed over one century of studies, to draft a nomological network centered on job satisfaction and highlighting its known predictors and outcomes. Among the predictors, those of a dispositional nature (e.g. personality traits), events (e.g. affective experiences), and contextual antecedents (e.g. leadership style, work-family conflict, HRM practices, organizational justice) deserved attention. Likewise, among the outcomes, at a higher level the review highlighted organizational effectiveness, and at the operational level, job performance, citizenship behaviors, counterproductive work behaviors, and some withdrawal behaviors (of which the most researched seems to be turnover intention). In all cases, mobilizing several theories established in organizational literature (e.g. Equity Theory by Adams (1965); Social processing theory by Salancik and Pfeffer (1978); Affective Events Theory by Weiss and Cropanzano (1996), it is plausible to approach job satisfaction as

a psychological intervening mechanism linking perceptions to behaviors, and their outcomes.

This confers job satisfaction a suitable role as a mediator, which is matched by extant research that empirically treated it with such status. For example, Yousef (2002) found that job satisfaction mediated the indirect effect of role overload and lack of career development on three forms of organizational commitment. In a study on the effects of interpersonal citizenship behaviors (those directed towards peers beyond the requirements of the job, Regts and Molleman (2013) found that these behaviors lower turnover intention via job satisfaction but only when neither task interdependence nor communion-striving motivation were low. A similar study conducted by Sharif et al. (2021) tested the indirect effect of perceived organizational support on turnover intention via satisfaction to find the mediation is always significant albeit stronger when individuals report higher psychological ownership. More recently, job satisfaction was found to mediate both the relationship between resilience and intra-role job performance and between interpersonal justice and intra-role job performance by Albalá-Genol et al. (2023).

As regards satisfaction with compensation (a facet of job satisfaction), Luna-Arocas et al. (2020) found a partial indirect effect stemming from talent management via satisfaction with compensation to organizational commitment. With a focus on five dimensions of pay information (how is the distributive situation concerning the employee; their coworkers, and employees generally in the industry; together with what are the criteria and process to determine base pay and pay raise), Torre-Ruiz et al. (2024), departed from Social Exchange Theory of Blau (1964), tested how strongly these were associated with perceived organizational support, and if pay satisfaction (satisfaction with the amount received, and satisfaction with how pay is determined) mediated such relationships. Findings ruled out the direct effect thus indicating the in most pay satisfaction was required to explain the effects of pay communication on perceived organizational support.

4.1.5 Institutional trust and satisfaction with compensation

Research on institutional trust has shown that it plays a significant role in employee satisfaction and organizational commitment. A study by Shockley-Zalabak et al. (2000) found that institutional trust is positively correlated with overall job satisfaction, with employees who trust their organization being more likely to be satisfied with their roles and compensation. In healthcare, trust in the institution has been linked to better engagement with organizational policies, higher job satisfaction, and improved patient care (Nie, 2020). Similarly, studies suggest that institutional trust positively influences satisfaction with intangible benefits. For

example, in organizations that offer health benefits, retirement plans, or family-related support, employees are more likely to be satisfied with these benefits if they trust the institution providing them. Trust in the institution can also reduce concerns about the security and sustainability of benefits, leading to greater satisfaction with these offerings (Mishler & Rose, 2001).

While much of the literature focuses on broader organizational trust, studies specifically exploring the relationship between institutional trust and satisfaction with salary remain scarce. However, there are studies suggesting that institutional trust positively impacts employees' perceptions of salary fairness. Employees who trust their organization tend to view salary structures as just and equitable, contributing to higher satisfaction with their compensation (Brehm & Gates, 1997).

Institutional trust can influence salary satisfaction by shaping employees' expectations about the fairness and transparency of compensation policies. When employees trust that their organization is competent and fair, they are more likely to feel that their compensation reflects their contributions and is consistent with organizational standard (Colquitt, 2001). This relationship is supported by studies across different sectors, including education, healthcare, and public administration, where trust in the institution was found to correlate with higher satisfaction with salary (Vigoda-Gadot, 2007). In public sector organizations, where salary scales are often fixed, institutional trust helps employees accept these structures, reducing feelings of inequity or dissatisfaction with their compensation (Brehm & Gates, 1997).

Research has also demonstrated that trust in the institution affects employees' willingness to accept and engage with the benefits offered, particularly when the institution is seen as genuinely concerned with employee well-being. In a healthcare setting, for instance, employees who trust the healthcare organization are more likely to report higher satisfaction with health-related benefits (Nie, 2020).

Based on the existing literature, it is clear that institutional trust plays a key role in determining employees' satisfaction with their salary. Employees who trust their organization are more likely to perceive their salary as fair, which enhances their overall satisfaction. This supports the hypothesis that:

H3a: Institutional trust will be positively associated with satisfaction with compensation

Considering both the salary and benefits components of compensation, we detail two sub-hypotheses:

H3a': Institutional trust will be positively associated with satisfaction with salary.

H3a'': Institutional trust will be positively associated with satisfaction with benefits.

In the same line of reasoning, research shows that interpersonal trust fosters collaboration, enhances job satisfaction, including satisfaction with benefits, and promotes a positive work environment (Cook & Wall, 1980). Trust between colleagues and between employees and supervisors has been found to be positively correlated with job satisfaction, organizational commitment, and performance (McAllister, 1995). Furthermore, studies suggest that interpersonal trust can mitigate workplace stress and reduce the negative effects of organizational conflict (Vigoda-Gadot, 2007).

Although much of the literature on interpersonal trust focuses on its impact on teamwork, communication, and organizational behavior, there are fewer studies exploring its direct effect on salary satisfaction. However, research on the broader impact of interpersonal relationships on job satisfaction suggests that interpersonal trust is a key factor in determining satisfaction with salary (Dirks & Ferrin, 2001). When employees trust their supervisors and colleagues, they are more likely to feel that their compensation is just and reflects their contributions. When trust is high, employees tend to believe that compensation decisions are made transparently and justly, which increases their satisfaction with their salary (Vigoda-Gadot, 2007).

Studies in both the private and public sectors have shown that interpersonal trust influences salary satisfaction, as employees who experience high levels of trust in their workplace are more likely to report feeling satisfied with their compensation (McAllister, 1995). Furthermore, interpersonal trust helps to build a supportive work environment where employees feel that their contributions are recognized and rewarded appropriately (Dirks & Ferrin, 2001). This relationship is particularly important in hierarchical organizations, where trust between employees and supervisors directly impacts the perceived fairness of salary distribution.

Given the role of interpersonal trust in influencing job satisfaction and organizational behavior, it is reasonable to hypothesize that:

H3b: Interpersonal trust will be positively associated with satisfaction with compensation

Considering both the salary and benefits components of compensation, we detail two sub-hypotheses:

H3b': Interpersonal trust will be positively associated with satisfaction with salary.

H3b'': Interpersonal trust will be positively associated with satisfaction with benefits.

Due to self trust's dual nature (Smirnova & Owens, 2017) as expressing self-esteem (overall sense of self-worth) and self-efficacy (belief in one's ability to achieve specific tasks), in the workplace, self-trust is essential for employees to make decisions confidently, pursue opportunities, and overcome challenges. The individual's confidence in their capacity to handle job demands and perceive their efforts as meaningful, can directly influence their job

satisfaction, including satisfaction with salary (S. Lin, 2003).

Self-trust can positively influence salary satisfaction by shaping how individuals perceive the value of their contributions and the fairness of compensation. When employees trust their own abilities, they are more likely to feel that their salary reflects their efforts and performance, which enhances their satisfaction (Grob et al., 2023). This relationship is supported by broader research on self-efficacy and self-esteem, which suggests that individuals with higher self-trust are more likely to experience higher satisfaction with job-related outcomes, including compensation (Taylor et al., 2023).

Given the established connection between self-trust, and job satisfaction, it is hypothesized that:

H3c: Self-trust will be positively associated with satisfaction with compensation

Considering both the salary and benefits components of compensation, we detail two sub-hypotheses:

H3c': Self-trust will be positively associated with satisfaction with salary.

H3c'': Self-trust will be positively associated with satisfaction with benefits.

Overall, the conceptual model establishes six sub-hypotheses concerning the relationship between the three types of trust (institutional interpersonal, self) and the two components of compensation (salary, benefits) Literature review about trust as predictor of job satisfaction, as follows

H3: Trust will be positively associated with satisfaction with compensation

H3a': Institutional trust will be positively associated with satisfaction with salary

H3a'': Institutional trust will be positively associated with satisfaction with benefits

H3b': Interpersonal trust will be positively associated with satisfaction with salary

H3b'': Interpersonal trust will be positively associated with satisfaction with benefits

H3c': Self-trust will be positively associated with satisfaction with salary

H3c'': Self-trust will be positively associated with satisfaction with benefits

Judging on the hypothesized relationship between satisfaction with compensation and proactive work behavior (Hypothesis 1) as well as between trust and proactive work behavior (Hypothesis 2), and adding the posited relationship between trust and satisfaction with compensation (Hypothesis 3) it is reasonable to positive satisfaction with compensation as a mechanism variable that indirectly links trust to proactive work behavior. We therefore hypothesize that:

H4: There is a positive indirect effect from Trust to Proactive Work Behavior via satisfaction with compensation

H4a': There is a positive indirect effect from Institutional Trust to Proactive Work Behavior via satisfaction with salary

H4a'': There is a positive indirect effect from Institutional Trust to Proactive Work Behavior via satisfaction with benefits

H4b': There is a positive indirect effect from Interpersonal Trust to Proactive Work Behavior via satisfaction with salary

H4b'': There is a positive indirect effect from Interpersonal Trust to Proactive Work Behavior via satisfaction with benefits

H4c': There is a positive indirect effect from Self-Trust to Proactive Work Behavior via satisfaction with salary

H4c'': There is a positive indirect effect from Self-Trust to Proactive Work Behavior via satisfaction with benefits

Conceptual model: The conceptual model that integrates the hypotheses depicts a two-level structure where trust is conceived at the collective level, taking county as the unit, and both satisfaction with compensation and proactive work behavior are conceived at the individual level. The model entails both direct within-effects, direct cross-level effects and indirect cross-level effects. For clarity's sake the control variables are not depicted. See Figure 4.2.

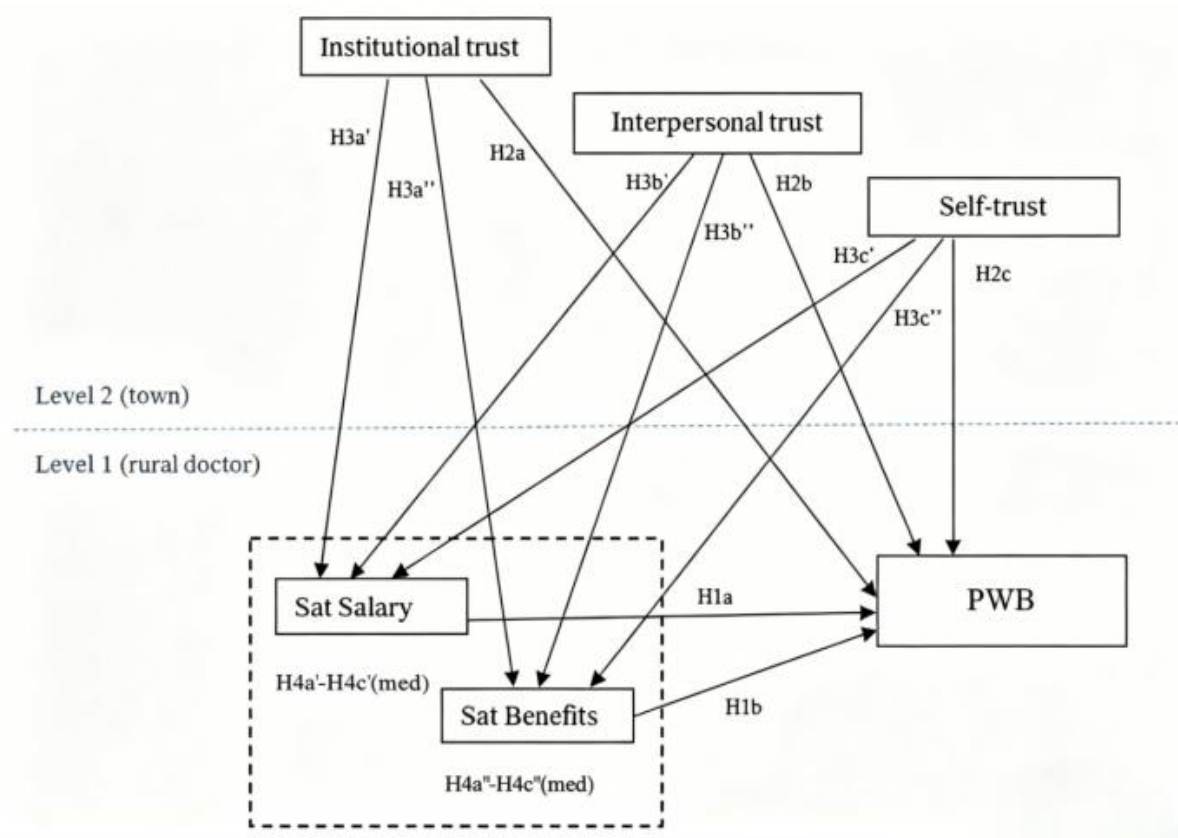


Figure 4.2 Figure model structure

The full range of hypotheses is listed below.

