Demand oriented improvement based on education of rural grassroots doctors training system in Jiangsu Province

Wenjun Yan

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ABSTRACT

Primary healthcare is related to the fairness of health, and the quality at the primary level determines to what extent primary healthcare can be fully utilized. This study aimed to improve the existing training system for rural grassroots doctors, starting by exploring the educational needs of rural primary healthcare, as the phase 1 section of this study. Utilizing a mixed-methods approach, the research investigates the perspectives of key stakeholders in grassroots healthcare (rural inhabitants, grassroots doctors, and township hospital directors) through both quantitative and qualitative research.

For a number of 203 rural inhabitants' research objective, the study primarily employs quantitative methods to assess their views on grassroots healthcare and doctors' roles, revealing several key findings: 86.7% of inhabitants utilize grassroots medical services, and 60.1% place greater importance on the medical experience of rural doctors. Approximately 55.7% believe that grassroots doctors play a partial role in health maintenance, but they rate their medical professionalism and treatment effectiveness as low. Furthermore, 64.5% of inhabitants feel that the service capabilities of grassroots doctors need improvement. In the eyes of rural inhabitants, primary healthcare mainly encompasses diagnosis and treatment, health education, physical examinations, and doctor-patient communication.

For grassroots doctors, the study first gathers broad perspectives on their educational needs through quantitative methods. Key findings from this quantitative research indicate that in self-assessments, doctors rated their research and clinical skills as the lowest, with fewer than half having received standardized clinical training. They consider disease diagnosis and treatment, as well as emergency care, to be crucial throughout their medical education. Therefore, there is a need to emphasize certain courses, including communication and psychology in humanities, anatomy and pathology in foundational courses, epidemiology and health education in public health, and diagnostics and internal medicine in clinical courses.

This study conducts qualitative research on grassroots doctors and township hospital directors to explore the educational needs in grassroots healthcare.

Findings regarding the needs of directors and doctors indicate that improvements are required across all stages of medical education (including school education, clinical practice, and continuing education), as well as in educational methods. Moreover, the previously overlooked importance of medical humanities was mentioned, particularly in enhancing medical students' doctor-patient communication skills, proactive engagement in their work and studies, and their sense of responsibility and values.

The conclusions from the first phase were transformed into the question of "how to enhance students' empathy and professional identity through diverse teaching methods." Based on this question, two cycles of action research was initiated. In every cycle, over a six-week intervention period, data was collected from student film reviews, course evaluations, and teachers' reflective diaries. The results showed that in circle 1, students' emotional empathy was 16% higher than that of the non-intervention group, cognitive empathy was 33.7% higher, professional beliefs were 40% higher, and professional confidence was 28% higher; in circle 2, students' emotional empathy was 18.7% higher than that of the non-intervention group, cognitive empathy was 15.7% higher, professional beliefs were 61.4% higher, and professional confidence was 54.7% higher, which demonstrated that the revised intervention plan still significantly improved medical students' empathy and professional identity.

In conclusion, this study found that the rural inhabitants want a functional primary health care which highlights rural grassroots doctors clinical skills. The demands from rural grassroots doctors and township hospitals for medical education are enhance basic medical knowledge teaching, strengthen clinical practice ,offer flexible further medical education; increase the Increase the content of medical humanities education and improve the teaching methods. Through action research, integrating narrative medicine and professional identity education with medical curricula using diverse teaching methods can enhance medical students' empathy and professional identity.

Keyword : Primary health care, Medical education, Rural inhabitants, Township hospitals, rural grassroots doctors

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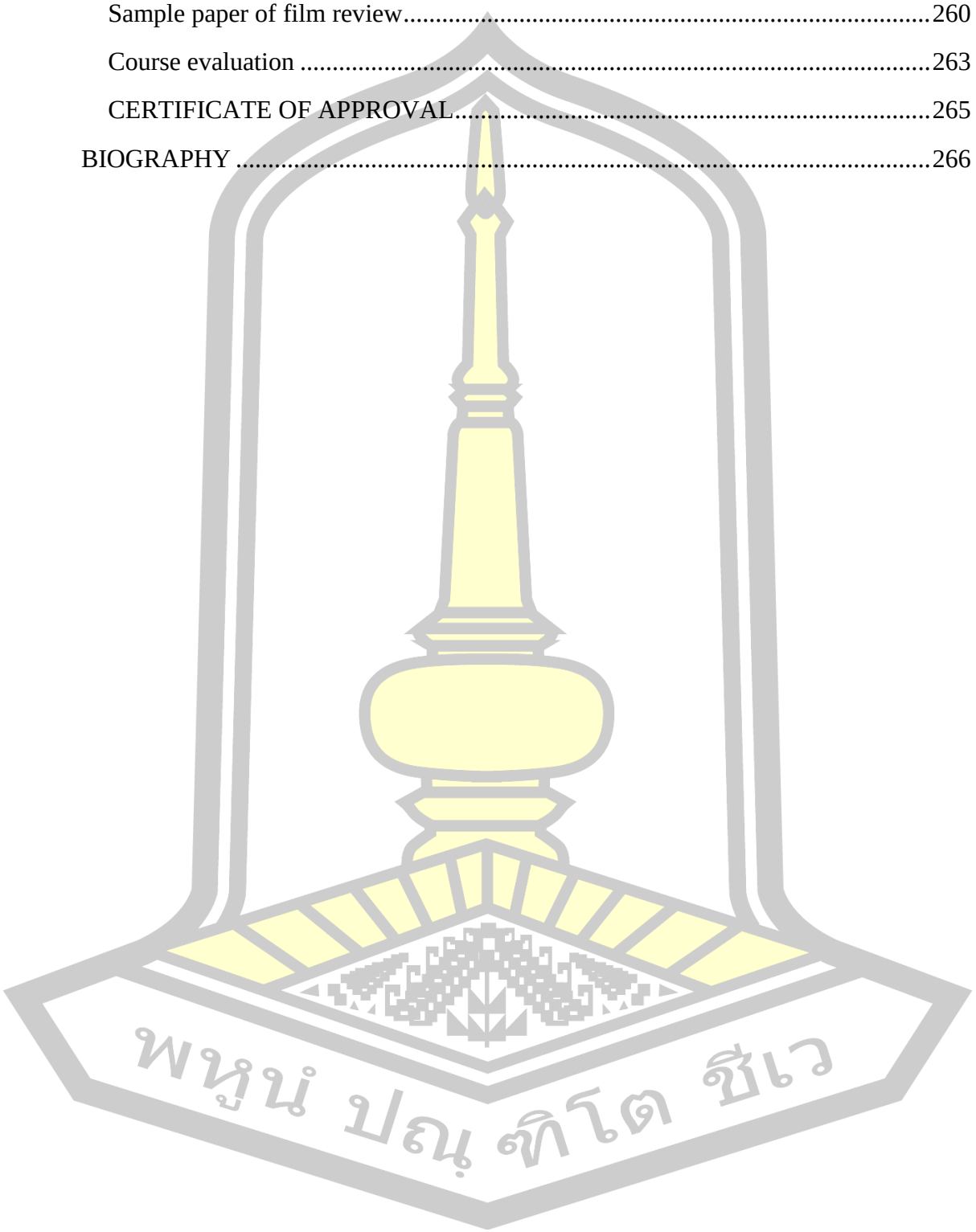

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Chapter I
Introduction

1.1 Background

Primary care is a model of care that supports first-contact, accessible, continuous, comprehensive and coordinated person-focused care. It aims to optimize population health and reduce disparities across the population by ensuring that subgroups have equal access to services (WHO Primary care (who.int). Ensuring people have access to high-quality, comprehensive primary care is vital to good health outcomes and positive experiences with the health system (Evan, 2024). Nowadays, every country in the world has recognized the importance of primary care, including China. The very fact is, in the 30 years from 1949 to 1978, China's medical system has already made remarkable achievements in improving the health level of the Chinese people due to primary care.

In 2009, China began a new medical reform. The medical reform in China is to establish and improve the basic medical and medical system covering urban and rural inhabitants, and provide safe, effective, convenient and inexpensive medical and health services for the residents (The CPC Central Committee and the State Council, 2009). The 2009 medical reform rigorously develop the urban and rural health systems. Both urban and rural areas have their own hierarchical medical system. The urban hierarchical system is composed by tertiary hospitals, secondary hospitals and community health centers. The rural hierarchical system is composed by county-level hospitals, township hospitals and village clinics. Tertiary hospitals/County-level hospitals are mainly responsible for basic medical services and critically ill patients, as well as the technical support for secondary hospitals/township hospitals and community health centers/village clinics and the refresher training of health personnel; secondary hospitals/township health centers are responsible for providing public health services, treatment of common diseases, as well as technical support for community health centers/village clinics; community health centers/village clinic are responsible for the public health services and the treatment of common diseases in the village. in this system, people should go to grassroots hospitals (community health centers/village clinics) first, no matter what health problem they encountered, if they

need to be hospitalized or their health problems are difficult ones, they will be referred by grassroots doctors. after treatment, when need rehabilitation, the patients will be referred back to primary care. this mechanism guarantees everyone can get just right amount of services, no more, no less. Mean while, health cost can be controlled.

2022, China began it's new round of medical reform. Community hospitals would continue to be developed, about 500 new community health centers would be promote to construct. Investment will be increased on a number of selected rural hospitals, aiming to promote the health of rural residents (People's Daily Overseas Edition, 2022).