H1: Job satisfaction with compensation will be positively associated with higher proactive work behavior

H1a: Job satisfaction with salary will be positively associated with higher proactive work behavior

H1b: Job satisfaction with benefits will be positively associated with higher proactive work behavior

H2: Trust will be positively associated with higher proactive work behavior

H2a: Institutional trust will be positively associated with higher proactive work behavior

H2b: Interpersonal trust will be positively associated with higher proactive work behavior

H2c: Self-trust will be positively associated with higher proactive work behavior

H3: Trust will be positively associated with satisfaction

H3a: Institutional trust will be positively associated with satisfaction with salary

H3a'': Institutional trust will be positively associated with satisfaction with benefits.

H3b: Interpersonal trust will be positively associated with satisfaction with salary

H3b'': Interpersonal trust will be positively associated with satisfaction with benefits

H3c: Self-trust will be positively associated with satisfaction with salary

H3c'': Self-trust will be positively associated with satisfaction with benefits

H4: There is a positive indirect effect from Trust to Proactive Work Behavior via satisfaction with compensation

H4a': There is a positive indirect effect from Institutional Trust to Proactive Work Behavior via satisfaction with salary

H4a'': There is a positive indirect effect from Institutional Trust to Proactive Work Behavior via satisfaction with benefits

H4b': There is a positive indirect effect from Interpersonal Trust to Proactive Work Behavior via satisfaction with salary

H4b'': There is a positive indirect effect from Interpersonal Trust to Proactive Work Behavior via satisfaction with benefits

H4c': There is a positive indirect effect from Self-Trust to Proactive Work Behavior via satisfaction with salary

H4c'': There is a positive indirect effect from Self-Trust to Proactive Work Behavior via satisfaction with benefits

4.2 Method

4.2.1 Procedure

This study was conducted in accordance with the requirements of the Declaration of Helsinki and was approved by the Medical Ethics Committee of Southern Medical University. A written informed consent waiver was granted on the grounds that: (a) the study brings no harm or risk that could affect the health or rights of the participants; and (b) participants' privacy and personally identifiable information were protected. Accordingly, the requirement for a signed written informed consent was waived.

We adopted a multi-stage sampling method, combining random sampling with cluster sampling (Sedgwick, 2014). First, we identified the cities in the "YUE-DONG-XI-BEI" (Eastern, Western, and Northern Guangdong) region based on the official list provided by the Guangdong Provincial Government, which includes a total of 12 cities. From this list, we used a random number table to select five cities. Next, from the 426 township-level administrative units within the selected cities, we randomly selected 116 units. Then, if a selected township had more than one township health center, we used simple random sampling to select one. If a township had only one health center, that center was automatically selected.

Given the use of cluster sampling (Sedgwick, 2014), we first obtained permission from each selected township health center. Subsequently, through a designated liaison at each center, questionnaires were distributed to individuals within the selected centers who met the predefined inclusion criteria.

Finally, all eligible doctors within the selected health centers (those who were professionally qualified) were invited to participate in the survey. A total of 1292 invitations were sent, from which 725 consented to participate (a 56% response rate). After data curation (removing streamlined answers, and those who fail the attention checks) a valid final sample of 505 was retained.

Additionally, members from the local health authority were also invited to participate specifically on wave 2. Their invitation followed the same instructions with due informed consent shown online and guarantees of anonymity and voluntary participation in the study. Because their answers could compromise the anonymity of the rural doctors, they were requested to generally refer to the average doctor in the specific town and offer a single rating on the proactive work behavior for each town center.

Data were collected via a mobile-accessible electronic questionnaire, as detailed in Annex

C and Annex D. The landing page of each questionnaire clearly stated the purpose of the survey, specified that no personally identifiable information would be collected, and included the statement: “If a participant responds to and submits this questionnaire, it will be deemed as consent to participate in this survey”. Participants were required to confirm this statement before proceeding; refusal to participate was not recorded.

No personal identifiers were collected at any stage. The unique IDs were non-nominal and non-reversible. Survey data and results were not returned to the participating township health centers or their designated liaisons. Access to the database was restricted to authorized study personnel only.

When a participant opened the electronic questionnaire, the system generated a non-identifiable unique ID; each ID permitted only a single submission. Survey responses were entered directly into the study database through the electronic survey platform.

The data collection window was set to a total of 10 days. Upon the deadline, the electronic questionnaire system was closed and no further responses were accepted.

4.2.2 Sample

The workable sample comprises 505 rural doctors, working in the five mentioned cities. The frequency per city varies from 11 (Maoming) to Meizhou (284) reflecting their relative working population in this domain. Participants come from 62 towns with an average sample size of 8.15 per town ($SD=7.53$) with the largest town (HuangGang) having 49 participants and the smallest (ChengDong) having 3. The sample is mostly comprised of males (83.6%), with average age of 50 years-old ($SD=9.8$), ranging from 20 to 81 years old. Most of the participants are working as rural doctors for more than 10 years (78.2%) with the highest education granted at the secondary vocational level (59.4%) followed by junior college (29.3%). Among the sample 76.2% have obtained a license to exert the activity as a full practicing physician after completion of national exams. The remaining 13.8% operate with a rural doctor certificate. 90.3% of the participants do not have an establishment. As regards the relationship with the township, the vast majority (92.7%) was born locally, is married (94.3%) with the spouse working locally (82.6%) and also has family members that work in the same profession as rural doctors. The participants have an average monthly income within the 3000 to 4999 RMB interval, mostly (54.5%) earning less than 3000 RMB, or between 3000 and 4999 RMB (39.6%).

4.2.3 Data analysis strategy

Data was first curated by removing cases that failed the attention check item.

Before proceeding, constructs are required to have psychometric quality, i.e. they must be valid and reliable. To test validity we conducted confirmatory factor analysis (CFA) based on Hair et al.'s (Hair Jr. et al., 2019) recommendations we considered a given model fitted if the following thresholds were achieved: a normed χ^2 close or below 3, a Comparative Fit Index (CFI) of at least .94, a Tucker-Lewis Index (TLI) also of at least .94, a Root Mean Squared Error of Approximation (RMSEA) below .07 and a Standardized Root Mean Residual (SRMR). The χ^2 statistic is usually expected not to be significant to indicate model fit, but when the sample size is larger, it tends to overestimate the rejection of the null hypothesis and therefore, it is less informative in the case of the present study. Additionally, a latent construct should have convergent validity, i.e. most of the items' variance should be accounted for by the latent variable. This is indicated by Fornell and Larcker's (1981) Average Extracted Variance (AVE), which should attain .50 in order to be accepted. Lastly, a measure should be reliable, i.e. it should measure the construct consistently, also within the scale itself. This is indicated by a 0.70 value for Cronbach alpha.

Because data is conceived at town level, aggregability tests were deployed. Namely, Within Groups Rater agreement (R^*wg) and also Intraclass Correlation Coefficient ICC1 and ICC2.

According to Klein and Kozlowski (2000), a rwg above .70 indicates that we can aggregate rates from rural doctors within the same town because they are interchangeable. LeBreton and Senter (2008) detailed the degree of reliability for rwg where there is no agreement at all if values fall below 0.30, there is weak agreement when they range from .31 to .50, there is moderate agreement from .51 to .70, strong agreement up to .90 and very strong agreement for values above .90 in rwg .

As per ICC, it indicates discriminant validity, i.e. that doctors in the same town have more similarity between themselves than with other doctors from other towns. The expected finding is that, if indeed towns are to be treated separately, then they must differentiate more between themselves than within each town. ICC1 indicates how much variance is accounted for rural doctors individual answers by their town belongingness (Bliese, 2000). ICC2 indicates whether the group means are sufficiently reliable so that one can use them in further analyses.

To be usable, ICC1 should reach typically 0.12 (Johnson-George & Swap, 1982), although it is also acceptable to fall within 0.05 and 0.20 (DeShon et al., 2004) and ICC2 reach .70 (Klein & Kozlowski, 2000). More updated guidelines inform that ICC2 indicates good reliability if the

values are within the 0.40 to 0.75 range, and above this it states excellent reliability (Shieh, 2012).

Due to the nested nature of the data Mplus 8.3 (Muthén & Muthén, 1998) is a suitable software to test hypotheses via a Multilevel Path Analysis. The aggregation occurred and town level structuring 62 groups and the corresponding individual level of analysis with the full 505 sample. Because towns size vary substantially (from 3 to 49) and the sample comprises many small size towns, we opted for the Bayesian estimation that is more suitable than Multiple Likelihood to deal with smaller sample sizes in multilevel models (Baldwin & Fellingham, 2013).

4.2.4 Measures

Institutional trust was measured with a novel scale. As stated, the existing scales are targeting agents and instruments (Li & Gao, 2024; Robinson, 1996; Wu, 2019) but only partially if one takes into account Mayer's (1995) model of trust. These scales are also confined to specific contexts. We reason that the three dimensions of competence, benevolence can apply to both agents and instruments and therefore should be the basis to build a scale. When developing the scale, it is important to note that institutional trust has the following characteristics: 1) it emphasizes individuals' or organizations' trust in the institutional environment; 2) its foundation is a sound institutional structure; 3) it does not rely on historical interactions between individuals or organizations; and 4) it is based on a shared understanding and expectations of institutional rules.

Based on the conclusion from study 1, where 12 indicators were identified to account for the varied expressions of trust in institutions, institutional trust was measured with the following items: “1. I believe that the health administration will have the **best interests** of rural doctors in mind when formulating policies”, “2. Health administrations always pay attention to the **well-being of rural doctors** when formulating policies”, “3. Policies on the rural doctor system reflect a **true understanding of the realities** of rural primary health care”, “4. I believe that the health administration is committed to ensuring the **sustainability of the rural doctor system**”, “5. The policy put in place by the health administration is **honest and fair to rural doctors**”, “6. I have confidence in the **transparency of the health administration** in decision-making on the rural doctor system”, 7. Health administrations ensure that the process of formulating policies for the village health system is informed by the views and **needs of a wide range of different groups**”, “8. **Open communication** from the health administration on changes and updates to the rural doctor system”, “9. I am confident that the health administration will be able to develop

policies that *effectively address the challenges* faced by rural doctors”, “10. The implementation of policies related to the village medical system has *strengthened my trust* in the health administration”, “11. I am confident that the policies of the village medical system will continue to support the *improvement of rural health care* services.”, and “12. Health administrations have the *expertise and resources needed* to effectively design policies for village health systems”.

A principal components analysis showed a valid solution (KMO=.959, Bartlett’s $\chi^2(66)=6742.568$, $p<.001$) for a single component comprising all items, having acceptable commonalities and accounting for 75.2% total variance. The component matrix is shown in Table 4.3.

Table 4.3 Component matrix for institutional trust

	Institutional trust
10. The implementation of policies related to the village medical system has strengthened my trust in the health administration	.925
6. I have confidence in the transparency of the health administration in decision-making on the rural doctor system	.898
8. Open communication from the health administration on changes and updates to the rural doctor system	.891
4. I believe that the health administration is committed to ensuring the sustainability of the rural doctor system	.877
7. Health administrations ensure that the process of formulating policies for the village health system is informed by the views and needs of a wide range of different groups	.874
9. I am confident that the health administration will be able to develop policies that effectively address the challenges faced by rural doctors	.872
11. I am confident that the policies of the village medical system will continue to support the improvement of rural health care services.	.871
12. Health administrations have the expertise and resources needed to effectively design policies for village health systems	.867
5. The policy put in place by the health administration is honest and fair to rural doctors	.865
3. Policies on the rural doctor system reflect a true understanding of the realities of rural primary health care	.822
2. Health administrations always pay attention to the well-being of rural doctors when formulating policies	.821
1. I believe that the health administration will have the best interests of rural doctors in mind when formulating policies	.819

Note: Extraction Method: Principal Component Analysis.

a.1 components extracted.

A confirmatory factor analysis of this solution showed poor fit ($\chi^2(54)=507.996$, $p<.001$, Normed $\chi^2=9.407$; CFI=.933; TLI=.918; PCFI=.763; RMSEA=.129 90% CI[.119; .140]; PClose=.000; SRMR=.0345) and the Lagrange Multipliers suggested covariances between errors that indicate possible content overlap between items while Holter estimates indicate the model is overly complex for the sample size and variance (Holter .05 = 72; Holter .01 = 81). By removing some items that not only had indication of existing covariance between errors but

also were qualitatively similar, we found a solution with good fit ($\chi^2(20)=69.515$, $p<.001$, Normed $\chi^2=3.476$; CFI=.986; TLI=.981; PCFI=.704; RMSEA=.070 90% CI[.053; .088]; PClose=.031; SRMR=.0189) also with good Holter estimates (Holter .05=228; Holter .01=273). This solution has good convergent validity (AVE=.713) as also strong reliability (Cronbach alpha=.95). The final solution comprises eight items and is shown in Figure 4.3. The coefficients on the path diagram of the Confirmatory Factor Analysis are Standardized Factor Loadings.

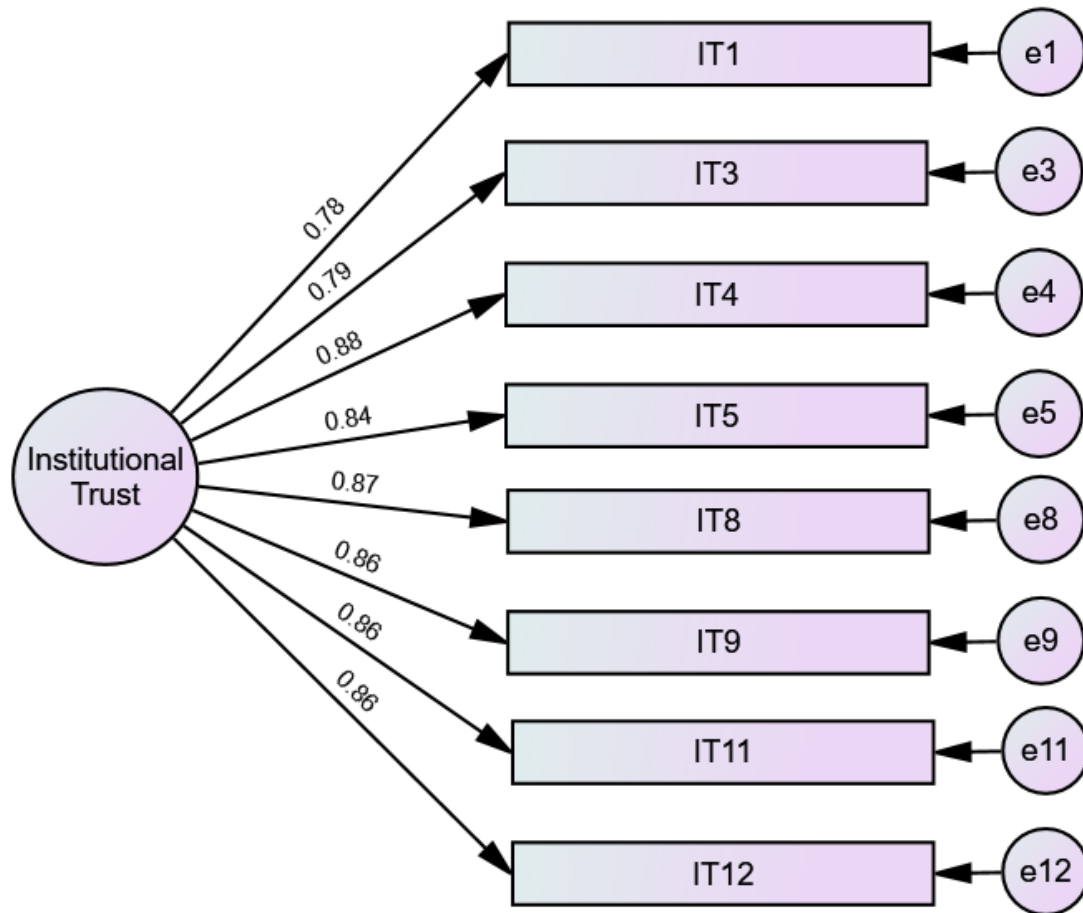


Figure 4.3 CFA for Institutional Trust

Interpersonal trust was measured based on Zimet et al.'s (1988) scale which comprises 12 items as follows: “1. In my work as a rural doctor, when I encountered problems, some people (superiors, relatives, colleagues) would appear beside me”, “2. I am able to share joys and sorrows with some people (superiors, relatives, coworkers)”, “3. My family has been able to help me in practical and concrete ways during my work as a rural doctor.”, “4. I am able to get emotional help and support from my family for my work as a rural doctor, when needed.”, “5. I work as a rural doctor and some people (superiors, relatives, colleagues) are a real source of comfort when I am in trouble”, “6. my friends can really help me during my work as a rural doctor”, “7. During my work as a rural doctor, I can rely on my friends when difficulties arise”,

“8. I can talk to my own family about the challenges of my work as a rural doctor”, “9. My friends can share with me the joys and sorrows of practicing village medicine”, “10. As a rural doctor, there are people in my life (superiors, relatives, colleagues) who care about my feelings”, “11. My family can willingly assist me in making decisions regarding my practice of village medicine.”, and “12. I can discuss with my friends the challenges of my own work as a rural doctor”.

A principal components analysis showed a valid solution ($KMO=.894$, Bartlett's $\chi^2(66)=3713.007$, $p<.001$) for three components comprising all items, having acceptable commonalities and accounting for 72.3% total variance after rotation (Varimax) but with two cases of crossloadings (“10. As a rural doctor, there are people in my life (superiors, relatives, colleagues) who care about my feelings”, “8. I can talk to my own family about the challenges of my work as a rural doctor). After removing these the principal components analysis remained valid ($KMO=.861$, Bartlett's $\chi^2(45)=2896.025$, $p<.001$) and accounts for 74.9% after rotation (Varimax). The component matrix is shown in Table 4.4.

Table 4.4 Component matrix for interpersonal trust

	1	2	3
12. I can discuss with my friends the challenges of my own work as a rural doctor.	.816	.255	.097
9. My friends can share with me the joys and sorrows of practicing village medicine	.799	.253	.224
7. During my work as a rural doctor, I can rely on my friends when difficulties arise	.779	.060	.298
6. my friends can really help me during my work as a rural doctor	.764	.238	.224
4. I am able to get emotional help and support from my family for my work as a rural doctor, when needed.	.170	.867	.257
3. My family has been able to help me in practical and concrete ways during my work as a rural doctor.	.171	.834	.284
11. My family can willingly assist me in making decisions regarding my practice of village medicine.	.422	.708	.148
1. In my work as a rural doctor, when I encountered problems, some people (superiors, relatives, colleagues) would appear beside me	.165	.225	.871
2. I am able to share joys and sorrows with some people (superiors, relatives, coworkers)	.257	.174	.834
5. I work as a rural doctor and some people (superiors, relatives, colleagues) are a real source of comfort when I am in trouble	.275	.322	.669

Note: Extraction Method: Principal Component Analysis.

Rotation Method: Varimax with Kaiser Normalization.

a. Rotation converged in 4 iterations.

The confirmatory factor analysis showed poor fit indices ($\chi^2(32)=279.673$, $p=.000$, Normed $\chi^2=8.740$; CFI=.914; TLI=.7879; PCFI=.763; RMSEA=.124 90% CI[.111; .137]; PClose=.000; SRMR=.0635) with Holter estimates indicate a poor model (Holter .05= 84; Holter .01= 97). Lagrange multipliers indicated some covariances between errors and after analyzing those cases and judging about their content overlap, three items were sequentially removed to find a valid

2nd order factor solution that has good fit ($\chi^2(13)=56.390$, $p=.000$, Normed $\chi^2=4.338$; CFI=.976; TLI=.961; PCFI=.604; RMSEA=.081 90% CI [.060; .104]; PClose=.008; SRMR=.038).

The first factor comprises three items that relate to a focus on friends' support ("6. my friends can really help me during my work as a rural doctor", "9. My friends can share with me the joys and sorrows of practicing village medicine", and "12. I can discuss with my friends the challenges of my own work as a rural doctor") which has good convergent validity (AVE=.647) as well as reliability (Cronbach alpha=.838).

The second factor comprises two items that relate to a focus on family support ("3. My family has been able to help me in practical and concrete ways during my work as a rural doctor.", and "4. I am able to get emotional help and support from my family for my work as a rural doctor, when needed.") which has also good convergent validity (AVE=.755) as well as reliability (rSB=.861).

The third factor comprises also two items that relate to a focus on leaders and coworkers support ("1. In my work as a rural doctor, when I encountered problems, some people (superiors, relatives, colleagues) would appear beside me", and "2. I am able to share joys and sorrows with some people (superiors, relatives, coworkers)") which has good convergent validity (AVE=.693) as well as reliability (rSB=.846). Treated as a 2nd order solution, there is also good convergent validity (AVE=.555) and acceptable reliability (Cronbach alpha=.73). The final solution comprises seven items and is shown in Figure 4.4. The coefficients on the path diagram of the Confirmatory Factor Analysis are Standardized Factor Loadings.

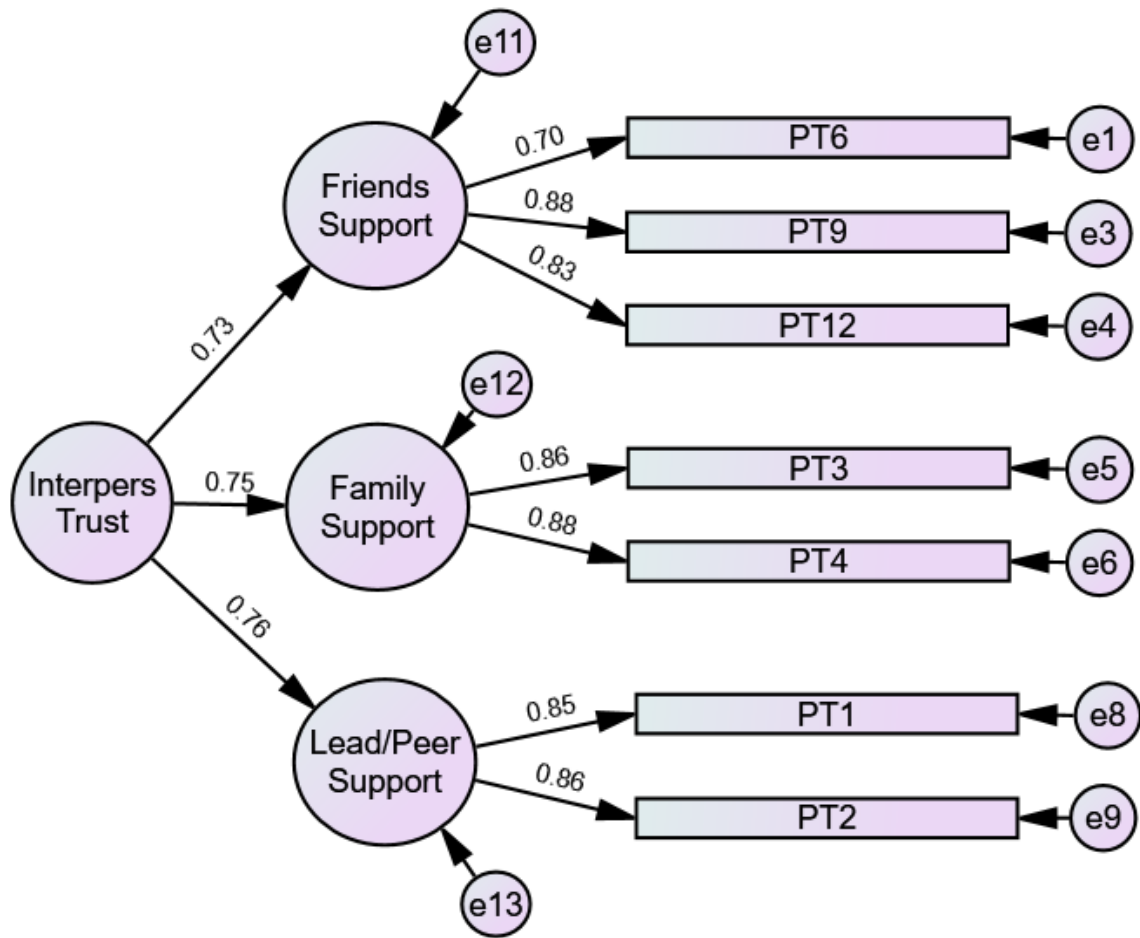


Figure 4.4 CFA for Interpersonal Trust

Self-trust was measured based on the contention that self-trust entails both self-esteem and self-efficacy (Smirnova & Owens, 2017). Therefore, based on findings from the first study, as well as recommendations from a validation study in China (Jiang et al., 2023), six items were extracted from **Rosenberg self-esteem scale** (Rosenberg, 1965) (i.e., “1. I consider myself a valuable rural doctor, at least on a basic level equal to others”; “2. overall, I think I failed as a country doctor (rev)”; “3. as a rural doctor, I am as good as most doctors”; “4. I have a positive attitude towards being a rural doctor”; “5. Overall, I am satisfied with my job as a country doctor”; “6. as a country doctor, I wish I had more respect for myself (rev)”); to which another six items from Zhang et al.’s (1995) General Self-Efficacy Scale adapted from Rosenberg’s (1965) scale to China were added (i.e., “7. If I do my best, I can solve the villagers' basic medical problems”; “8. Even if others are against me, I still have a way to get what I want”; “9. It is easy for me to stick to my ideals and achieve my goals”; “10. I am confident that I will be able to respond effectively to any unforeseen incidents regarding the health of villagers”; “11. As a rural doctor, I can face difficulties calmly because I believe in my ability to solve problems”; and “12. As a rural doctor, I am able to cope with everything that happens at work”).

A principal components analysis showed a valid solution ($KMO=.897$, Bartlett's $\chi^2(66)=2463.761$, $p<.001$) for two components comprising all items, but with two items with unacceptable commonalities and one reversed item with illogical factor loading (negative). After removing these items, the principal components analysis remained valid but with one crossloading concerning the item "5. Overall, I am satisfied with my job as a county doctor" which is also misfitted with the overall construct as it relates to satisfaction. After removing this item, the principal components analysis remained valid ($KMO=.829$, Bartlett's $\chi^2(28)=1435.542$, $p<.001$), with all items with acceptable commonalities, and accounting for 62.8% total variance after rotation (Varimax). The component matrix is shown in Table 4.5.