In an ideal state, primary care should play a huge role, but this is not the case in reality. In a Beijing's research, 23% of the respondents were in favor of the community-first visiting policy (Li Danhui et al., 2020), but in a Shanghai's research, the figure is 87.76%(He Biyu et al, 2021). An investigation in rural area of Zhejiang Province showed that nearly 34.63% of rural residents intend to visit township hospitals for the first time(Wu Suxiong et al., 2019), even in the author's home province, the figures are very different: an research in Huai'an city showed the urban primary visiting willing rate is 64.6%(Xu Jiaming et al, 2020),while another paper reported the primary visiting willing rate in Xuzhou city is 42.3%（Sun Hong et al., 2019）. It seems that the willingness of primary-visiting varies from area to area, but all in all, In 2021, the number of diagnosis and treatment in township health centers and community health centers (stations) reached 2.0 billion, an increase of 150 million over the previous year. The diagnosis and treatment volume of township health centers and community health service centers (stations) accounted for 23.6% of the total diagnosis and treatment person-times, with a decrease of 0.3 percentage points over the previous year (National Health and Family Planning Commission of the People's Republic of China, 2022), which is much lower than the expected figure. What's wrong with China's primary care?

There are many factors related to primary visiting rate: facilities of primary care, price of primary care and quality of primary care (Wu Suxiong et al., 2019), the

age and health status of patients, whether contractual services from family doctors, the distance from clinics and the attitude of doctors(He Biyu et al., 2021).

Let's zoom in "quality of primary care": A study including incognito standardised patients with common illnesses (dysentery and angina) in the western region of China showed that rural grassroots doctors asked patients 18% of the recommended questions and did 15% of the recommended examinations. Furthermore, these doctors addressed 36% of the essential questions or examinations necessary for a proper diagnosis and harm reduction, and correctly diagnosed 26% of the illnesses of these incognito standardised patients (Ministry of Health, et al., 2016). A community-based screening project of 1.7 million participants reported that rate of hypertension control was low (7%) among those with hypertension, and consistently low across different subpopulations (<30%) (Lu J et al., 2017). In participants with hypertension who received care from primary health-care institutions in a community-based population cohort (Lu J et al., 2016), only 8539 (70%) of 12,264 knew they had hypertension and only 707 (6%) had their blood pressure controlled (<140/90 mm Hg). The conditions were equally bad by comparison with the patients with hypertension who sought care only from hospitals (6435 [68%] of 9517 diagnosed with hypertension, and 699 [7%] had their blood pressure controlled). These results were much lower than in the USA (84% diagnosed, and 52% controlled) (Alabousi M et al., 2017).

According to examples above, the education and training of primary health-care practitioners are suboptimal (Li Xi et al., 2020). Formal medical training for grassroots doctors has three levels (Li Xi et al., 2017): medical college (5 years of medical education after 12 years of primary and secondary education to get a bachelor's degree of medicine); junior medical college (3 years of medical education after 12 years of primary and secondary education); and technical school (3 years of medical education after 9 years of primary and secondary education). Completion of medical college is required to become a licensed doctor and junior medical college training is required to become a licensed assistant doctor, both of whom also need to pass the National Practicing Doctor (or Assistant Doctor Examination and periodic government assessments). Meanwhile, village doctors, with technical school education or continuous practising experience for more than 20 years in village clinics,

are permitted by local health authorities to work only in village clinics with a so-called village doctor certificate, rather than a regular licence. In 2015, there were about 360 000 licensed doctors or licensed assistant doctors in urban areas, as well as 740 000 licensed doctors or licensed assistant doctors and 960 000 village doctors in rural areas.1 There are still unlicensed individuals practicing in urban and rural primary health-care institutions.

The levels of education and qualification among PHC professionals in China are low. In 2018, 25% of PHC doctors in community health centers and 42% of those in township health centers had less than a junior medical college level of education (the requirement for a licensed assistant physician); this percentage represents an improvement, as the proportions have decreased from 41% in community health centres and 60% in township health centres in 2010 (National Health and Family Planning Commission of the People's Republic of China. 2018).

At present, most of the domestic studies on the preference for first diagnosis under the mode of medical consortia are based on the analysis of urban community residents. Due to historical tradition, cultural level, biological characteristics, information distribution and geography, the reason is that rural residents have a greater weight in realizing the first diagnosis at the grass-roots level, Moreover, the first diagnosis at the grass-roots level affects whether the graded diagnosis and treatment can continue to develop (Wu Suxiong et al., 2019). Compared to urban area, inhabitants have less choices when they want to seek for medical service, if they don't choose grassroots doctors, they should cost a lot of time and money on seeking medical service.

1.2 Research question

How to improve the existing rural grassroots doctor training system based on the demand of rural primary care in Jiangsu Province, in order to train grassroots doctors who are really competent for rural area?

1.3 Research objectives

General objective:

The research objective of this study is to improve the rural grassroots doctor training system based on the demand of rural primary care in Jiangsu Province.

Specific research objectives:

1.3.1 To explore the demand of rural inhabitants for primary health care.

1.3.2 To explore the demand of rural grassroots doctors for medical education.

1.3.3 To explore the demand of township hospitals for medical education.

1.3.4 To develop a mode of integrating narrative medicine and professional ideological education into medical courses through multiple teaching methods to enhance medical students' empathy and professional identity.

1.4 Scope of research

1.4.1 Scope of the content

The content of this study includes the demand exploration of rural inhabitants for primary health care based on Anderson model, demand of rural grassroots doctors and township hospitals for medical education based on stakeholder theory, an action research which aims to develop a mode to enhance rural-oriented medical students' empathy and professional identity base on narrative medicine and professional ideological education.

1.4.2 Scope of the population

This research has 2 phases.

In phase 1, the population of quantitative study is composed by 203 rural inhabitants, 272 rural grassroots doctors; the population of qualitative study is composed by 9 township hospital directors and 21 rural grassroots doctors.

In phase 2, the population of action research is rural oriented medical students in Xuzhou Medical University, composed by 25 students in Grade 2021 and 30 students in Grade 2022.

1.4.3 Scope of the research setting

In phase 1, this research will conduct in selected rural grassroots hospitals around northern Jiangsu, central Jiangsu and southern Jiangsu separately.

In phase 2, this action research will be implemented on Students in Xuzhou Medical University.

1.4.4 Scope of study period

The research conduction will start from October 2023 to September 2024.

1.5 Operational definition

1.5.1 Grassroot doctors

Rural grassroots doctors: rural grassroots doctors mainly refer to general practitioners who practice in rural areas. Their role in providing people-centered comprehensive services, paying attention to prevention and health care, rational use of health resources, and reasonable control of medical expenses has been widely recognized by the medical community and the public. WHO and WONCA have pointed out in a cooperation document that "if the health care system of any country is not based on well-trained general practitioners who adopt modern methods, It is doomed to pay a high price. "

1.5.2 (Rural) Primary care

For many people, primary care is their first point of contact with the health system, and decades of evidence shows it is critical for population health, health equity, and the overall efficiency of health care systems. In China, rural primary care refers to services offered by System (2009) promote the construction of the rural health care, improve the "rural medical and health service network based on the county-level hospitals, township hospitals and village clinics". In China, doctors who worked in village clinics are composed by older barefoot doctors, most of which are half-farmer half- doctor, and with technical secondary school education. This part of rural doctors are not included in our target group. This research focus on rural grassroots doctors who work in township hospitals,

1.5.3 Township hospitals

The township health center, as the core of the rural "three-level prevention and health care network," has primarily been responsible for providing basic medical services, public health services, and health management services since its inception. Additionally, it undertakes health management functions entrusted by the county-level health administration. These responsibilities aim to comprehensively meet the medical and health needs of township residents and promote the overall health level of the community.

1.5.4 Medical humanities

Medical humanities use methods, concepts, and content from one or more of the humanities disciplines to investigate illness, pain, disability, suffering, healing,

therapeutic relationships, and other aspects of medicine and health care practice. medical humanities have a significant moral function, an important goal of medical humanities is to reconceptualize health care, through influencing students and practitioners to query their own attitudes and behaviors, while offering a nuanced and integrated perspective on the fundamental aspects of illness, suffering, and healing.

1.5.5 Empathy

Empathy is generally described as the ability to take on another's perspective, to understand, feel, and possibly share and respond to their experience. Empathy has two major components: affective empathy and cognitive empathy. Affective empathy, also called emotional empathy, is the ability to respond with an appropriate emotion to another's mental states. Our ability to empathize emotionally is based on emotional contagion being affected by another's emotional or arousal state. Cognitive empathy is the ability to understand another's perspective or mental state. Affective and cognitive empathy are also independent from one another; someone who strongly empathizes emotionally is not necessarily good in understanding another's perspective.

1.5.6 Narrative medicine

Narrative medicine is the practice of medicine rooted in narrative ability, which refers to the capacity to listen, read, recognize, absorb, interpret, and be moved by the stories that are heard or uniquely told. Narrative medicine is a framework for medicine and health sciences that values individuals' stories and experiences as integral aspects of the lived experience of health and illness

1.5.7 Professional ideological education

"Professional ideology," a form of moral education, generally refers to students' comprehensive understanding and perspective on their chosen majors, encompassing learning motivation, affinity for the major, academic performance, intention to change majors, cognitive understanding of the major, and psychological adaptation to it. Through professional ideological education for freshmen, they can gain insights into professional knowledge, grasp the main content and frontier trends of their study directions, and acquire learning methods for both basic and specialized courses in universities. This is crucial for stabilizing freshmen's emotional states,

stimulating their enthusiasm for delving into their majors, and consolidating their professional ideology.

1.5.8 Professional identity

Professional identity is defined as a person ' s acknowledgement and understanding of the beliefs, values, attitudes, and roles associated with their professional group and includes a person's perception of themselves rather than what they observe of others from their professional group

Chapter II
Literature review

The study entitles of "**Demand oriented improvement of rural grassroots doctor training system in Jiangsu Province**". The purpose of this study is to explore the needs of rural primary healthcare and, based on this, to improve the medical training system for rural grassroots doctors. Therefore, the literature review will provide the structure and background for the research. It consists of several topics, which we will discuss in the following order:

2.1 The current situation of rural grassroots doctor training in international wide, national wide, province wide

2.2 Rural grassroots doctors

2.3 Rural-oriented medical students

2.4 Curriculum of rural oriented students

2.5 Demand-oriented

2.6 Stakeholder Theory

2.7 Behavioral Model of Health Services Utilization (BMHSU) Model (Anderson Model)

2.8 Mixed-methods

2.9 Action research

2.10 Bandura's Social Learning Theory

2.11 Empathy

2.12 Narrative medicine

2.13 Professional Identity

2.14 Professional ideological education

2.15 Conceptual framework of the study

2.1 The current situation of rural grassroots doctor training in international wide, national wide, province wide and the gap.