Table 4.5 Component matrix for self-trust

	Overcoming difficulties	Personal worth
10. I am confident that I will be able to respond effectively to any unforeseen incidents regarding the health of villagers	.816	.086
12. As a rural doctor, I am able to cope with everything that happens at work	.807	.209
8. Even if others are against me, I still have a way to get what I want	.751	-.255
11. As a rural doctor, I can face difficulties calmly because I believe in my ability to solve problems	.737	.367
9. It is easy for me to stick to my ideals and achieve my goals	.730	.231
2. Overall, I think I failed as a country doctor (rev)	-.212	.758
1. I consider myself a valuable rural doctor, at least on a basic level equal to others	.281	.721
4. I have a positive attitude towards being a rural doctor	.380	.634

Note: Extraction Method: Principal Component Analysis.

Rotation Method: Varimax with Kaiser Normalization.

a. Rotation converged in 3 iterations.

The confirmatory factor analysis for this two-factor solution showed poor fit indices ($\chi^2(19)=166.568$, $p=.000$, Normed $\chi^2=8.767$; CFI=.896; TLI=.847; PCFI=.608; RMSEA=.124 90% CI[.107; .142]; PClose=.000; SRMR=.079) with Holter estimates indicating a poor model (Holter .05= 92; Holter .01= 110). One of the items has a very low loading and Lagrange multipliers suggested one covariance between the first two items.

After analyzing those cases and judging about their content overlap, several items were discarded to find a valid single factor solution that has good fit ($\chi^2(2)=5.754$, $p=.056$, Normed $\chi^2=2.877$; CFI=.996; TLI=.987; PCFI=.332; RMSEA=.061 90% CI[.000; .122]; PClose=.293; SRMR=.014) and Holter estimates show this model is robust as regards sample size ratio (Holter .05=525; Holter .01=807).

The factor pertains to "overcoming difficulties" and comprises four items as shown in Figure 4.5. This factor has good convergent validity (AVE=.588) as well as reliability (Cronbach alpha=.841). The coefficients on the path diagram of the Confirmatory Factor Analysis are Standardized Factor Loadings.

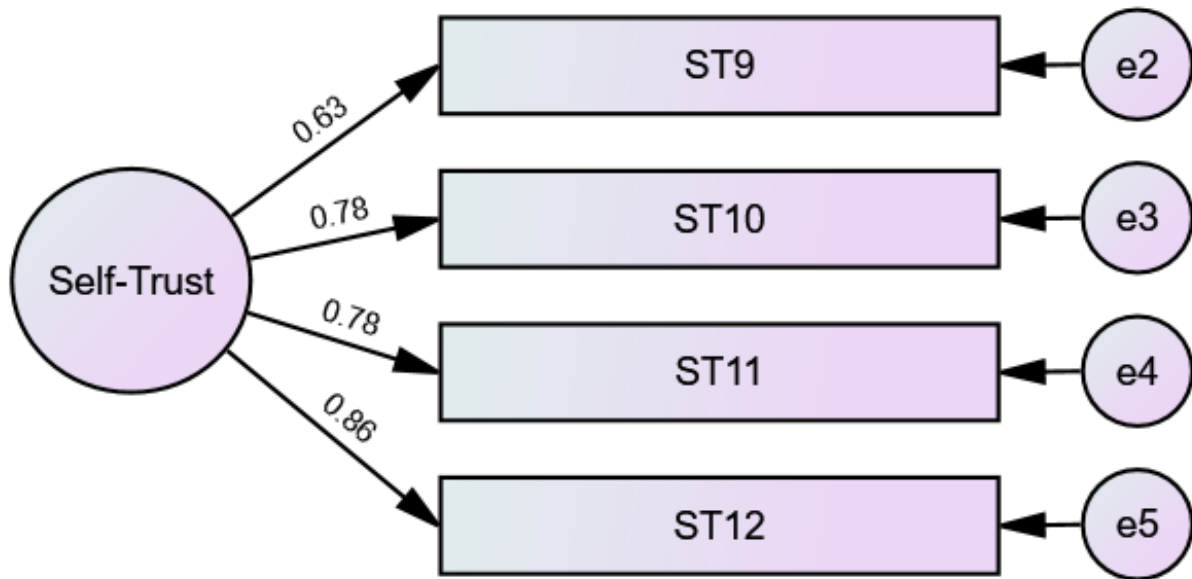


Figure 4.5 CFA for Self-trust

Job satisfaction with compensation was measured based on Spector's (1985) Job Satisfaction Scale covering important HRM with a focus on salary, benefits, and incentives. The scale comprises five items as follows: "1. I feel that I can get a fair return for my work as a rural doctor", "2. I am satisfied with my chances of increasing my income", "7. I am not satisfied with the benefits I get from practicing village medicine (reverse)", "8. As a rural doctor, I did not receive the benefits I should have received (reverse)", "9. When I excel in my work as a rural doctor, I get the rewards I deserve".

A principal components analysis showed a valid solution ($KMO=.578$, Bartlett's $\chi^2(10) 855.106$, $p<.001$) for two components comprising all items, with all commonalities above .500, and accounting for 76.1% variance after rotation (Varimax). The component matrix is shown in Table 4.6. The first component pertains to "satisfaction with salary" and comprises three items (as shown in table) with good convergent validity ($AVE=.677$) and also good reliability (Cronbach alpha=.76). The second component pertains to "satisfaction with benefits" and comprises two items, also with good convergent validity ($AVE=.855$) as well as reliability ($RSB=.872$). In the exact words, "benefits" will refer to the intangible rewards taken globally.

Table 4.6 Component matrix for satisfaction with tangible rewards

	1	2
2. I am satisfied with my chances of increasing my income	.844	.047
1. I feel that I can get a fair return for my work as a rural doctor	.843	.012
9. When I excel in my work as a rural doctor, I get the rewards I deserve	.780	.023
7. I am not satisfied with the benefits I get from practicing village medicine	.016	.942
8. As a rural doctor, I did not receive the benefits I should have received	.047	.940

Note: Extraction Method: Principal Component Analysis.

Rotation Method: Varimax with Kaiser Normalization.

a. Rotation converged in 3 iterations.

The confirmatory factor analysis for this two-factor solution showed acceptable fit indices ($\chi^2(5)=12.634$, $p=.000$, Normed $\chi^2=2.527$; CFI=.991; TLI=.982; PCFI=.496; RMSEA=.055 90% CI[.017; .094]; PClose=.356; SRMR=.015) with Holter estimates indicating a good model (Holter .05= 442; Holter .01= 602). See Figure 4.6. The coefficients on the path diagram of the Confirmatory Factor Analysis are Standardized Factor Loadings.

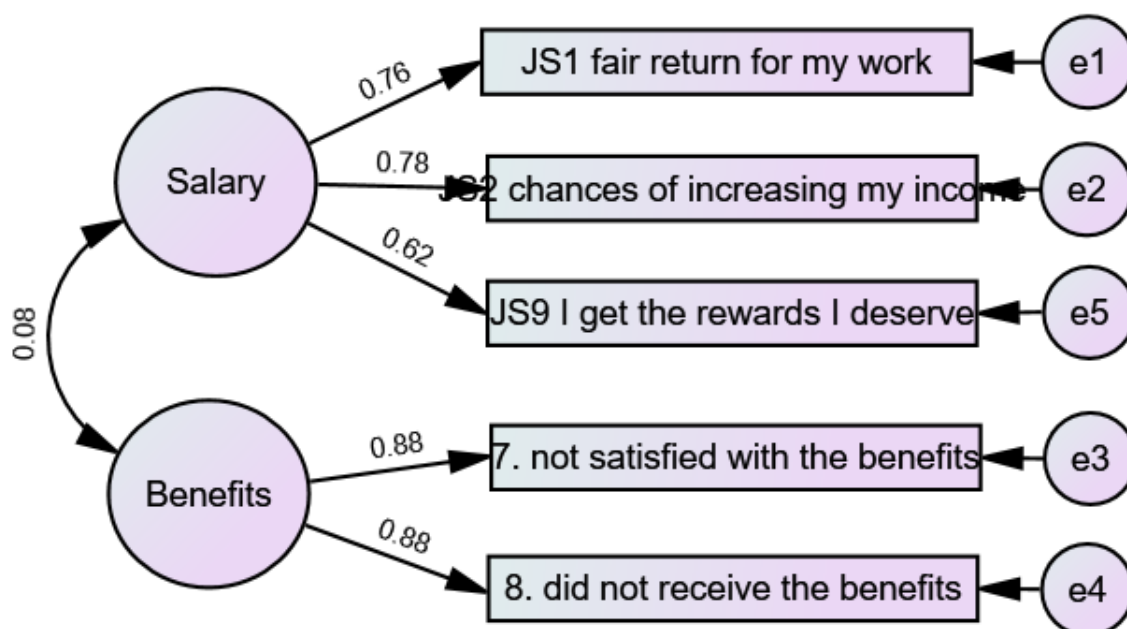


Figure 4.6 CFA for job satisfaction

Proactive work behavior was measured with Griffin et al.'s (2007) scale and was answered by the local health committee. This scale comprises six items structured into a single factor: “1. This doctor thinks of better ways to do his/her own job as a rural doctor”, “2. This doctor thinks of ways to improve his/her own practice of working as a rural doctor”, “3. This doctor changes his/her own practice of working as a rural doctor”, “4. This doctor makes suggestions to make all the rural doctors work more efficient”, “5. This doctor thinks of new or improved ways to help all the rural doctors perform better”, and “6. This doctor improves the way all the rural doctors do their jobs”.

The local health committee members were requested to answer this scale concerning each doctor allocated to a specific village. The answers were given on a 5-point Likert scale (1=Strongly disagree, 5=Strongly agree). The items were rephrased so to start as “This doctor...”

A principal components analysis showed a valid solution (KMO=.805, Bartlett's $\chi^2(15)$ 2026.126, $p<.001$) for two components comprising all items, with all commonalities above .500, and accounting for 80.9% variance after rotation (Varimax). The component matrix is shown in Table 4.7. The first component pertains to “PWB focused on system” and comprises three

items (as shown in table) with good convergent validity ($AVE=.774$) and also good reliability (Crobach's $\alpha=.914$). The second component pertains to “PWB focused on own job” and comprises three items, also with good convergent validity ($AVE=.675$) as well as reliability (Crobach's $\alpha=.832$).

Table 4.7 Component matrix for satisfaction with tangible rewards

	Focus on system	Focus on own job
5. I will think of new or improved ways to help all rural doctors work better	.920	.241
6. I will improve the way the rural doctor workforce works	.884	.245
4. I will make suggestions to make all rural doctors work more efficiently	.835	.357
2. I will think of ways to improve my own work as a rural doctor	.308	.866
1. I will do my job as a rural doctor in a better way	.157	.853
3. I will change my practice of working as a rural doctor	.371	.741

Note: Extraction Method: Principal Component Analysis.

Rotation Method: Varimax with Kaiser Normalization.

a. Rotation converged in 3 iterations.

The confirmatory factor analysis for this two-factor solution showed poor fit indices ($\chi^2(8)=77.347$, $p=.000$, Normed $\chi^2=9.668$; CFI=.996; TLI=.936; PCFI=.515; RMSEA=.131 90% CI[.105; .159]; PClose=.000; SRMR=.046) and Holter estimates also indicate a poor model (Holter .05= 102; Holter .01= 131). Based on Lagrange multipliers, this was mostly due to unacceptable covariances between errors. By removing offending items only the second factor was preserved with the three items (i.e. “1. I will do my job as a rural doctor in a better way “; “2. I will think of ways to improve my own work as a rural doctor”, “3. I will change my practice of working as a rural doctor”), which shows just identification (Hair Jr. et al., 2019). All items load significantly on the factor ($\lambda_{it1}=.703$; $\lambda_{it2}=.970$; $\lambda_{it3}=.719$) which suggests its acceptability. The factor has also convergent validity ($AVE=.650$) and is reliable (Cronbach's $\alpha=.832$). See figure 4.7.

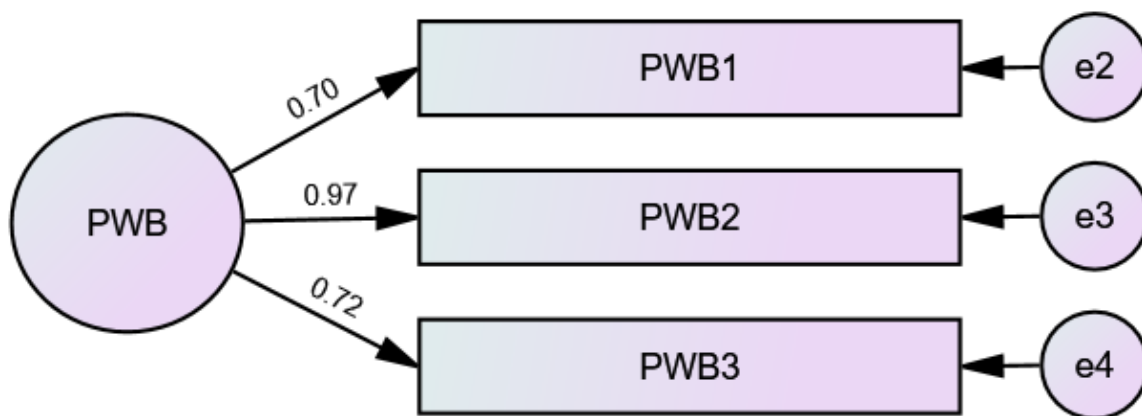


Figure 4.7 CFA for PWB

Control variables were considered, namely age (natural integer number), gender (1=Male;

2=Female), education (1=Junior high school or below; 2=high school; 3=secondary vocational; 4=junior college; 5=university bachelor; 6=graduate student or above), marital status (1=Single; 2=Married; 3=Divorced; 4=Widowed), professional tenure (1=<1 year; 2=1 to 2.9 years; 3=3 to 4.9 years; 4=5 to 9.9 years; 5=10 or more years), license (1=Yes, 2=No), establishment (1=Has no establishment; 2=Has an establishment), family as co-workers (1=Yes, 2=No), born locally (1=Yes, 2=No), spouse works locally (1=Yes, 2=No), average monthly income (1=<3000 RMB; 2=3000-4999; 3=5000-7999; 4=8000-9999; 5=10 000 or more). See Table 4.8.