The shortage of doctors in rural areas is a long-standing challenge faced by countries around the world (Mohammadiaghdam N et al., 2020). Training doctors specifically for rural regions is one potential solution to this problem (Rosenthal T C, 2000).

2.1.1 International wide

Countries around the world have implemented various measures to train more healthcare professionals for rural grassroots settings. Countries such as the United States, Canada, Australia, Japan, Thailand, and South Africa have implemented rural primary care physician training programs. These educational initiatives tend to recruit students with rural backgrounds (Shen Ying, 2021). A common feature of these international rural physician training programs is the increased exposure of medical students and residents to rural clinical environments. For instance, the U.S. Physician Shortage Area Program (PSAP) incorporates a 10-week rural clinical rotation during the clinical phase of medical education, alongside a greater proportion of outpatient experiences (Rabinowitz et al., 2011), while the rural clinical rotation for the ULTC program lasts for 24 months (Crump W J， 2013). The University of Calgary's Longitudinal Integrated Clerkship (LIC-Calgary) program offers a 36-week rural clinical course(MYHRE DL,2015), while Australia's Rural Clinical School of Western Australia (RCSWA) provides opportunities for longitudinal rural clerkships (Playford et al., 2015). In Japan, the Jichi Medical University program and the regional quota program (Chiikiwaku) arrange rural clinical experiences during the fifth and sixth years of medical education (Matsumoto et al., 2008; Matsumoto et al., 2016). Thailand's Collaborative Project to Increase Production of Rural Doctors (CPIRD) and One District, One Physician program (ODOD) involve three years of foundational medical education followed by three years of clinical training in rural areas, with most placements in remote regions (Techakehakij & Arora, 2017; Pagaiya et al., 2015). Similarly, South Africa's Friends of Musgrove Scholarship program (FOMSS) requires students to participate in local hospital and rural community rotations (Ross, 2007).

The percentage of students from these programs who choose to practice in rural areas is significantly higher than that of their peers in non-rural training programs (Shen Ying, 2021). Graduates of the PSAP not only have a higher practice rate in rural areas but also a greater proportion of them choose family medicine as their specialty compared to non-PSAP graduates. Specifically, the retention rates for PSAP graduates in rural areas after 5-10 years, 11-16 years, and 20-25 years are 87%, 68%, and 70.3%, respectively, significantly surpassing the 53%, 46%, and 46.2% retention rates of non-PSAP graduates (Rabinowitz et al., 1999; 2005; 2013). Similarly, Jichi Medical University graduates demonstrate higher rural retention rates of 12.8% after 7 years and 10.7% after 17 years of mandatory rural service, compared to non-program graduates (Matsumoto et al., 2008). In Thailand, graduates of the CPIRD program show higher rural retention rates at 5 and 10 years, as indicated by Kaplan-Meier survival analysis (Pagaiya et al., 2015).

The training programs for rural grassroots doctors in the above countries include those implemented in economically developed countries and economically underdeveloped countries, which shows that medical education can have a positive impact on improving the shortage of doctors in rural areas in many environments with large differences in different economic and social development stages, medical and education systems.

2.1.2 National wide

The shortage of rural health human resources is also a problem that has plagued China's health service system for a long time. In 2010, the National Development and Reform Commission and other departments launched the free training of rural-oriented medical students (National Development and Reform Commission and other departments, 2010).China's training program for order-oriented medical students has been introduced in Chapter One, so further details will not be reiterated here. However, it's important to note that the implementation guidelines are merely a framework, and different medical schools adopt varied methods in practice.

A review of 19 medical schools involved in the rural-oriented training program (Li Y H et al., 2018) shows that the total curriculum hours for these programs range from 2,748 to 3,736 hours, with an average of 3,259.84 hours. The

ratio of theoretical to practical course hours varies from 1:0.80 to 1:0.21, with an average of 1:0.43. The average hours for public foundation and humanities courses, basic medical courses, clinical medicine courses, and public health and general medicine courses are 1,051.32, 919.79, 1,031.37, and 257.37 hours, respectively, accounting for 32.25%, 28.22%, 31.64%, and 7.90% of total hours. The number of general medicine courses offered ranges from 0 to 4, with North Sichuan Medical College offering the most (4 courses). The hours for general medicine courses range from 0 to 168 hours, averaging 80.32 hours, with Guangxi Medical University having the highest at 168 hours. The proportion of general medicine course hours to total hours ranges from 0% to 5.14%, averaging 2.46%, with Guangxi Medical University having the highest proportion (5.14%). General medicine course credits range from 0 to 9 credits, averaging 4.66 credits, with Shihezi University offering the most (9 credits). Among the 19 medical schools, 11 adopt a "4+1" model (4 years of school plus 1 year of internship), while 8 follow a "3.5+1.5" model (3.5 years of school plus 1.5 years of internship).

A systematic review encompassing 49 studies and 22,413 participants (including rural-oriented graduates and current students) (Kong Y et al., 2024) indicates that from 2010 to 2020, the intention to fulfill contracts among order-oriented students was 62% (95% CI [55%~69%]), with a fulfillment rate of 95% (95% CI [93%~96%]). The retention intention rate was 16% (95% CI [12%~19%]). The fulfillment intention rate declined from 90% to 65%; overall, the intention to fulfill contracts was 62%. Although the intention to fulfill contracts was not high, the actual fulfillment rate was relatively high (95%). From 2010 to 2020, the retention intention rate increased from 3% to 10%. Another systematic review covering 29 studies and 12,928 participants (including rural-oriented graduates and current students) (Ye Feng et al., 2024) reports that between 2011 and 2022, the renewal intention rate after the contract period for rural order-oriented medical students was 17.5% (95% CI: 12.6%–22.3%).

These results indicate that China's rural-oriented training program need to enhance medical students' professional identity. Meanwhile, the government should increase investment in grassroots health services, improve and implement various support and incentive measures, and provide performance rewards for basic public

health services and family doctor services, thereby enhancing the salary levels of grassroots doctors and improving their living conditions. Additionally, grassroots healthcare institutions must continuously strengthen their infrastructure, improve medical facilities and medication supplies, and enhance the working environment. They should also provide suitable technical training for grassroots doctors, including continuing education and professional development, with corresponding policy support for enhancing clinical skills and academic qualifications.

2.1.3 Provincial wide

Jiangsu Province has always been at the forefront of reform. Jiangsu Province started to train rural-oriented medical students for township hospitals in 2009.

Taking Xuzhou Medical University where the author works as an example, since 2016, the university has successively recruited rural-oriented medical students. Our school attaches great importance to the cultivation of the basic level service ability of rural-oriented students. In addition to clinical courses, it offers courses such as general practice, community health management, preventive medicine, epidemiology, health education and health promotion, modern community medicine, medical psychology, behavioral medicine, and community rehabilitation.

Due to the imbalance of China's political and economic development, the rural primary care has also presented a situation of different levels of development. For example, the central and western regions of China are still dominated by the lack of rural health human resources, while Jiangsu, as a province with better economic development, has taken the lead in various policy guarantees. In April 2019, Jiangsu Province issued the Implementation Plan for Strengthening the Foundation of Health Talents in Jiangsu Province (2019-2023)(Jiangsu, 2021), which clearly implemented 27 supportive policies and measures, aiming to improve the career development prospects of grassroots medical and health personnel, strive to improve the treatment guarantee, enhance the attractiveness of grassroots health posts, and build a long-term incentive mechanism for training and using grassroots health personnel. At present, the total number of grassroots health personnel in Jiangsu Province has reached 273200, It increased by 17.6% compared with two years ago, 8.7% more than the national growth rate. The proportion of senior professional and technical posts at the grassroots level in the province increased to 11%, 6 percentage points higher than two

years ago; The annual per capita wage income of basic level health personnel exceeded 100000 yuan, with an average annual growth rate of 12.6%. It basically solved the problem of "low salary" and "development platform" for grassroots doctors. A qualitative study on targeted graduates from rural areas in Jiangsu Province（Tian Xuelin, 2024） shows that the majority of rural oriented graduates who have been employed in grassroots medical institutions are satisfied with their current job situation. Therefore, the key to the successful implementation of the rural-oriented medical student training program in Jiangsu Province, in addition to improving the quality of education, lies in enhancing students' competency and professional identity, ensuring that they "stay and are effectively utilized."

Brief summary

Due to national circumstances, the training methods for rural doctors vary worldwide, but they all play a role in providing a stable supply of medical resources to rural areas. In China, the government has established a free training program for directed rural students; however, the implementation of this program is influenced by local policies and economic development levels, resulting in varying effectiveness. As an economically developed province, Jiangsu has ensured salary, infrastructure, and incentive mechanisms for rural grassroots doctors. Currently, the focus of Jiangsu's directed medical student training program is on improving training quality.

2.2 Rural Grassroots Doctors

Rural grassroots doctors are one of the research subjects in the first phase of this study, as this group is central to the quality of grassroots medical services and is the largest stakeholder in medical education.

1. In China, the urban grassroots hospital is named community health center, while its counterpart in rural area is named township hospital. Inhabitants are encouraged to seek for medical care in nearby grassroots hospitals, the imbalance of medical resources allocation between urban and rural areas in China is very prominent (Zhang Junpu et al., 2022). The urban area is small and the density of medical resources is high, the public transportation is convenient, even if inhabitants are not satisfied with the nearby community health center, they have more choices of medical resources. Compared with urban area, rural inhabitants have less choices when they

want to seek for medical service, if they don't choose township hospitals nearby, they should cost a lot of time and money on seeking medical service. The fact also proves that the grassroots primary health care visiting rate in rural areas is very notably high, reaching 82.1% in Jiangsu Province (Miao C X et al., 2019). Therefore, we pay more attention to the service quality of rural grassroots doctors. In fact, a study across 6 provinces (Sun Y C et al, 2021) pointed out that the total pass rate of clinical thinking ability of grass-roots general practitioners was only 33.3%，not only competency, but also the job burnout of staff in township hospitals is more serious than that in community health centers (ZHANG Bao-yan et al.,2017), which explain from another version that the service of rural doctors needs to be paid attention.

At present, most of the domestic studies on the preference for first diagnosis under the mode of medical consortia are based on the analysis of urban community residents, there is relatively little research on rural residents. Due to historical tradition, cultural level, biological characteristics, information distribution and geography, the reason is that rural residents have a greater weight in realizing the first diagnosis at the grass-roots level, Moreover, the first diagnosis at the grass-roots level affects whether the graded diagnosis and treatment can continue to develop (Wu Suxiong et al., 2019).

2.In China, although general medical graduates can choose to work in township hospitals, but most of them are reluctant to work in rural and remote areas (Si Mingshu et al., 2019), Therefore, the Chinese government has established a training program ---- the free training of rural-oriented medical students (National Development and Reform Commission and other departments, 2010) to guarantee the workforce, specifically aimed at supplying doctors to township hospitals. Compared with normal medical students, rural-oriented medical students are more likely to become the main force of rural primary health care. We focus on the rural grassroots doctors who work in township hospitals so that the research results will be more targeted.

Brief summary

Rural grassroots doctors are not only the core guarantee of primary healthcare in rural areas but also the audience of medical education, making them an important focus of this study. There are two reasons for researching rural grassroots

doctors: first, the quality of rural healthcare deserves more attention compared to urban healthcare, due to the difficulties rural inhabitants face in accessing medical services; second, China has specialized training program for rural grassroots doctors, and examining the issues reflected in this group can lead to improvements in this program.

2.3 Rural-oriented medical students

Rural-oriented medical students are the intervention object of the second stage of action research in this study, they are also the main force of future rural primary health care. The main problems currently existing in the rural-oriented medical students are following:

2.3.1 Graduates

Studies have found that there are differences in income between order-oriented graduates and ordinary clinical graduates. In the first two years after graduation, the income of order-oriented graduates is higher than that of ordinary clinical graduates, but two years after graduation, the income of order-oriented graduates is lower than that of ordinary clinical graduates, and the gap widens year by year (Zhang Baisong et al., 2023)(Tang Haoqing et al., 2024). After the service period expires, about 38.5% of order-oriented graduates choose to stay at the primary level, and most of those who leave the primary level go to county-level or above public hospitals, with some pursuing postgraduate studies or being unemployed (Tang Haoqing et al., 2024). The renewal rate of order-oriented medical students who have completed their first service period in three regions of Guangxi is 42.6%. Beside large income gaps, long working hours, few training opportunities, poor working conditions, and limited career development are all factors obstructing renewal (Zhang Xin et al., 2022). Non-renewers have higher evaluations of working conditions and career development after re-employment after the service period expires, and their job satisfaction is also higher than that of renewers..

Not only renewal, but also performance has become an issue. A study in the western Hunan region(Mao Ruizhao et al., 2024)indicates that although order-oriented graduates experience lower work pressure and have a moderate to high level of job satisfaction, they have a strong desire to continue improving their skills and a

relatively high intention to leave their positions. The overall turnover intention of order-oriented medical graduates in the “5 + 3” model in Guizhou is relatively high, with 73.6% having a turnover tendency. The way leaders treat subordinates, the sense of achievement obtained in work, the satisfaction with current income, the support degree of family for work, and the implementation degree of local incentive policies are factors influencing the turnover intention (Luo Xiao et al., 2022). Rural oriented medical students generally have problems of contract breach during the performance process, mainly manifested as weak contract awareness, low professional identity, and unsteady voluntary service belief. The reasons include insufficient policy publicity in the enrollment stage, failure to deepen the combination of contract spirit and the concept of the rule of law in the training stage, and failure to internalize the contract spirit in the employment stage, resulting in an increased risk of contract breach. The return paths include strengthening the awareness of rules in the mind, implementing relevant treatments such as salary and social security, and constructing a guiding mechanism involving multiple subjects with the contract spirit as the criterion (Song Maorong et al., 2022).

2.3.2 Students at school

The high turnover rate of graduates is partly due to hesitation in establishing a sense of professional identity during their school years. Through grounded theory research, it has been found that the influencing factors of professional identity of rural order-oriented medical students consist of six dimensions: professional cognition, professional behavior, professional choice, professional will, professional emotion, and professional belief. Among them, professional cognition, professional behavior, and professional choice are explicit factors, while professional will, professional belief, and professional emotion are implicit factors (Qiao Xue et al., 2024). Another study divides professional identity of rural order-oriented medical students into four dimensions: orientation force, sense of meaning, willpower, and emotional investment, and is affected by individual internal drive (value orientation and interest ability) and environmental external drive (social support, family expectation, and school atmosphere) (Zhang Han et al., 2022). Professional values, professional commitment, and learning engagement of order-oriented medical students are positively correlated pairwise. Professional values and professional commitment have

a predictive effect on learning engagement, and professional commitment plays a partial mediating role between professional values and learning engagement (Huang Xiaoli et al., 2022). A meta-analysis conducted nationwide found that the performance intention rate of undergraduate order-oriented medical students in China is 62%, the performance rate is 95%, and the retention intention rate is 16%. Region, time, and the stage of medical education are factors influencing performance intention and retention intention(Kong Y et al., 2024).

Brief summary

The work fulfillment rate, job satisfaction, and renewal rate of order-oriented graduates vary across different regions due to local economic and policy conditions. Additionally, the fulfillment and renewal intentions of current students are also not high, reflecting a common issue: both order-oriented graduates and students exhibit insufficient professional identity.

2.4 Curriculum of rural oriented students

In China, the o rural oriented medical students are enrolled by each province, and these students in each province are then cultivated by the medical colleges and universities in that province. As a result, there is no unified training system for rural oriented medical students. Instead, it is formulated independently by each medical college or university. A sampling survey composed of data from 19 colleges and universities(LI Y H, et al., 2018) shows that the total class hours of the curriculum system for rural oriented medical students range from 2,748 to 3,736. The ratio of theoretical courses to practical courses is between 1:0.8 and 1:0.21. Courses on public basic and humanities general knowledge, basic medical sciences, clinical medicine, and public health and general practice medicine account for 32.25%, 28.22%, 31.64%, and 7.9% of the total class hours respectively. In China, rural oriented medical students may adopt the "4 + 1" model, that is, four years of college education plus one year of clinical practice, or the "3.5 + 1.5" model, which means 3.5 years of college education plus 1.5 years of clinical practice. In the practical aspect, integrated experimental courses, medical introduction courses, clinical skills training, clinical probation, clinical internship, internship at the Centers for Disease Control and Prevention (CDC), community internship, and social practice courses are set up for

order-oriented students. The main general practice medicine courses offered include "Health Education", "Community Health Service Management", "Health Management", "Modern Community Medicine", "Introduction to General Practice Medicine", etc.

Brief summary

There is no unified curriculum system for the existing education of rural oriented medical students in China. Most of the curriculums of rural oriented students still focus on theoretical teaching, the clinical practicing teaching is relatively insufficient.

2.5 Demand-oriented

Demand-oriented care is a related concept that gained usage in public mental health and health policy literature. In this concept the focus lies more heavily on the adjustment of services to the patients' needs (de Weert-van Oene GH et al., 2006). The theory of demand orientation has been widely applied in both the education and healthcare sectors. For example, in the education sector, the State Council's "Overall Plan for Promoting the Construction of World-Class Universities and Disciplines" has introduced "serving the country's urgent needs" as a fundamental principle for the first time (Liu Hao et al., 2024). In medical clinical applications, a demand-oriented approach has become an important decision-making criterion for patient management (Zhou Yangyang, 2024) (Ren Yanan et al., 2024).

2.5.1 Demand for primary health care

More and more attention are given to the extent to which inhabitants are content about their treatment, to their specific needs and wants concerning their treatment, to the inhabitant's goals and their individual demands (Rijckmans M et al., 2007). In China, it is one of the important responsibilities of the government to recognize and understand people's various needs and continuously meet people's growing reasonable needs (He Xingliang, 2013) The Outline of the "Healthy China 2030" Plan proposes that we should innovate the supply mode of health care, so that the grassroots hospitals generally meet the demands of inhabitants (Chen Haihua et al., 2018,).Fang Liyi and colleagues' research(Fang Liyi et al., 2018) indicates that the demand among rural residents in Shandong Province is greatest for basic medical

services and medication guidance. Other important needs include medical nutrition guidance, health consultations, health check-ups, and disease prevention. The health needs of residents in the rural areas of Qinba Mountain, Sichuan (Lu Xiaohong et al., 2018), indicate that the demand for health knowledge related to disease prevention, balanced diet, and medication use is 80.5%, 60.6%, and 54.7%, respectively. Additionally, the demand for health services such as regular check-ups, health consultations, free medical consultations, and dietary guidance is 78.6%, 66.8%, 54.2%, and 53.8%, respectively.