Table 4.8 Measurement model comparison

Model	χ^2/df	CFI	TLI	RMSEA	CI90	PCLOSE	SRMR	AIC	Holter .05/.01	$\Delta\chi^2(\Delta df)$ Baseline	ΔCFI
Baseline model χ^2 594.759 (309)	1.925	.966	.961	.043	[.038;.048]	.989	.0479	756.759	298/314	-	-
Model A χ^2 674.043 (316) (trustsfused)	2.133	.957	.953	.047	[.042;.052]	.801	.0688	852.043	269/283	79.284(7)***	0.009
Model B χ^2 648.012 (313) (interp+insti)	2.070	.960	.955	.046	[.041;.051]	.899	.0668	832.012	277/291	53.253(4)***	0.006
Model C χ^2 629.477 (313) (interp+self)	2.011	.962	.958	.045	[.040;.050]	.955	.0573	813.477	285/300	34.718 (4)***	0.004
Model D χ^2 1396.975 (314) (instit+self)	4.449	.871	.856	.083	[.078;.087]	.000	.0929	1578.975	129/136	802.216 (5)***	0.095
Model E χ^2 1078.227 (313) (satisfsfused)	3.445	.909	.898	.070	[.065;.074]	.000	.0696	1262.227	167/175	483.468 (4)***	0.057
Model F χ^2 1142.651 (318) (satfus+trustfus)	3.593	.902	.891	.072	[.067;.076]	.000	.0838	1316.651	160/168	547.892(9)***	0.064
Model G χ^2 1385.672 (317) (satfPWBfused)	4.371	.873	.859	.082	[.077;.086]	.000	.0853	1516.672	131/138	790.913(8)***	0.093
Model H single factor χ^2 1495.660 (320)	4.674	.860	.846	.085	[.081;.090]	.000	.1155	1165.660	123/129	900.901(11)***	0.106

Note: Model A: Baseline + all trusts fused; Model B: Baseline + Interpersonal & Institutional trusts fused; Model C: Baseline + Interpersonal & Self trusts fused; Model D: Baseline + Institutional & Self trusts fused; Model E: Baseline + Job satisfactions fused; Model F: Baseline + Satisfactions and Trusts fused; Model G: Baseline + Satisfactions & PWB fused; Model H: Single factor model; *** $p < .001$

4.2.5 Aggregability

Conceptually the trust variables are placed at the group level, namely institutional trust, interpersonal trust, self-trust. Both compensation satisfaction and proactive work behavior are conceived at the individual level.

Aggregability tests showed that within-group agreement was strong for institutional trust ($Rwg=.91$), interpersonal trust ($Rwg=.97$), and for self-trust ($Rwg=.92$). Likewise grouping effects were found for these variables as indicated by ICC1 that fall within the .05 - .20 range (DeShon et al., 2004), namely institutional trust ($ICC1=.05$), Interpersonal trust ($ICC1=.10$), and Self-trust ($ICC1=.10$). However, low ICC2 (institutional trust $ICC2=.30$; Interpersonal trust $ICC2=.58$; Self-trust $ICC2=.47$) indicate difficulties in detecting relationships for these variables between groups. As per the individual level variables, compensation satisfaction does have indication that it should not be aggregated at higher level both for the salary dimension ($RWG=.78$; $ICC1=.04$; $ICC2=.24$) and the incentives dimension ($RWG=.66$; $ICC1=.07$; $ICC2=.38$).

The average group size is relatively small ($n=8.1$) although the sample does have contrasting groups as regards size ($SD=7.5$, minimum 3 and up to 49). This has been recognized as a cause for low ICC2 (Bliese, 2000). Because ICC2 formula is sensitive to group size it will decrease with smaller groups and there are many published research that proceed with the aggregation despite a low ICC2 in such circumstances (Tang & Li, 2022). In addition, C. C. Chen et al. (2014) conducted an ANOVA between groups to identify if the means do not really differ at between-group level as indicated by the low ICC2. We have done so and found a significant statistic ($F(61, 443)=1.408$, $p=.029$) which offers divergent indication of ICC2 and encourages aggregation. When facing this ambiguity as regards to the appropriate level of the three types of trust (RWG , $ICC1$ and ANOVA indicates it should be aggregated at group level, $ICC2$ states otherwise), we considered West et al.'s (2011) reasoning, that low ICC2 values are not a problem when conducting doubly latent MSEM because it controls both the sampling error and the measurement error. This has been also accepted in publication (Khajavy et al., 2018). Therefore, considering the theoretical framework that places trust as a construct at the collective level, we opted to keep its measurement at the group level.

4.3 Results

The results section will start by showing the descriptive indicators of the variables, i.e. the mean and standard deviation for all the variables, control variables included (whenever applicable) as well as the bivariate statistics. Considering the different nature of variables (some as nominal, some ordinal, and some are interval) the bivariate statistics are not merely correlations but also other association statistics that fit the level of measurement of the variables.

Once the descriptive and bivariate statistics are reported, the section will proceed by showing findings concerning each hypothesis.

Participants mostly report medium-high levels of trust with interpersonal trust showing the highest level ($M=3.97$, $SD=0.14$) followed ex-aequo by institutional trust ($M=3.82$, $SD=0.27$) and self-trust ($M=3.82$, $SD=0.25$). They are moderately satisfied with the salary ($M=3.60$, $SD=0.72$) but modestly satisfied with the incentives ($M=2.89$, $SD=0.95$). Their level of proactive work behavior as characterized by the health local committees is moderately-high ($M=4.01$, $SD=.050$).

The variables that constitute the conceptual model are not frequently associated with any of the sociodemographic or professional variables measured. Age however, is correlated with all three types of trust albeit with modest magnitude estimates (from .089 to .115, $p<.05$). The strongest bivariate correlation is found between professional tenure and self-trust ($r=.248$, $p<.01$) which can indicate a positive cumulative effect of experience in how much one trust him or herself. The other association that deserves attention is a positive $\eta=.188$ ($p<.05$). The patterns of association between the three types of trust and satisfaction with both salary and incentives, show that the strongest associations are found with satisfaction with salary. These as visible in correlations ranging from .146 ($p<.01$) with interpersonal trust and .200 ($p<.01$) with institutional trust. With satisfaction with incentives, only institutional trust is significantly associated ($r=.097$, $p<.05$). Still regarding trust, all the three types are significantly and positively correlated with proactive work behaviors. The strongest association is found for self-trust ($r=.244$, $p<.01$), following by interpersonal trust ($r=.217$, $p<.01$) and institutional trust ($r=.179$, $p<.01$). Lastly, only satisfaction with salary shows a significant association with proactive work behavior ($r=.373$, $p<.01$) as satisfaction with incentives is fundamentally null ($r=-.010$, $p=.831$). These patterns of association encourage the conceptual model. See Table 4.9.

Table 4.9 Means, standard deviation and bivariate statistics

	Means	SD	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1. Tenure	1.54	0.69	--													
2. Gender	86.3%M	-	-.100*	--												
3. Age	49.91	10.01	-.119**	.375	--											
4. Edu	3.35	0.68	.167**	.077	-.428**	--										
5. License	1.24	0.42	-.019	.016	.420**	.084	--									
6. Estab	1.09	0.29	.039	.017	.537**	.180**	.006	--								
7. Family	1.64	0.47	-.120**	-.122**	.335	.155*	.010	.016	--							
8. Born	1.07	0.26	.036	.203**	.495**	.097	.093*	.139**	.079	--						
9. Tenure	4.55	0.98	-.001	.220**	.065	.008	.218**	.220	.133	.278**	--					
10. InsT8it	3.82	0.27	-.012	.226	.089*	-.042	.267	.204	.243	.208	.046	--				
11. PerT7it	3.97	0.14	.031	.195	.125**	-.068	.141	.214	.177	.166	.107*	.500**	--			
12. SelfT4it	3.82	0.25	-.006	.189	.115**	-.055	.119	.097	.168	.248**	.014	.550**	.526**	--		
13. JSsalar	3.60	0.72	.097*	.173	.040	.008	.135	.175	.104	.115	-.089*	.200**	.146**	.178**	--	
14. JSincent	2.89	0.95	.020	.152	.005	.000	.113	.120	.126	.164	-.007	.097*	.021	-.006	.084	--
15.PWBjo3it	4.01	0.50	-.053	.164	.007	.018	.188*	.114	.140	.162	-.001	.179**	.217**	.244**	.373**	-.010

Note: * $p < .05$; ** $p < .01$; Spearman correlations reported for non-nominal variables, Eta (η) and phi (ϕ) coefficients reported for nominal by interval and nominal by nominal only, respectively. Trust dimensions are measured at the team level.

4.3.1 Hypotheses testing

As showed in Table 4.10, findings indicate that job satisfaction is divergently related with the two dimensions of compensation. It shows a positive association with satisfaction with salary ($B=.399$; $p=.001$ 95% CI [0.318 ; 0.472]) but it is not associated with satisfaction with benefits ($B=-.037$, $p=.168$ 95% CI [-0.116 ; 0.035]). This **supports H1a** but it **rejects H1b**, and therefore we can state that it offers **partial support to H1**.

As regards the second hypothesis, that posited trust would be positively associated with proactive work behavior, findings distinguish between the three types of trust. Institutional trust is not directly related to proactive work behavior ($B=-.132$, $p=.280$ 95% CI [-0.469 ; 0.232]) which rejects H2a. Likewise, the estimate for the direct cross-level effect between interpersonal trust and proactive work behavior is also not significant ($b=.424$, $p=.043$ 95% CI [-0.047 ; 0.797]) which also rejects H2b. Conversely, the estimate between self-trust and proactive work behavior shows a significant positive cross-level effect ($b=.563$, $p=.0001$ 95% CI [0.163 ; 0.814]) which supports H2c. Overall, the **second hypothesis is not fully supported by our findings**.

The third hypothesis posited that trust would be positively associated with satisfaction with salary and with benefits. Findings show that institutional trust is indeed positively associated with satisfaction with salary ($B=0.674$, $p=0.005$ 95% CI [0.140 ; 0.912]) which support H3a' but the other two cross-level effects are not significant, which reject both H3b' and H3c'. Therefore, **only H3a' is supported by our findings**. As regards benefits, findings show that institutional trust is positively associated with satisfaction with benefits ($B=0.462$, $p=0.020$ 95% CI [0.068 ; 0.760]) but that interpersonal trust is not ($B=-0.030$, $p=0.455$ 95% CI [-0.463 ; 0.553]) and self-trust is significantly associated but with a negative coefficient ($B=-0.456$, $p=0.020$ 95% CI [-0.763 ; -0.014]). **This supports H3a'' and rejects both H3b'' and H3c''**.

The fourth hypotheses establish indirect cross-level effects from each of the types of trust and proactive work behavior via either satisfaction with salary or satisfaction with benefits. Among the six sub-hypotheses composed by crossing the three types of trust with the two dimensions of satisfaction with compensation only the indirect effect that links institutional trust to proactive work behavior via satisfaction with salary is statistically significant (unstandardized estimate = 0.113 , $p=0.005$ 95% CI [0.031 ; 0.200]). **This supports only H4a' and rejects the remaining ones**.

Table 4.10 Estimates for within and between level direct and indirect effects

	JSat Salary					JSat Benefits					PWB				
	β	SD	p-value	95%CI	HH	β	SD	p-value	95%CI	HH	β	SD	p-value	95%CI	HH
Control variables															
Income	0.078	0.044	0.038	[-0.010; 0.160]		0.037	0.046	0.213	[-0.051; 0.130]		-0.077	0.042	0.032	[-0.154; 0.006]	
Gender	-0.002	0.044	0.468	[-0.087; 0.090]		-0.042	0.047	0.180	[-0.138; 0.044]		0.097*	0.041	0.013	[0.010; 0.172]	
Age	0.040	0.051	0.213	[-0.055; 0.136]		-0.044	0.050	0.200	[-0.149; 0.051]		-0.054	0.046	0.112	[-0.159; 0.029]	
Education	-0.003	0.049	0.465	[-0.101; 0.095]		-0.021	0.049	0.357	[-0.108; 0.082]		0.039	0.043	0.198	[-0.045; 0.115]	
License	0.015	0.045	0.393	[-0.077; 0.090]		-0.008	0.046	0.400	[-0.106; 0.086]		-0.043	0.040	0.155	[-0.112; 0.042]	
Establishment	0.130*	0.043	0.002	[0.045; 0.213]		0.056	0.047	0.110	[-0.035; 0.156]		-0.014	0.044	0.398	[-0.103; 0.068]	
Family	-0.011	0.044	0.400	[-0.096; 0.077]		-0.06	0.042	0.062	[-0.145; 0.016]		0.055	0.041	0.083	[-0.026; 0.134]	
Born	0.084	0.048	0.043	[-0.021; 0.177]		0.038	0.048	0.225	[-0.053; 0.131]		-0.014	0.043	0.380	[-0.099; 0.080]	
Prof. Tenure	-0.072	0.048	0.083	[-0.159; 0.027]		0.013	0.045	0.352	[-0.076; 0.098]		0.035	0.043	0.235	[-0.056; 0.108]	
Within effects															
JSat Salary											0.399*	0.039	0.001	[0.318; 0.472]	H1a
JSat Benefits											-0.037	0.039	0.168	[- 0.116;0.035]	H1b
Cross-level direct effects															
Instit. Trust	0.674*	0.195	0.005	[0.140; 0.912]	H3a'	0.462*	0.19	0.020	[0.068; 0.760]	H3a''	-0.132	0.192	0.280	[-0.469; 0.232]	H2a
Interp. Trust	0.122	0.233	0.312	[-0.366; 0.501]	H3b'	-0.030	0.248	0.455	[-0.463; 0.553]	H3b''	0.424	0.204	0.043	[-0.047; 0.797]	H2b

Fostering proactive work behavior in rural doctors: a multilevel, multidimensional trust approach

Self-Trust	0.398	0.217	0.055	[-0.128; 0.730]	H3c'	-	0.456*	0.202	0.020	[-0.763; -0.014]	H3c''	0.563*	0.160	0.001	[0.163; 0.814]	H2c
Cross-level indirect effects												B	SD	P-value	95%CI	
IT-JSS-PWB												0.113*	0.043	0.005	[0.031; 0.200]	H4a'
PT-JSS-PWB												0.047	0.089	0.312	[- 0.138;0.209]	H4b'
ST-JSS-PWB												0.070	0.044	0.055	[- 0.026;0.158]	H4c'
IT-JSB-PWB												-0.007	0.011	0.168	[- 0.035;0.009]	H4a''
PT-JSB-PWB												0.000	0.014	0.477	[- 0.031;0.028]	H4b''
ST-JSB-PWB												0.007	0.013	0.183	[- 0.012;0.040]	H4c''
R2	70.6%						53.9%					90%				

4.4 Discussion and conclusion (Study 2)

This study was designed to test whether trust at three socio-ecological levels, institutional (macro), interpersonal (meso), and self (micro), predicts rural doctors' PWB, and whether satisfaction with compensation (salary and benefits) mediates trust's effects on PWB.

The nature of the constructs advised a multilevel design, which was reflected in the conceptual model because trust, due to its collective nature, was conceived at town level and satisfaction with compensation as well as PWB at the individual rural doctor level.

The conceptual model addressed a 2-1-1 set of indirect effects positing four main hypotheses: satisfaction with compensation positively predicts PWB (H1); trust at the three levels positively predicts PWB (H2); trust predicts satisfaction with salary and benefits (H3); and satisfaction with compensation mediates trust → PWB via parallel salary and benefits pathways (H4).

The model received global support, and findings highlighted not only the appropriateness of having adopted these constructs but also their importance to explain PWB in rural doctors.

The first finding worth mentioning pertains to H1x where satisfaction with salary is seemingly more important than satisfaction with benefits in accounting for PWB. This is understandable because salary establishes the guarantee of quality of life as regards assuring all life monetary responsibilities while benefits may add to it but not in the same extent. Drawing on Equity theory (Adams, 1965) salary is easily compared with others, and also other professions, and by considering the job demands such as workload, individuals will promptly judge upon its fairness. Therefore, within compensation satisfaction, salary satisfaction is an obvious key intervening variable. The second findings worth mentioning concerns the direct effect observed between self-trust and PWB that was not observed from neither institutional nor interpersonal trust. We reason that self-trust is more closely related with intrinsic motivation than institutional or interpersonal trust because these two rely on third parties as a source of judgment. Self-trust also has this component as regards how much one trusts others will recognize his or her efforts and performance, as a form of social prestige, but having confidence in one's own professional ability may be in itself a sufficient reward that enacts the willingness to go further and demonstrate PWB. However, findings do not lower the importance of institutional trust in fostering PWB, quite the opposite and found in testing the third hypothesis. Findings show institutional trust is a strong predictor of compensation satisfaction, both salary and benefits which was reinforced with significant cross-level indirect effects originating from

institutional trust on PWB via salary satisfaction in support of hypothesis 4. Interestingly, interpersonal trust seems not to play a role in this model as it was found not to explain PWB and also not to explain compensation satisfaction. This can be due to the fact that self-trust incorporates one item that relates to receiving recognition by others which is a possibility not rejected by the significant and strong correlation coefficient between interpersonal trust and self-trust. Still, as a general conclusion, findings do support the contention that both institutional and self-trust are critical variables to leverage PWB either directly or indirectly through salary satisfaction. An interesting interpretation is that by having found institutional trust to positively predict salary satisfaction, and knowing that salaries may vary a bit but not overly, one can conclude that the subjective perception of the fairness of the salary stems from how much one trusts institutions.

This conceptual model goes further than extant research by dealing with deeper level constructs and adding to theory the focus on PWB and the multilevel nature of trust relationships with it. Still, findings must be interpreted keeping some limitations in mind. The most obvious is the response rate, that despite the large sample size, may keep out of the study some specific profile of rural doctors, e.g., those that are less satisfied may see the study as a means to voice their satisfaction. Likewise, working with novel measures may add value but it may also add measurement errors or some conceptual limitations that will only be understood in future research. Future studies may provide complementary research designs to ascertain our findings (e.g., quasi-experimental studies) and further explore other variables that have not here been included in the model.

Eventually, the aggregation of constructs to the collective level may be questioned, but even if a statistical same-level model could yield similar results, the interpretation of these results would differ. The adoption of a two-level structure reflects the true level of the conceptual relationships, and aggregability tests empirically support this option. We think the best level of trust as a human phenomenon is shared meaning at the collective level. This is why it is such a powerful driver that should be targeted by policies. Also, salary is the guaranteed compensation upon which rural doctors have to rely on a daily basis to sustain themselves. Therefore, it is more sensitive to doctors.

A more detailed discussion of these findings, its limitations, and avenues for future studies as well as contribution to both theory, and policy makers will be provided in the general discussion below.

Chapter 5: General Discussion and Conclusion

This research comprised two studies that were intended to firstly gain awareness of the professional and personal realities of rural doctors in China and understand which key constructs play a role in explaining their behavior. The first study, of a qualitative nature, was based on interviews with rural doctors, their managers, villagers, and medical students so to understand their current perceptions about the profession and working conditions. Based on this, a focus on trust was adopted as the leading construct that builds the system and eventually explains important outcomes such as PWB. To test this, the second study of a quantitative nature, put together a large sample that participated in a two-time lagged data collection to test the mediation of compensation satisfaction in the relationship between town-level three types of trust and individual-level PWB. These studies and their findings and implications will be discussed below.

Study 1 was designed to understand the current working life and subjective perceptions rural doctors have about their professional activity. Based on current literature and field reality, the study focused on rural doctors perceptions concerning working conditions (e.g. workload and job stability, facilities), compensation, training and development opportunities, and professional collaboration and job satisfaction together with their behaviors in reaction to all of these.

Coding allowed us to understand the overall perceptions and subjective evaluations that rural doctors hold about their professional life but, at a deeper level, coding highlighted trust as a key construct that was expressed towards the institutions the other people (interpersonal) and oneself (self-trust). These types of trust mirrored Zastrow et al.'s (2018) social ecosystem theory framework, which is comprised of three tier, namely macro level, meso level, and micro level. The types of trust target different actors within each level. At the macro level, three targets emerged: the healthcare system, the policies and institutions, and the professional norms. At the meso level, the interpersonal trust is voiced considering the patients, the colleagues, and the hierarchy. Lastly, at the micro level, self trust comprehends both trust in one's professional competence, and trust on the value recognition one will receive.

Another deep-level key construct that was reflected in the coding, was proactive work behavior. This is observable when the individuals go beyond the mere completion of tasks and

take the initiative to address challenges and exceed job requirements instead of waiting passively to receive instructions or simply to have someone else solving such issues to improve healthcare quality. Proactive work behavior is a valuable asset that is acknowledged in literature as fostering work performance and career success (Parker et al., 2019), but also innovation, team performance, entrepreneurship (Crant & Bateman, 2000), but also work meaningfulness (Frese & Fay, 2001).

As expected, rural doctors reported a general perception that compensation levels, and financial subsidies fall short of their desires. There were concerns about the need for further adjustments in subsidies according to regional differences that relate to population size, standard work conditions that lead to higher workloads. There were also concerns that some restrictions in procuring drugs may hamper their effectiveness in the same vein that insurance under-coverage does. These challenges are in line with the findings of Liu et al. (2019) that rural health care workers have stronger desire to relocate or leave an organization to find a better job with decreasing of job satisfaction.

Conversely, they reported social closeness and cohesion as an existing factor that positively contributes to medical effectiveness, which clearly highlighted the role trust plays in these settings. Subsequent coding shows that institutional trust is more strongly felt as trust in policies and identifying with system, followed by trust in the healthcare system, and lastly, trust in the professional norms.

Findings also show that interpersonal trust is mostly felt in the dyadic relationship with hierarchical superiors, followed by trust in colleagues, and trust in patients. The patients, however, do have a focus on their trust in the doctor. This goes in line with Leader-member exchange (LMX) theory (Ilies et al., 2007), that LMX leads to better task performance. It also underscores the importance of a strong level of trust in the doctor-patient relationship in line with most literature that has addressed this topic (Mechanic & Meyer, 2000; Thom et al., 2011).

Self-trust was not such an obvious category, but findings do highlight its role as regards rural doctors and their managers' trust in their own professional ability, which is followed, at a great distance, by their focus on the trust they have in their value identity, which expresses their prestige, and how much they receive recognition and valuing by meaningful others due to their profession.

As for the main conclusions from this study, our findings are valuable for understanding when a given policy or practice (e.g. compensation levels and criteria) may be effective not only in the short term but mostly in the long term. We contend that long term effectiveness requires positive effects upon institutional, interpersonal and self-trust and likewise that PWB

is a central outcome that helps improving the effectiveness of the overall healthcare system.

Based on these findings, we designed study 2 so to consider the multidimensional trust and proactive work behavior in rural doctors as key constructs to better grasp the realities in the field and provide conceptual models that target constructs at a deeper level than the commonly measured ones such as job satisfaction.

In line with conclusions from the first study, **study 2** tested a multi-level conceptual model that was investigated with an empirical option of collecting data in a time-lagged and multi-source manner. This empirical design decisions were made to address concerns about common-method bias while acknowledging the true level of trust as a collective construct. Thus, trust was treated, after aggregation measures support that empirically, as a town-level measure covering the three socio-ecological levels, institutional (macro), interpersonal (meso), and self (micro), predicts rural doctors' PWB, and whether satisfaction with compensation (salary and benefits) both predicts PWB and mediates trust's effects on PWB. The four hypotheses comprehended in this 2-1-1 model split into subhypotheses to reflect the three types of trust and the two types of compensation satisfaction.

As stated, findings give broad support to the model. Satisfaction with compensation positively predicted PWB (H1), with salary typically stronger than benefits (H1a, H1b). Trust at institutional, interpersonal, and self levels positively predicted PWB (H2; H2a through H2c), though self-trust effects were smaller. Trust also predicted satisfaction with salary and benefits (H3; H3a–H3c), again with institutional and interpersonal trust showing stronger associations than self-trust. Finally, compensation satisfaction partially mediated the trust → PWB links (H4); indirect effects through salary were generally stronger than through benefits, while institutional and interpersonal trust retained direct effects on PWB.

From our findings, satisfaction with compensation predicts PWB (H1/H1a/H1b). We found positive associations between compensation satisfaction and PWB, with salary showing greater influence than benefits. This fits Social Exchange and Equity theories: perceived fairness and adequate pay motivate discretionary, future-oriented behaviors. Benefits matter too but are typically less salient for immediate reciprocity. The support given to H2 aligns with published research suggesting that institutional trust may be effective because it reduces uncertainty and signals fair systems, while interpersonal trust will most likely foster psychological safety and information sharing (X. Zhang et al., 2024), both enabling PWB. Self-trust closely relates with self-efficacy, supporting persistence but less directly driving role-breadth proactivity in constrained settings.

As regards the role of compensation satisfaction, institutional and interpersonal trust were

clearly linked to higher satisfaction with salary and benefits; self-trust showed smaller positive links, more often with benefits. The pattern echoes the research result on relationship between procedural justice and pay-transparency (Zhao et al., 2024), when organizations and supervisors are trusted, people view pay systems as fair and acceptable. Moreover, compensation satisfaction was posited as a mediator between trust and PWB (H4/H4a–H4c). Findings showed such mediation exists but that it is partial: satisfaction with compensation explained part of the effect of trust on PWB, especially via salary, while direct trust → PWB paths remained. This suggests two complementary paths: an evaluative-exchange route (trust → perceived fairness/satisfaction → reciprocity) and a safety-enablement route (trust → reduced risk/greater psychological safety → PWB).