2.5.2 Demand for medical education

As to demand oriented rural primary personnel training program, we should not take only inhabitants' opinion into our consideration, it is a program relate and will affect many stakeholders. So, in this research, we creatively add other main stakeholders, include rural grassroots doctors themselves and the deans of township hospitals where the rural grassroots doctors work in, which all demands will be collected and analysed to develop interventions. A study on the current situation and demand for continuing education training for general practitioners in Sichuan Province (Wang Yanan et al., 2023) shows that general practitioners currently have a strong and urgent demand for continuing education training. They express significant needs for training in clinical skills, auxiliary examinations, systematic knowledge, and research. A another survey(Gao Yu et al., 2016) rural oriented grassroots doctors in Luzhou City, Sichuan Province, revealed that 57.4% of healthcare personnel wish to improve their education through self-study or correspondence courses, while 56.7% hope to regularly visit and learn from higher-level hospitals. The primary focus for grassroots healthcare personnel is on learning new professional technologies and knowledge (90.3%), followed by interpersonal communication (53.0%) and medical psychology (52.4%).

Brief summary

In this study, demand-oriented is the interim goal of the research. Only by first identifying the true needs of primary healthcare for medical education can targeted improvements be made to training programs for primary healthcare doctors.

2.6 Stakeholder Theory

The first phase of this study focuses on rural grassroots doctors, township health center directors, and rural residents to explore the needs of rural healthcare, grounded in stakeholder theory.

The stakeholder concept was first introduced and utilized by Stanford scholar Freeman in 1963, defining it as a group that is essential for an organization to operate effectively; without the support of this group, the organization would struggle to function normally (Castellini, M. S. 2014). Since then, its meaning has continuously evolved in management practice. Currently, a widely accepted definition is provided by Clarke, who describes stakeholders as individuals and groups that affect or are affected by an organization's objectives (Clarke, T. 1998). As research has progressed, stakeholder theory has developed into an independent theoretical branch, eventually leading to a more comprehensive framework of stakeholder theory (Luo Yu et al., 2011). Nowadays, Stakeholder theory is primarily defined as the systematic collection, organization, and analysis of information about the characteristics of various stakeholders, including individual awareness and the degree of impact, which prompts decision-makers to recognize the importance of key stakeholders in achieving organizational management goals, thus leading to necessary adjustments (Xia, N et al., 2018).

Stakeholder theory is primarily applied in the field of corporate economic management, but currently, research on stakeholders has been widely extended to various other fields, including politics and social services management. Stakeholder analysis, as a research tool and method, can be utilized to analyze the behaviors, roles, and impacts of organizations, institutions, or individuals in policy decision-making and implementation (Jin Congcong et al., 2020). In the 1990s, the application of stakeholder theory expanded into the field of health management, gradually integrating with multidisciplinary theoretical research in public policy, ethics, sociology, and more, thereby further broadening the theory's scope (Hu Kun et al., 2007). For instance, Sunil et al. emphasized the need to pay adequate attention to the demands of stakeholders related to hospital market development (Sunil et al,2001). Meanwhile, Sara et al. suggested a tiered approach to stakeholder management, which would involve investigating their differentiated needs to achieve effective adjustments

in health decision-making (Sara et al, 2009). He Qinggong applied this theory to improve doctor-patient relationships, providing a solid foundation for fostering a harmonious medical environment (He Qinggong, 2009). In the field of health policy analysis, Wang Yonglian pointed out that stakeholder analysis is an important research method when formulating health policies and conducting political analyses, summarizing the steps of stakeholder analysis in health policy (Wang Yonglian et al., 2006).

The quality of medical education has increasingly become a lifeline for the survival and development of medical colleges and has become a focal point for the demands of various stakeholders. Therefore, establishing an effective stakeholder coordination mechanism will be a fundamental way to improve educational quality. Stakeholders involved in ensuring medical education can be categorized into three types: definitive stakeholders (government, schools, leadership teams), expected stakeholders (administrative personnel, teachers, and students), and potential stakeholders (students' parents, the pharmaceutical industry, hospitals, etc.) (Wei Xiaobo. 2014). It is now widely recognized across many parts of the world that the active involvement of various stakeholders significantly enhances the quality, relevance, and impact of health research (Kreis et al., 2013). Patients and the public play an integral role in educating healthcare professionals, and their engagement is considered essential for high-quality education (Bombard et al., 2018). In the UK, the Graduate Medical Council (GMC) has recommended that the development of medical school curricula be informed by input from medical students, doctors in training, educators, employers, and health and social care professionals, as well as patients, families, and caregivers (General Medical Council, 2016). A World Health Organization report from 1995 urged medical schools to adopt a new paradigm of social accountability to better meet community needs, with these priorities identified collaboratively by governments, healthcare organizations, providers, and the public (Boelen & Heck, 1995). The roles of patients can be categorized into several areas: as teachers, assessors of student competence, curriculum developers, and selectors for medical school admissions (Dijk et al., 2020). A systematic review indicates that a significant number of studies demonstrate the feasibility of user contributions in

teaching, assessment, and evaluation, as well as sharing their experiences directly with students (Gordon et al., 2020)

Brief summary

The purpose of this study is to explore the demands of rural grassroots healthcare for medical education, a question that intersects healthcare and education. Stakeholder theory has been validated as applicable to research related to both healthcare and education. Therefore, this study includes various stakeholder groups, such as rural inhabitants, rural grassroots doctors, and township hospitals.

2.7 Behavioral Model of Health Services Utilization (BMHSU) Model (Anderson Model)

One of the stakeholders in this study is rural inhabitants. Through a questionnaire survey, we investigate the experiences of rural inhabitants in accessing grassroots healthcare and explore their needs regarding rural healthcare services in order to improve existing training programs for grassroots doctors. The questionnaire is designed based on the Behavioral Model of Health Services Utilization (BMHSU) Model (Anderson Model).

In 1964, American scholar Ronald Anderson, as the head of the survey team, participated in the Third U.S. Health Services Survey. The survey revealed significant differences in the utilization of healthcare services among populations with varying demographic and socio-economic characteristics. To explain this phenomenon, Anderson created the Behavioral Model of Health Services Utilization (BMHSU) in his doctoral dissertation in 1968, commonly referred to as the Anderson Model (LI Yue-e et al., 2017).

The Anderson Model has undergone five iterations and refinements and has been widely applied in healthcare service research in the United States and Europe. It is recognized in academia as one of the most authoritative service research models in the fields of international medicine, sociology, and healthcare services over the past few decades. (Yang Wenying, 2023)

The Anderson model is frequently used in research related to the utilization of healthcare services, particularly in studies examining the factors influencing service

utilization（Travers J L et al., 2020)（Graham A et al., 2017)(SoleimanvandiAzar N, et al., 2020) or in developing satisfaction assessment indicators（Fortin M et al., 2018).

The Anderson Model was initially established in 1968, using the "family" as the basic unit of analysis to examine the factors influencing healthcare service utilization behaviors among different families. In this model, predisposing characteristics, enabling resources, and need were identified as the key factors affecting a family's utilization of healthcare services, forming the initial structure of the Anderson Model (LI Yue-e et al., 2017）, as in figure 1.

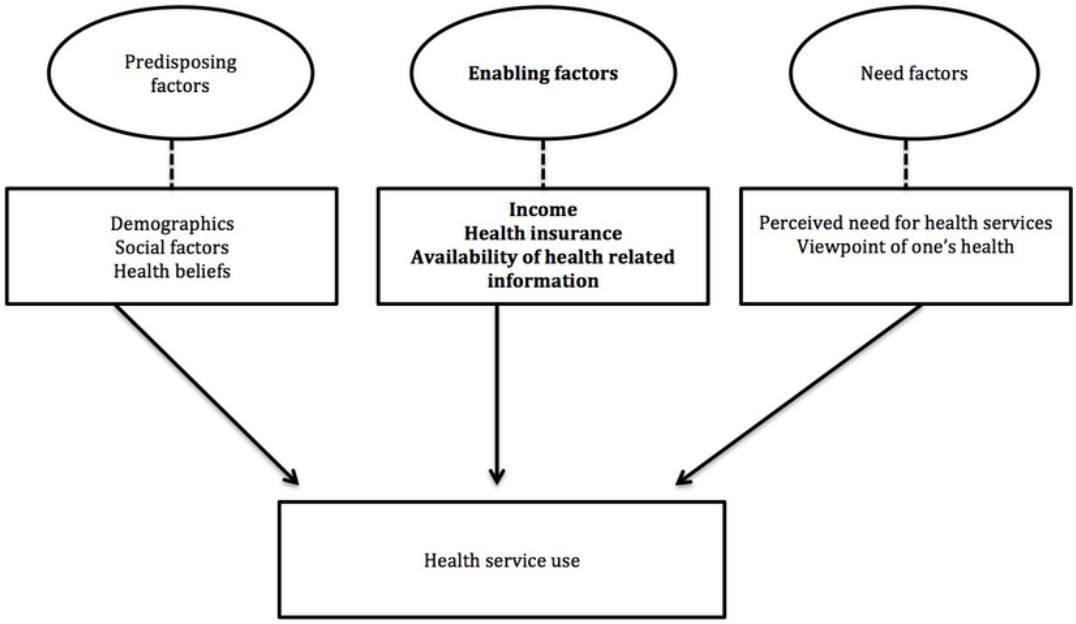


Figure 1 *Andersen behavioral model of health services use 1968*

Predisposing characteristics refer to the characteristics of individuals who are inclined to utilize healthcare services before the occurrence of illness. These characteristics are not directly related to healthcare service utilization and include three variables: demographics (such as age and gender), social structure (such as education level, occupation, race, and social relationships), and health beliefs (including perceptions, attitudes, and values regarding healthcare services).

Enabling resources refer to the ability of family members to access healthcare services and the availability of healthcare resources, serving as indirect

influencing factors on service utilization. This includes two variables: individual or family resources (such as income and health insurance) and community resources (such as accessibility to community healthcare resources, the cost of services, and waiting times for treatment).

Need refers to the perceived need for medical services by family members, which is a prerequisite and direct influencing factor for healthcare service utilization. This includes perceived need (subjective judgments regarding one's health status and illness) and evaluated need (professional assessments and objective measurements of a patient's health status by doctors). Healthcare service utilization encompasses outpatient visits, hospitalization, dental care, and other medical services utilized by family members（Andersen R M, 1995）.

In the early stages of the Anderson Model's creation, it was recognized through extensive empirical research that the model struggled to capture complexity and nuances Z (Bradley E H et al., 2002). In response, Anderson made five revisions and improvements to the model by continuously adding measurement indicators, adjusting the structure, expanding path relationships, and changing analysis pathways. While retaining the initial components of the model—predisposing characteristics, enabling resources, and need—its structure evolved from a one-dimensional model to a four-dimensional model that includes contextual characteristics, individual characteristics, health behaviors, and outcomes, as showed in figure 2.

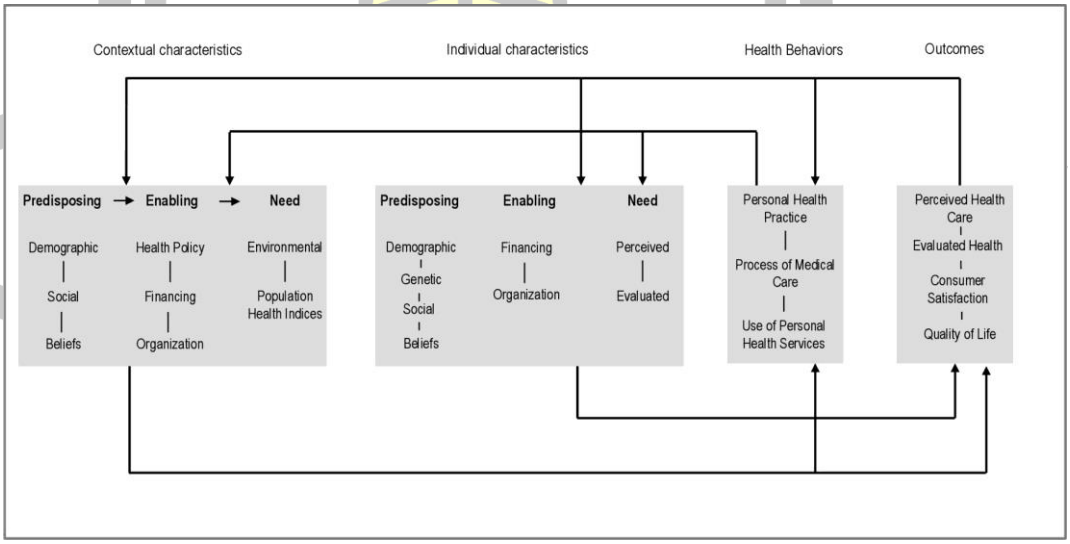


Figure 2 *Andersen behavioral model of health services use 2013*

First，the dimensions of contextual characteristics and individual characteristics in the model act as antecedent factors influencing health behaviors. They form a parallel structural relationship, representing influencing factors from the external environment and personal characteristics, respectively. Both dimensions have the same indicator structure and path relationships, encompassing the three variables of predisposing characteristics, enabling resources, and need, with specific measurement indicators differing between them.

In their most recent explication of the model, Andersen & Davidson (Andersen RM et al., 2001) described these three major components as follows:

• Predisposing factors Individual predisposing factors include the demographic characteristics of age and sex as "biological imperatives"， social factors such as education, occupation, ethnicity and social relationships (e.g., family status), and mental factors in terms of health beliefs (e.g., attitudes, values, and knowledge related to health and health services).

• Contextual factors predisposing individuals to the use of health services include the demographic and social composition of communities, collective and organizational values, cultural norms and political perspectives.

• Enabling factors Financing and organizational factors are considered to serve as conditions enabling services utilization. Individual financing factors involve the income and wealth at an individual's disposal to pay for health services and the effective price of health care which is determined by the individual's health insurance status and cost-sharing requirements. Organizational factors entail whether an individual has a regular source of care and the nature of that source. They also include means of transportation, travel time to and waiting time for health care. At the contextual level, financing encompasses the resources available within the community for health services, such as per capita community income, affluence, the rate of health insurance coverage, the relative price of goods and services, methods of compensating providers, and health care expenditures. Organization at this level refers to the amount, varieties, locations, structures and distribution of health services facilities and personnel. It also involves physician and hospital density, office hours, provider mix,

quality management oversight, and outreach and education programs. Health policies also fall into the category of contextual enabling factors.

• Need factors At the individual level, Andersen and Davidson (Andersen RM et al., 2001) differentiate between perceived need for health services (i.e., how people view and experience their own general health, functional state and illness symptoms) and evaluated need (i.e., professional assessments and objective measurements of patients' health status and need for medical care). At the contextual level, they make a distinction between environmental need characteristics and population health indices. Environmental need reflects the health-related conditions of the environment (e.g., occupational and traffic and crime-related injury and death rates). Population health indices are overall measures of community health, including epidemiological indicators of mortality, morbidity, and disability (Babitsch B, et L., 2012).

Secondly, the health behavior dimension of the model encompasses not only the utilization of healthcare services through outpatient visits and hospitalization but also personal health practices, such as dietary control, increased exercise, smoking cessation, and self-medication. Additionally, the process of medical care— including patient consultations, examination procedures, and doctor-patient communication—is also included in this dimension. This aims to recognize the interactions between patients and healthcare providers as a form of health behavior.

Finally, the health outcomes dimension in the model reflects individuals' evaluations of the effectiveness of healthcare service utilization. It aims to enhance the focus on individual health outcomes by incorporating variables such as perceived health, evaluated health, consumer satisfaction, and quality of life, thereby exploring their impact on health behaviors (LI Yue-e et al., 2017).

Brief summary

It can be seen that whether in the initial model or the refined model, the core components consistently revolve around the three fundamental elements: predisposing characteristics, enabling resources, and need. This study aims to explore the demand for primary healthcare services among rural residents, with a focus on identifying what the demand is, rather than examining the factors influencing the utilization of healthcare services as other studies do. Therefore, this paper is based on Anderson's

model of healthcare service utilization, concentrating on the three key components of predisposing characteristics, enabling resources, and need. A survey questionnaire on the demand for primary healthcare services among rural residents in Jiangsu Province has been developed, as detailed in the appendix.

2.8 Mixed-methods

Mixed methods refer to a research approach that collects and analyzes data, integrates findings, and draws inferences using both qualitative and quantitative means within a single research or inquiry project. Its characteristics include the possibility of integration during the research stage, often being carried out by a team, with the project centered around answering related questions. The combination of the two methods helps deepen the understanding of research problems and they are complementary and synergistic(Aarons G A et al., 2012). Several typologies exist in mixed methods designs, including convergent, explanatory sequential, exploratory sequential, embedded, transformative, and multiphase designs(Creswell, J. W., & Plano Clark, V. L., 2011). among which, convergent, explanatory sequential, and exploratory sequential—constitute the three core mixed methods research designs (Minc SD., 2022).

Convergent designs use a single-phase approach to data collection in which quantitative and qualitative data are collected at roughly the same time, often in a complementary but largely independent manner. In this design, quantitative and qualitative data generally focus on similar concepts or constructs. Studies that use this design are typically focused on comparing the two sets of data to draw conclusions. An example of the use of a convergent design is by Miller et al (Miller MJ et al., 2021), who studied the psychosocial factors that influence activity and disability after vascular disease–related lower limb amputation. Participants in the study wore a pedometer (quantitative) to assess the distance they walked, and were also interviewed about life experiences after amputation, to gain a better understanding of how participants viewed challenges and facilitators for activity after amputation (qualitative). The researchers used a convergent design to compare (integration) the perspectives of the highly active participants to those less active and identified psychosocial facilitators to improve activity and function.

Explanatory sequential designs start with a quantitative phase. Once the quantitative data are analyzed, these findings inform the development of a qualitative phase designed to explain, or elaborate on, the quantitative findings. The quantitative results may inform the qualitative sampling plan, as well as the types of questions to be answered during the qualitative data collection phase. Although the quantitative data inform the qualitative, the two data types are typically analyzed separately and then integrated at the end in a manner that provides an in-depth understanding of the issue under study. An example of explanatory sequential design is the hemodialysis access study by Rich et al (Rich NC et al., 2017), who used this approach to identify factors associated with race related disparities in catheter use for initiation of dialysis. In their study, a retrospective chart review was conducted in a dialysis unit at an urban "safety-net" hospital to identify factors associated with incident catheter use (quantitative), followed by patient interviews (qualitative) from a sample of patients who had started dialysis the year before the study to better contextualize the quantitative findings and develop strategies to address disparities (integration)

In an exploratory sequential design, the qualitative phase is performed first to explore a research problem and either generate a testable hypothesis or inform creation of a data collection instrument or intervention to be administered in the subsequent quantitative phase (eg, clinical screening tool, survey, and geographic analysis). This design is useful when addressing understudied communities, populations, or interventions, and facilitates the incorporation of new quantitative variables not included in prior research efforts. A relevant example is a study by Shiyanbola et al (Shiyanbola OO et al., 2021) who used the design to culturally adapt an Illness Perception Questionnaire (IPQ-R) to address the sociocultural contexts of African American people living with diabetes. Focus groups were performed with African American men and women with diabetes (qualitative) and key themes from the focus groups were used to build new survey items and adapt existing ones from the IPQ-R (integration). The survey was then pilot tested in a sample of African American men and women (different from those who participated in the first phase) with metrics to compare the original IPQ-R questionnaire with the new adapted one (quantitative). The quantitative findings indicated strong internal validity and reliability for the culturally adapted survey. The exploratory sequential design was

essential for this study to be able to identify relevant adaptations and validate a survey tool (integration) for a community with a history of health disparities related to diabetes .