Contributions to theory

Findings from both studies offer relevant contributions to the field as research on rural doctors in China does not highlight these fundamental dimensions of three-tier trust and proactive work behavior. By integrating institutional, interpersonal, and self trust in a multilevel model of PWB and by clarifying compensation satisfaction as a mediating exchange mechanism this research contributes to advancing theory. It also offers a novel institutional trust scale and an adaptation of interpersonal trust as work-focused social support.

Findings indicate that improving institutional reliability, leader and peer relationships, and compensation design, especially salary fairness, can together promote the valuable PWB among rural doctors in China. Therefore, trust is the central construct in explaining and governing the rural doctor healthcare system.

Giving trust a central and critical role aligns with literature that has placed it as a central feature of societies at all levels (Varga et al., 2025). Findings provide evidence that the policies and practices concerning rural doctors professional conditions, and the overall healthcare system can be evaluated based on this proxy of trust as their effectiveness must pass through fostering trust in the system actors, such as doctors and patients. Without such trust, compliance will not guarantee that the limitations of policies and resources will be rightfully addressed by everyone.

Contributions to practice and recommendations

For policymakers, the study suggests they should strengthen institutional trust through timely, transparent pay administration and predictable resource delivery. Managers should cultivate interpersonal trust via fair leadership, peer routines (case review, consultation), and recognition of initiative. Compensation policies should prioritize salary adequacy and visible, credible criteria, supplemented by meaningful benefits (resources support, housing, childcare).

Training and mastery experiences can build self-trust, complementing structural and relational interventions.

There are four main recommendations for practice specifically design to strengthening institutional trust (improving policy systems and resource supply); Interpersonal trust (Strengthening collaboration and communication networks), Self-Trust (Enhancing professional competence and occupational identity), and integrating them all to build a Long-term mechanism driven by trust.

As per ***strengthening institutional trust***, practitioners at policy level may benefit from a focus on improving policy systems and resource supply. Namely, this research has showed that institutional trust is one of the core factors influencing PWB of rural doctors. Currently, rural doctors level of trust in the medical system, policy systems, and professional norms still have room for substantial improvement. We reason this relates to low salary levels, delayed subsidy distribution, restrictions on drug procurement, and ambiguous career development paths as reported in the first study and reinforced by findings in the second study. These issues directly undermine the work enthusiasm of rural doctors and even lead some to maintain their livelihood through part-time jobs, diverting their professional service focus. Therefore, the following policy suggestions are proposed:

First, optimize the salary and subsidy mechanism, establish a dynamic salary adjustment system to ensure that the income of rural doctors grows in line with the local economic development level. Differentiated subsidy standards should be formulated based on the scale of the service population and the intensity of work to avoid unfair distribution caused by a one-size-fits-all approach. At the same time, the timeliness of subsidy distribution should be strictly implemented to reduce delays. Second, improve the supply of drugs and equipment, expand the coverage of the essential drug list, especially for chronic disease management drugs and commonly used drugs by villagers, and simplify the drug procurement approval process. Strengthen the infrastructure construction of village clinics, equip them with necessary medical equipment and information tools, and enhance service capabilities. Third, clarify career development paths, establish a professional title promotion channel and qualification certification system for rural doctors, provide regular training and further education opportunities, and enhance their professional capabilities. Explore the inclusion of outstanding rural doctors in the staffing of township health centers to solve identity and security issues and reduce concerns about career risks.

To build interpersonal trust we suggest a focus on strengthening collaboration and communication networks. Namely, because our findings indicates that the trust relationships

between rural doctors and patients, colleagues, and higher-level managers significantly influence their PWB. It is evident that insufficient trust between doctors and patients would reduce villagers' willingness to seek medical treatment, while the lack of support from higher-ups intensifies the isolation felt by rural doctors. Villagers place more emphasis on doctor-patient trust, while rural doctors rely more on trust from their superiors, reflecting the differences in the demands of different stakeholders. Therefore, the following countermeasures and suggestions are proposed:

First, deepen the doctor-patient interaction mechanism. Encourage rural doctors to strengthen their connection with villagers through family contract services and regular health follow-ups, enhancing the accessibility and continuity of services. Utilize community activities (such as health lectures and free clinics) to increase villagers' trust in rural doctors. Second, enhance team collaboration and support from higher-ups. Establish a linkage mechanism between rural doctors and township health centers and county-level hospitals to promote technical assistance and resource sharing. Higher-level management departments should regularly conduct performance feedback and psychological counseling, reduce assessment pressure, and increase care and recognition for rural doctors. Third, build a platform for peer professional exchange. Promote the sharing of experiences and mutual assistance among rural doctors through online forums and regional exchange meetings, forming a supportive professional network to alleviate their work pressure.

Moreover, *to cultivate self-trust* we recommend enhancing professional competence and occupational identity. One must consider that self-trust serves as the source of intrinsic motivation for rural doctors, reflecting their inner drive and confidence. Interview data indicates that rural doctors with high self-trust are more likely to be motivated to pursue professional development and personal growth, such as proactively learning new knowledge and improving their diagnostic and treatment skills. They are also more likely to maintain a positive attitude and take action when facing challenges and difficulties. In contrast, rural doctors with low self-trust, due to shortcomings in professional competence and value recognition or a lack of skills and a sense of professional value, are prone to experiencing job burnout and find it difficult to actively engage in their work. Generally, rural medical and health institutions can collaborate with medical colleges and tertiary hospitals to design training courses specifically for rural doctors, focusing on strengthening their skills in common disease diagnosis and treatment, public health services, and information technology. Implement a "learning through examination" mechanism, linking training outcomes with professional title promotion. Through media publicity and recognition of exemplary cases, shape the social image of rural doctors as

"health gatekeepers" and enhance their sense of professional honor. Encourage villagers to participate in evaluations and incorporate satisfaction into the assessment system to strengthen social recognition of rural doctors. Additionally, formulate special support policies for young rural doctors (such as housing subsidies and educational advancement assistance) to attract and retain medical graduates in rural areas. Establish a "senior mentoring junior" mechanism to pass on experience and alleviate generational conflicts.

From findings of the second study, we learned that self-trust was also the only dimension to directly exert an effect upon PWB without the need to go through compensation satisfaction. This is very informative because, when facing resource scarcity that may delay the improvement of salary or other material work conditions, self-trust is the most reliable anchor that will preserve the necessary PWB, which is even more critical when resources are in need. One must keep in mind that self-trust has two indicators: confidence in one's own professional ability, and the confidence that others will recognize one's value, which translates into social prestige. Through these two indicators, a sense of intrinsic motivation can be fostered, which is immune to compensation or any other resource scarcity dissatisfaction.

Lastly, to build a long-term mechanism driven by trust one should consider the three dimensions of trust because institutional, interpersonal relationships and self-trust do not exist in isolation but are interwoven and dynamically influential systems. The strengthening of policy support (institutional trust) can enhance the professional security of rural doctors, thereby increasing their initiative in serving villagers (interpersonal trust). The improvement of professional capabilities (self-trust) can in turn boost the confidence of rural doctors in policies. Therefore, efforts should be made in a coordinated manner from multiple dimensions to establish a long-term mechanism. Departments such as health and wellness, finance, and human resources and social security jointly formulate policies and establish cross-departmental collaboration mechanisms to ensure the coordination of resource input, salary security, and career development policies. Regularly conduct policy effect evaluations and promptly adjust unreasonable provisions would also be beneficial. At the same time, promoting digital governance, utilizing big data and artificial intelligence technologies may optimize the processes of subsidy distribution, drug dispensing and performance assessment, thus reducing human intervention, and enhancing the transparency and fairness of policy implementation. This does not mean that AI should govern the system but rather to be used as an augmentation tool being ultimately supervised by human decision makers that can always overrule its processes and decisions.

Finally, the government should encourage social forces to participate, introduce social

resources such as public welfare organizations and enterprises, support the construction of village clinics or establish rural doctor reward funds, and form a grassroots medical ecosystem characterized by "government-led and multi-participated governance".

Limitations

These recommendations as well as contributions for theory must be aware of the limitations of this research. The first concerns a consequence of the response rate of questionnaire-based survey in study 2, which does reflect potential limitations on the study, as only those with stronger motivation would fully complete both phases of the survey. However, the questionnaire response rate in this study was determined based on participants who completed both rounds and whose data could be matched. In the second-round survey, approximately 30% of the respondents were excluded due to the inaccurate use of matchable IDs, which prevented their data from being successfully paired. For reasons of prudence, these cases were removed from the analysis. Therefore, it is also our view that the actual selection bias is likely to be lower. For participants who did not complete the questionnaires, it is indeed difficult to re-investigate the reasons for their dropout. However, since the objective of this study is to explore the factors influencing PWB, and subsequent analyses have successfully identified relevant empirical evidence, we consider that the response rate is unlikely to affect our main findings. Nevertheless, this issue suggests that greater caution should be exercised when generalizing the conclusions.

Likewise, relying on a newly developed institutional trust scale, albeit psychometric quality tests encourage its validity and reliability, always requires further validation. Additionally, interpersonal trust was operationalized mainly as social support and this may under-represent doctor–patient or distinct leader/peer trust. In the same vein, compensation satisfaction and self-trust measures were short and could be expanded so to lower eventual measurement error.

Although self-rating of subjective constructs such as PWB are strongly pressured by social desirability, having supervisors rating generally PWB at the town level does not guarantee some bias. Namely, supervisors may be influenced by halo effects, and by considering the overall rural doctors (and not each one individually) we cannot ascertain true individual level effects, just average. Notwithstanding this, villages mostly comprise a single rural doctor, and therefore, this option of measurement is the most suitable. Moreover, objective behavioral indicators were not available.

Regarding literature review, there may be some omitted variables in the conceptual model that may add to our understanding. Namely, autonomy, workload, resource adequacy, and LMX, together with regional policy heterogeneity. This may affect generalizability, but we reason it

was necessary to make a parsimonious model without which the response rate and drop out in the time-lagged design would be unbearable.

Future studies

Future research may benefit from considering these variables and eventually cover more than two time-lags so to understand if our findings hold in the long term. Experimental research or quasi-experimental designs would help in strengthening causal claims and test interventions (e.g., pay-transparency, leadership training) although the current study already took care into adopting a time-lagged design. Measures can be refined by separating leader, peer, and patient trust; expanding compensation facets; and broadening self-trust construct. The contextual boundaries may play an important role and therefore, researchers may examine moderators (e.g. autonomy, resource scarcity) and extend outcomes to objective PWB indicators and patient results. Cross-regional and cross-country comparisons would assess generalizability.

As for closing remark, study 2 supports a layered exchange-and-safety account of proactive behavior: institutional reliability, trusting relationships, and personal efficacy—together with fair compensation, especially salary—create the conditions for rural doctors to engage in PWB. Improving PWB thus requires coordinated action on policies, day-to-day leadership and peer practices, and meaningful rewards.

Conclusion

The PWB of rural doctors is key to improve the quality and efficiency of the primary medical and health service system, which will be increasingly important to preserve universal healthcare coverage without the unbearable costs that would emerge in using central hospitals as the main provider of health to an ageing population.

In achieving this, we contend, and findings support such contention that trust is the cornerstone of the rural doctor system. Only by consolidating the foundation of trust, enhancing the efficiency of interpersonal network, and self-trust as the basis for intrinsic motivation, can we build a sustainable rural medical development model and help the "healthy China" strategy to take root at the grass-roots level.

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Annex A: Interview Script – Study 1 (Rural Doctors)

Original Outline in Chinese	English Translated Outline
1. 在您看来，乡村医生在中国基层医疗卫生体系中的角色是什么？主要是承担哪些工作任务？您认为乡村医生在改善基层医疗卫生体系方面可以发挥什么作用？	1. In your view, what is the role of rural doctors in China's primary healthcare system? What tasks do they mainly undertake? In your opinion, what role can rural doctors play in improving the primary healthcare system?
2. 在您看来，乡村医生队伍的规模和分布是否能够满足农村居民的医疗需求？如不能，造成了哪些影响？	2. In your view, is the size and distribution of the rural doctor workforce sufficient to meet rural residents' healthcare needs? If not, what impacts has this had?
3. 在您的工作中，是否遇到了一些挑战，特别是在处理公共卫生问题时？有哪些因素使您的工作开展受限？	3. In your work, have you encountered challenges, especially in addressing public health issues? What factors constrain your work?
4. 您从事这份工作的动机是什么？当初是为什么选择作村医？这一动机有无变化？如何变化？	4. What motivated you to take up this job? Why did you originally choose to become a rural doctor? Has that motivation changed? If so, how?
5. 您目前的工作负担及工作稳定性如何？对现在工作满意吗？哪些因素影响了满意度？	5. How are your current workload and job stability? Are you satisfied with your current work? What factors influence your satisfaction?
6. 您留在当前工作岗位的意愿如何？对未来职业生涯有何期望或规划？	6. How willing are you to stay in your current position? What expectations or plans do you have for your future career?
7. 您的薪酬、保障如何？有什么激励和福利？与个人的期望有哪些差距？	7. How are your salary and protections/benefits? What incentives and welfare benefits do you receive? What gaps exist compared with your personal expectations?
8. 您的培训和技能提升方面情况如何？频次如何？是否还有改进空间？有哪些方面需要加强培训或提供更多的支持？	8. What is the situation regarding your training and skills development? How frequent is it? Is there room for improvement? In what areas is enhanced training or more support needed?
9. 政府能为您提供怎样的资源和支持？	9. What resources and support can the government provide for you?
10. 目前中国鼓励的大学生村医服务基层情况如何？	10. How is the current situation of college-graduate rural doctors serving at the grassroots level in China?
11. 村卫生室的医疗设施和装备是否充足？有没有遇到医疗资源	11. Are the medical facilities and equipment in the village clinic sufficient? Have you encountered

不足的情况，以及这如何影响您的工作？	shortages of medical resources, and how has that affected your work?
12. 总体来看，乡村医生队伍医疗技术方面存在哪些短板和不足的情况？	12. Overall, what shortcomings and deficiencies exist in the medical skills and competencies of the rural doctor workforce?
13. 您如何与其他卫生机构和卫生从业人员协作，以确保村民健康问题和农村公共卫生问题得到妥善处理？	13. How do you collaborate with other health institutions and professionals to ensure villagers' health issues and rural public health problems are properly addressed?
14. 目前有哪些信息化技术应用于您的工作场景？您认为信息技术对于提高医疗服务效率和质量的重要性如何？	14. What digital/information technologies are currently applied in your work? How important is information technology for improving the efficiency and quality of healthcare services?
15. 在您的工作环境中，将信息技术应用于基层医疗场景中会带来哪些具体的好处？推广和应用信息技术可能会遇到哪些障碍？	15. In your work setting, what specific benefits does applying information technology to primary care bring? What obstacles might be encountered in promoting and applying IT?
16. 您对于学习和适应新的医疗信息技术有多大的信心？	16. How confident are you in learning and adapting to new health information technologies?
17. 您认为哪些因素或情况可能促使您更积极地采用信息技术？您认为在未来还需要哪些政策支持信息化技术应用？	17. What factors or conditions might encourage you to adopt information technology more proactively? What policy support is needed in the future to enable health IT applications?
18. 政府在改善乡村医生队伍方面，采取了哪些措施或政策？您认为这些措施对您有什么影响？	18. What measures or policies has the government taken to improve the rural doctor workforce? What impacts have these had on you?
19. 对大学生村医、县招镇管村用的政策怎么看？在当地落实情况如何？有什么好的方面，存在什么问题？	19. What is your view on the policies of “college-graduate rural doctors” and “recruited by county, administrated by town, worked in village” (县招镇管村用)? How are they implemented locally? What are the strengths and what problems exist?
20. 最后，您对未来乡村医生队伍的发展有什么期望和建议，还需要哪些支持，特别是在广东省“百千万工程”的背景下？	20. Finally, what expectations and suggestions do you have for the future development of the rural doctor workforce? What further support is needed, especially in the context of Guangdong's “Hundreds of Counties, Thousands of Townships, Tens of Thousands of Villages” initiative (also known as the Bai-Qian-Wan Project)?

Annex B: Interview Script – Study 1 (CHC)

Original Outline in Chinese	English Translated Outline
1. 在您看来，乡村医生在中国基层医疗卫生体系中的角色是什么？主要是承担哪些工作任务？您认为乡村医生在改善基层医疗卫生体系方面可以发挥什么作用？	1. In your view, what is the role of rural doctors in China's primary healthcare system? What tasks do they mainly undertake? What role can they play in improving the primary healthcare system?
2. 在您看来，乡村医生队伍的规模和分布是否能够满足农村居民的医疗需求？如不能，造成了哪些影响？	2. In your view, is the size and distribution of the rural doctor workforce sufficient to meet rural residents' healthcare needs? If not, what impacts has this had?
3. 在您看来，乡村医生的工作中，是否遇到了一些挑战，特别是在处理公共卫生问题时？有哪些因素使乡村医生的工作开展受限？	3. In your view, do rural doctors encounter challenges in their work, especially in addressing public health issues? What factors constrain their work?
4. 在您看来，目前乡村医生的工作负担及工作稳定性如何？	4. In your view, how are rural doctors' current workload and job stability?
5. 您认为，目前乡村医生的薪酬、保障如何？有什么激励和福利？	5. What do you think about rural doctors' current salary and protections? What incentives and benefits exist?
6. 您认为，怎样可以提高乡村医生工作满意度？	6. In your view, how can rural doctors' job satisfaction be improved?
7. 您认为，乡村医生队伍的培训、职业发展情况如何？是否还有改进空间？	7. What is your view on the training and career development of the rural doctor workforce? Is there room for improvement?
8. 您认为，政府能为乡村医生提供怎样的资源和支持？	8. What resources and support can the government provide to rural doctors?
9. 目前中国鼓励的大学生村医服务基层情况如何？	9. How is the current situation of college-graduate rural doctors serving the grassroots in China?
10. 村卫生室的医疗设施和装备是否充足？有没有遇到医疗资源不足的情况，以及这如何影响乡村医生的工作？	10. Are medical facilities and equipment in village clinics adequate? Have there been shortages of medical resources, and how does that affect rural doctors' work?
11. 乡村医生队伍中的医疗从业人员是否足够专业和熟练？总体来看，队伍是否存在医疗技术水平不足的情况？	11. Are practitioners in the rural doctor workforce sufficiently professional and skilled? Overall, is there an issue of insufficient clinical competence?

12. 乡村医生在卫生宣教、疫情监测、健康管理、疾病预防等方面扮演什么角色？您认为乡村医生队伍如何能更好地发挥这些作用？您可以分享一些您在这些领域的工作经验和成功案例吗？

13. 在改善乡村医生队伍方面，已经采取了哪些措施或政策？这些措施产生了什么积极影响？

14. 对大学生村医、县招镇管村用的政策怎么看？在当地落实情况如何？有什么好的方面，存在什么问题？

15. 最后，您对未来乡村医生队伍的发展有什么期望和建议，还需要哪些支持，特别是在广东省“百千万工程”的背景下？

12. What roles do rural doctors play in health education, epidemic surveillance, health management, and disease prevention? How can the workforce better perform these roles? Could you share any work experiences or success cases in these areas?

13. What measures or policies have already been taken to improve the rural doctor workforce? What positive impacts have they produced?

14. What is your view on the policies of “college-graduate rural doctors” and “recruited by county, administrated by town, worked in village” (县招镇管村用)? How are they implemented locally? What are the strengths and what problems exist?

15. Finally, what expectations and suggestions do you have for the future development of the rural doctor workforce? What further support is needed, especially in the context of Guangdong’s “Hundreds of Counties, Thousands of Townships, Tens of Thousands of Villages” initiative (Bai-Qian-Wan Project)?

Annex C: Questionnaire Survey on PWB of Rural Doctors-Phase

1

Dear Sir/Madam:

Hello! This survey is conducted to understand the working conditions of rural doctors. The survey is anonymous and will not disclose any personal information. Please provide your honest responses. The survey will be carried out in two phases. In this phase, you are requested to complete Questionnaire 1, which will take approximately 5 minutes. The second phase will be conducted one month later. We sincerely appreciate your support. Wishing you good health and a pleasant life!

I .General Information

1. Please set up and record your unique code, as it will be used in the next phase of the survey. We recommend using the first letter of your name followed by the last digits of your phone number.

2. Gender:

Male

Female

3. Age

_____years old

4. Your region

City _____ County _____ Township (Town) _____

5. Years of experience as a village doctor

Less than 1 year

1–3 years (excluding 3 years)

3–5 years (excluding 5 years)

5–10 years (excluding 10 years)

More than 10 years

6. Education level

Junior high school or below

Senior high school

Vocational secondary school (including technical secondary school, technical school, vocational high school)

Associate degree (college)

Bachelor's degree

Postgraduate degree or above

7. Have you obtained a practice qualification?

Yes

No

8. Do you have a permanent position (establishment) in your current unit?

No

Yes

9. Do any other family members work as rural doctors?

Yes

No

10. Were you born locally?

Yes

No

11. Marital status

Unmarried

Married

Divorced

Widowed

12. Does your spouse work locally?

Yes

No

13. Average monthly income

Less than 3,000 RMB

3,000–5,000 RMB (excluding 5,000)

5,000–8,000 RMB (excluding 8,000)

8,000–10,000 RMB (excluding 10,000)

More than 10,000 RMB

Please tick the appropriate box according to your level of agreement with the following statements.

II. Institutional Trust

	Strongly	Disagree	Neither	Agree	Strongly
	Disagree		Agree nor		Agree
			Disagree		

1.I believe that health authorities act in the best interests of rural doctors when formulating policies.

2.Health authorities always consider the well-being of rural doctors when formulating policies.

3.Policies regarding the rural doctor system reflect a true understanding of the actual situation in rural primary healthcare.

4.I believe health authorities are committed to ensuring the sustainable development of the rural doctor system.

5.Policies issued by health authorities are honest and fair toward rural doctors.

6. I am confident in the transparency of health authorities' decision-making regarding the rural doctor system.

7.Health authorities ensure that the policy-making process for the rural doctor system takes into account the opinions and needs of different groups.

8.Health authorities communicate openly about

changes and updates to the rural doctor system.

9.I believe health authorities can formulate effective policies to address the challenges faced by rural doctors.

10.The implementation of policies related to the rural doctor system has strengthened my trust in health authorities.

11.I am confident that policies for the rural doctor system will continue to support the improvement of rural medical services.

12.Health authorities possess the expertise and resources needed to effectively design policies for the rural doctor system.

III. Interpersonal Trust

	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
1.When I encounter problems in my work as a rural doctor, some people (superiors, relatives, colleagues) are there for me.					

2.I can share both joys and sorrows with some people (superiors, relatives, colleagues).

3.My family provides me with tangible help in my work as a rural doctor.

4.When needed, I can receive emotional help and support from my family regarding my work as a rural doctor.

5.When I have difficulties in my work as a rural doctor, some people (superiors, relatives, colleagues) are a true source of comfort for me.

6.We are testing your attention, so please click "Agree" as your answer.

7.My friends truly help me in my work as a rural doctor.

8.When difficulties arise in my work as a rural doctor, I can rely on my friends.

9.I can discuss difficulties in my work as a rural doctor with my family.

10.My friends can share both the joys and sorrows

of my work as a rural
doctor with me.

11. In my life, some
people (superiors,
relatives, colleagues) care
about my feelings
regarding my work as a
rural doctor.

12. My family willingly
helps me make various
decisions regarding my
work as a rural doctor.

13. I can discuss
difficulties in my work as
a rural doctor with my
friends.

IV. Self-Trust

	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
1. I consider myself a valuable rural doctor, at least equal to others on a basic level.					
2. Overall, as a rural doctor, I consider myself a failure.					
3. As a rural doctor, my ability is as good as most other doctors.					
4. I have a positive attitude toward being a rural doctor.					

5. Overall, I am very satisfied with my work as a rural doctor.

6. As a rural doctor, I wish I could respect myself more.

7. As long as I do my best, I can solve villagers' basic medical problems.

8. Even if others oppose me, I can still get what I want.

9. I can easily persist in my ideals and achieve my goals.

10. I am confident that I can effectively handle any unexpected events concerning villagers' health.

11. As a rural doctor, I can face difficulties calmly because I believe in my ability to solve problems.

12. As a rural doctor, I can handle everything that happens in my work.

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Annex D: Questionnaire Survey on PWB of Rural Doctors-Phase

2

Dear Sir/Madam:

With your strong support, the first phase of this project survey has been successfully completed. The second phase survey is now underway. Please fill out Questionnaire 2 truthfully, which will take approximately 3 minutes. The survey remains anonymous and will not disclose any personal information. We sincerely appreciate your continued support.

Wishing you good health and a pleasant life!

1.Your code (Enter the exclusive code you set last time, usually the first letter of your name followed by the last digits of your phone number)

2.Your region

City _____ County _____ Township (Town) _____

Please tick the appropriate box according to your level of agreement with the following statements.

II. Job Satisfaction

	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
1.I feel that I receive a fair return for my work as a rural doctor.					
2.I am satisfied with my opportunities for income increase.					
3.Those who perform well as rural doctors receive fair promotion opportunities.					

4. I am satisfied with my career advancement opportunities.
5. My supervisor treats me unfairly (R).
6. The higher-level health administrative department has no interest in rural doctors' ideas (R).
7. I am not satisfied with the benefits I receive from being a rural doctor (R).
8. As a rural doctor, I do not receive the benefits I deserve (R).
9. When I perform well in my work as a rural doctor, I receive the rewards I deserve.
10. As a rural doctor, I feel that my work is not appreciated (R).
11. Many systems and procedures hinder me from successfully completing my work as a rural doctor (R).
12. As a rural doctor, I have too much work to do (R).
-

III. Proactive Work Behavior

	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
1. I find better ways to perform my duties as a rural doctor.					
2. I think of ways to improve my own work as a rural doctor.					
3. I change the way I do my work as a rural doctor.					
4. I make suggestions to help all rural doctors work more efficiently.					
5. I come up with new or improved methods to help all rural doctors work better.					
6. I improve the working methods of the rural doctor team.					