Mixed methods research integration occurs when the qualitative and quantitative approaches and dimensions are brought together to generate more comprehensive insights than could be achieved by either approach alone (Fetters MD et al., 2017). The overall conclusion, explanation, or understanding developed through this integration is termed metainference (Bergman M, 2008). The type of integration strategy employed is closely linked to the choice of study design. Integration can occur at the design level (as described through different designs above), at the methods level (ie, connecting, building, merging, and embedding), and the interpretation level (ie, through metainference) (Fetters MD et al., 2013). Focusing on the level of interpretation and reporting, integration could occur through narrative, transformation, and joint display.

Brief summary

mixed methods research can mix in research designs, data analysis and integration strategies. In this we research, we also hire mixed methods in these three parts. Although mixed methods research is more complex, time consuming, and expensive than using a single method, the depth and breadth of knowledge generated often surpasses those of individual methods, and the related efforts and cost thus contribute to a greater impact on the delivery and quality of health services.

2.9 Action research

The second phase of this study is an action research project, which will transform the results from the first phase into intervention measures. These measures will be applied to the training program for rural grassroots doctors and will be used to evaluate their effectiveness.

The action research concept was introduced by Lewin as part of his research on racial prejudice (Lewin K,1948) Action research has developed as a problem-solving methodology in the interface between the social and organizational sciences and political movements (Peters M et al., 1984) Action research denotes the study of a social situation, intended to improve the quality of action(Winter R, 1989) The two

central concerns—improvements in practice and increased knowledge and understanding—are linked together in an integrated and dynamic cycle of activities, in which each phase learns from the previous one and in turn shapes the next.

The focus of action research is knowledge that can be used to produce action and contribute to theories of action(Holter FM et al., 1993) The theoretical framework originates from the traditions of pragmatism, the philosophical movement and theory of knowledge established by Charles Sanders Peirce (1839-1914) and John Dewey (1859-1952)(Skagestad P, 1981) According to pragmatism, knowledge is valid only as far as it can be effected as productive action. Results and consequences are considered to be more important than purposes and intentions. Because the context of action influences the results of action, knowledge is regarded as a relational phenomenon, shaped by the interaction of people and situations.

The cycles of action research involve problem identification, planning, acting and evaluating (Argyris A et al., 1985). Later scholars explicitly interpreted this process as planning-action-Observation-Reflection -Planning (next cycle) (Zheng Jinzhou, 1997).The methodology is often qualitative, influenced by ethnographic fieldwork(Whyte WF, 1990) although action research does not require any inherently specific method of data collection. The strategies for collection and analysis of data must correspond to the specific problem and context. Assessment of relevance and validity is considered essential, and validity questioning and answers must be provided from interaction with the people affected by the intervention (Malterud K, 1995).

Action research has been widely applied in the medical field. An action research of nutrition guidance on patients with gastrointestinal malignant tumors undergoing chemotherapy (Mu Dan et al., 2024) was found that after intervention, the scores of the knowledge-attitude-behavior questionnaire and the quality of life of the observation group were higher than those of the control group. The levels of prealbumin, serum albumin and body mass index were higher than those of the control group ($P < 0.05$). The total incidence of adverse reactions was lower than that of the control group (9.84% vs 26.23%, $\chi^2 = 5.546$, $P < 0.05$). Another study on infection management in the operating room using action research (Zhong Xintong et al., 2024) shows that the observation group has higher scores in medical waste

disposal, item and drug management, instrument management, environmental disinfection and cleaning, occupational protection and safety management than the control group ($P < 0.05$). The sampling qualification rates of sterile items, medical staff hand hygiene, item surfaces, operating room air, and disinfectants in use in the observation group are all higher than those in the control group ($P < 0.05$). The surgical incision infection rate in the observation group is 1.23 per thousand, lower than 2.62 per thousand in the control group ($P < 0.05$). Action research has also been applied in the teaching of Surgical Nursing Skills (Sudan et al., 2016). The core abilities of nursing talents such as students' critical thinking, ability to observe and analyze problems, skills to cooperate and communicate with others, scientific research ability, and independent learning ability have been cultivated and improved.

The field of education is even more fond of action research. The Faculty of Medicine at the University of La Sabana dedicates 20 weeks to the collaborative development of community-oriented action research projects (COARPs) as part of the family and community health career training component of the undergraduate curriculum(Lamus F et al., 2011) This research provide a vehicle and a foundational framework for collaboration between community and health professions education institutions and can be generalised to other community-based education efforts. An action research on integrating national consciousness into college foreign language courses (Li Rui, 2024) shows that this model effectively improves the phenomenon of the separation of ideological and political education and language teaching, and promotes the multi-faceted development of students' cross-cultural cognition, attitude and skills. An action research on a core literacy-oriented blended teaching model(Lin Sixing, 2024) through three rounds of actions found that the learning activity design based on PDAR is the focus of developing students' core literacy, collaborative inquiry is the key to training students' high-level thinking abilities, whole-process monitoring and timely feedback are the means to develop students' core literacy, and learning self-monitoring and evaluation and reflection are the fundamental for developing students' core literacy.

Brief summary

Action research is a widely applied intervention-oriented research method in both the medical and educational fields. It emphasizes the integration of theory and

practice, generating new knowledge through practice and enriching educational theory. Therefore, the second phase of this study will be conducted using an action research approach, translate the results of the first stage of research into intervention measures and implement two cycles of action research.

2.10 Bandura's Social Learning Theory

In the second phase of this study—action research—a specific intervention was employed, inviting outstanding order-directed graduates currently working in grassroots settings to engage in online meetings with enrolled order-directed students. This aims to enhance the professional identity of the students, grounded in Bandura's social learning theory.

Bandura's social learning theory (Bandura, 1977) focused on people's learning by imitating or observing others through modelling influences. The theory later embraced cognition to further explain human behavior through a person's mental abilities such as information processing to respond to these modelling influences. it explains how personalities can change through these processes and asserts that people influence others and are influenced by others. The social learning theory is on the other hand one of the most widely used learning theories, in the workplace and the human resource development field, to address and enhance adult learning (Gibson, 2004). Thus, social learning theory can and has been used to explain how human behavior is shaped in the workplace (Koutroubas V et al., 2022)

Bandura's observational learning consists of four stages: (1) attention: learners see the behavior they want to reproduce, (2) retention: learners retain the behavior they have seen entailing a cognitive process in which learners mentally rehearse the behavior they wish to replicate, (3) reproduction: learners put the processes obtained in attention and retention into action, and (4) motivation: learners imitate the observed behavior through reinforcement (direct, vicarious or self-reinforcement). The use of Bandura's social learning theory in the included studies suggested its advantages in improving students' self-efficacy and confidence, collaborative learning, learning experiences and future teaching experience and career research intentions（Mukhalalati B et al., 2022）. Bandura's social learning theory were applied predominantly in teaching and instruction strategies within the health professions

education programs. This review demonstrated the application of Bandura's observational learning model in the form of in-class integrated collaborative learning activities through an online tool for improving learning experiences and engagement (Carroll J-A et al., 2018). It is argued that observational learning provides a faster and safer approach to learning complicated patterns of behavior than trial and error, making it consistent with and suitable for health professions education (Quinn FM, 2000).

In social learning theory, the power of role models is very important. when people are asked to identify who or what greatly influenced them to become the person they are today, many do not hesitate in naming specific individuals such as close family members, admired celebrities, or whomever they deem to be role models. In the broadest sense, role models are people who have or had a profound and significant (usually positive) impact on a person's life. Role models exemplify specific goals, behaviors, and strategies that role aspirants (people exposed to role models who consciously and even unconsciously follow in the latter's footsteps) internalize and imitate. Role models are particularly useful in the field of education as a source of inspiration, providing roadmaps for possible career paths and enhancing motivation along the way (Ahn J N et al., 2020)

First, an effective role model should demonstrate competence and attainable success in the desired or relevant domain. Competence matters because role models are those who exhibit skills that others lack and are subsequently motivated to learn from them (Marx et al., 2002). Additionally, a role model's accomplishments should be deemed attainable (Hoyt et al., 2011). Attainability is important because it influences role aspirants' expectations regarding the kind of success that is possible to achieve.

Second, an effective role model is someone that others can identify as similar or self-relevant (Marx et al., 2012). Perceived similarity is critical because upward social comparisons are particularly self-enhancing when shared similarities with a superior other are highlighted (Collins, 1996). Perceived similarity can be acquired from a number of sources, such as shared group membership (e.g., the same gender or race), similar past experiences, or common interests (O'Brien et al., 2017) A third aspect that is important in affecting a role model's effectiveness is how role models

earn their success. It has been suggested that people are more likely to benefit from a role model's success if the said success is attributed to internal, controllable, and stable factors rather than success attributable to external, uncontrollable, and unstable factors (Weiner, 1979).

Brief summary

Thus, based on social learning theory, inviting outstanding rural oriented graduates to serve as role models in the industry is expected to positively influence the professional identity of rural oriented medical students by showcasing the value of working in grassroots rural settings.

2.11 Empathy

The results from the first phase of the study indicate that grassroots healthcare requires doctors with a high level of humanistic literacy. Primary healthcare places high demands on doctor-patient communication, and effective communication largely depends on the doctor's ability to empathize.

The definition of empathy was discussed in Chapter One. The most influential account of empathy can be traced back to Carl Rogers, a renowned psychotherapist known for his work on the therapeutic relationship between client and therapist. Rogers' initial definition was quite simplistic: "To sense the client's world as if it were your own, but without ever losing the 'as if' quality—this is empathy" (Rogers 1957, 99). Researchers suggest that empathy encompasses sharing someone's emotions (an emotional process), adopting someone's perspective (a cognitive process), and feeling compassion coupled with a desire to help (a motivational process) (Depow et al., 2021).

Empathy is an emotional response (affective) that relies on the interplay between inherent traits and situational influences. Empathic processes are automatically triggered but are also shaped by top-down control mechanisms. The resulting emotional response mirrors one's perception (whether directly experienced or imagined) and cognitive understanding of the stimulus emotion, while recognizing that the source of the emotion is distinct from one's own (Cuff et al., 2016). Sympathy, compassion, and empathy are closely related terms that are often conflated. Sympathy is defined as an emotional reaction of pity towards the

misfortune of another, particularly those perceived as suffering unfairly (Sinclair et al., 2017). Compassion is described as a complementary social emotion that arises from witnessing the suffering of others, evoking feelings of concern and warmth, while empathy is viewed as a more complex interpersonal construct involving awareness and intuition (Preckel et al., 2018).

Empathy serves as a fundamental tool in the therapeutic relationship between caregivers and patients, and its contribution to improved health outcomes is well-documented (Rothery & Tutty, 2001). However, physicians in clinical practice often feel they lack sufficient time to practice empathy. In the long run, though, cultivating empathy can save both time and resources (Bellet et al., 1991). An empathetic professional understands the needs of healthcare users, making them feel secure in expressing their thoughts and concerns (Moudatsou et al., 2020). This mutual understanding fosters a closer relationship between the expert and the patient, resulting in benefits for both parties (Kliszcz et al., 2006). Additionally, empathetic relationships help therapists manage stress and burnout, thereby enhancing their quality of life (Moloney et al., 2015). Research indicates that physicians with higher levels of empathy experience lower rates of burnout and depression (Thirioux et al., 2016).

Unfortunately, despite the undeniable importance of empathy, a significant proportion of healthcare professionals struggle to incorporate empathetic communication into their daily practice. Factors that negatively impact the development of empathy include high patient volumes, insufficient time, a focus on therapy within the existing academic culture, and inadequate training in empathy (Moudatsou et al., 2020). There is also evidence suggesting that empathy among medical and healthcare students declines during their undergraduate education (Neumann et al., 2011).

Education is regarded by both students and professionals as crucial for enhancing empathetic skills (Ouzouni et al., 2012). While empathy may be challenging to teach directly, developing students' therapeutic presence through professional socialization and modeling compassion can facilitate empathetic responses (Davis, 1990). Evidence from laboratory-based studies shows that empathy can be increased, at least in the short term (Klein et al., 2001). Empathy functions as a

relatively automatic emotional reflex triggered by a sufficient understanding of others' feelings. This process occurs proportionally to factors such as (i) the observer's empathic capacity (e.g., their ability to adopt the target's perspective) and (ii) the presence of empathic "triggers" in the situation (Weisz et al., 2021). Daily life provides numerous opportunities to trigger empathy, yet these opportunities are often overlooked, especially in doctor-patient interactions (Giroldi et al., 2020). Teaching students and learners how to enhance their empathy is moderately effective over time and is likely to benefit both current and future patients (Winter et al., 2020).

Group discussions about personal experiences and simulated scenarios, including role play and simulated patients, facilitate the analysis of empathy and shared experiences. Role play has been shown to enhance participants' confidence in communication. Engaging with the arts and humanities—such as poetry, literature, drawings, and paintings—reflective writing), cultural studies, and history, as well as film and photography, has also proven effective in increasing self-awareness and reflection. Studies examining these interventions have varied in duration, from 20 minutes to 42 hours (Zhou Y C et al., 2021).

Assessments of empathy have utilized self-ratings, assessor evaluations, and observer ratings. While the Jefferson Scale of Empathy (JSE) is the most common assessment tool (Zhou Y C et al., 2021), various other approaches have been implemented, including adaptations of established tools and local assessment instruments (Kleinsmith et al., 2015; Winkel et al., 2016). Additional self-report measures include the Balanced Emotional Empathy Scale (BEES), the Ekman Facial Decoding test, and the Toronto Empathy Questionnaire (TEQ). The Consultation and Relational Empathy Scale (CARE) is the most frequently used objective measure of empathy (Winter et al., 2020).

Medical educators and curriculum designers can leverage this research to explore ways to integrate empathy training into busy curricula (Winter et al., 2020). Globally, creative educational methods such as journaling, art, role play, and simulation games are gaining popularity in health and social care fields, helping students enhance their empathy-related knowledge and skills (Papouli, 2018). Furthermore, to foster empathy in students, educators should model empathetic behaviors in the classroom. Caring for students and establishing positive teacher-

student relationships are central to teachers' professional roles. Providing high levels of emotional support—characterized by a positive emotional tone, sensitivity to students' emotional, social, and academic needs, and consideration of their interests—constitutes an essential aspect of high-quality classrooms (Aldrup et al., 2022).

Brief summary

In summary, empathy is crucial for medical students and doctors, and it can be enhanced during the process of medical education, making it a viable focus for this study.

2.12 Narrative medicine

Narrative medicine is a method for enhancing the empathy of medical students with a focus on patient-centered care within action research.

Narrative medicine is a medical practice that emphasizes the narrative abilities of physicians, enabling them to recognize, interpret, and be moved by the dilemmas of others (Charon, 2001). It not only requires physicians to possess scientific skills but also to listen to patients' stories, understand their burdens, and act based on this understanding (Charon, 2001). This ability allows physicians to gain deeper insights into patients' experiences, fostering a more humanistic approach to medical care.

At the core of narrative medicine is the understanding and interpretation of others' dilemmas through narrative knowledge. This knowledge extends beyond literature and film, encompassing various real-life contexts, such as marriage and illness. By employing narrative medicine, healthcare professionals can enhance their communication and teamwork skills, promote empathy, alleviate burnout, and strengthen ethical reasoning and clinical capabilities (Charon, 2006).

Two main tools significantly enhance narrative literacy in the practice of narrative medicine: close reading of literary works and reflective writing (Dong Q et al., 2020). Close reading helps healthcare professionals deeply understand changes in roles, identities, and perspectives, while reflective writing serves as a process to transform emotional experiences into rational understanding, facilitating the establishment of relationships between self and others (Yang X L et al., 2022).

Traditional medical school curricula lack richness in scientific imagination and creativity (Charon, 2010). Many academic medical institutions have begun to

implement humanities-based educational initiatives to cultivate skills in narrative medicine (National Academies, 2018). These curricula typically combine various activities, including reading literary narratives, participating in group discussions, conducting writing exercises, studying peer narratives, interviewing patients, and creating portfolios. Such a comprehensive approach aims to help students better understand and apply the concepts of narrative medicine (Remein et al., 2020).

Systematic reviews indicate that narrative medicine has significant effects in various areas, including enhancing communication skills, encouraging perspective-taking, fostering empathy, and promoting ethical inquiry (Remein et al., 2020). A narrative medicine program targeting physicians in Taiwan (Chen P J et al., 2017) confirmed an enhancement of empathy (90.5%). Empathy scores measured by the JSE-HP increased after the narrative medicine program (T1 mean 111.05, T2 mean 116.19) and were sustainable for 1.5 years (T3 mean 116.04) for all participants ($F(2297) = 3.74$, $p < .025$). Another narrative medicine education program targeting medical students in Iran (Daryazadeh S wt al., 2020) found that the experimental group's average reflection scores and empathy scores significantly increased from pre-test to post-test, while the control group showed no significant increase.

Brief summary

Whether through the principles of narrative medicine or empirical research, various evidence indicates that narrative medicine can enhance the humanistic literacy of doctors and medical students, particularly in the area of empathy. This provides a viable basis for this study.

2.13 Professional Identity

Professional identity refers to an individual's positive evaluation of their occupation, reflecting the importance of the occupational role in their self-identity. Specifically, it involves knowing and recognizing the functions, meanings, and values of the profession one is engaged in. It encompasses an understanding of what one should and should not do in their professional role, what is worth pursuing, what should be avoided, and what principles must be upheld. Additionally, it involves genuinely valuing these principles and adhering to them (Fan Yaping, 2009).Professional identity refers to the emotional acceptance and recognition that

learners develop based on their understanding of the discipline they are studying. This process encompasses emotional, attitudinal, and cognitive dimensions, leading to both positive external behaviors and a sense of personal appropriateness (Ma Xiaoqing et al., 2016). Research indicates that professional identity significantly influences students' learning motivation, attitudes, academic performance, employment perspectives, and professional values (Chen Xuehong et al., 2014) (Guo Liansheng, 2024).The preliminary survey revealed that both contract-oriented graduates and current students have a high intention to leave, as well as a high intention to leave after fulfilling their contract, which is closely related to their low level of professional identity.

Due to the long training period for designated medical students, they are required to work in grassroots healthcare institutions after graduation (Zhang Xuewen et al., 2022). The challenging working and living conditions in rural areas pose significant challenges for graduates, potentially resulting in a considerable psychological gap during their studies, which can negatively impact their professional identity (Wang Shulin et al., 2018).

A study in Jiangsu Province (Jiang Jinxing et al., 2022) found that compared to non-rural oriented students, rural oriented students have lower levels of professional identity. Other studies also show that, compared to general clinical medical students, designated students often experience unclear learning objectives, low intrinsic motivation, learning burnout, a lack of understanding of professional policies, and a lower sense of professional identity (Yang Yuwei, 2019) (Li Shengqi et al., 2018).

Possible Causes of Low Professional Identity are 1.Employment Security: Designated students have guaranteed job placements upon graduation, which means they have no choices regarding their future work and may feel less pressure to perform, leading to decreased proactive learning and lower professional identity. 2. Parental Influence: Students may choose their majors based on parental preferences, signing contracts for fields they do not genuinely wish to pursue, resulting in a diminished sense of professional identity (Zhang Xuewen et al., 2022).

To enhance professional identity, various stakeholders can take action:

Health Administrative Departments: Strengthen the promotion of policies

related to designated students and optimize training programs (Zhang Xuewen et al., 2022).

Medical Institutions: Focus on both cognitive and emotional aspects of professional identity, guiding students towards a more positive professional value system and strengthening their commitment to the profession (Wang Shulin et al., 2018).

Educators: Move away from traditional lecture-based teaching methods. Instead, employ diverse instructional strategies to boost designated students' engagement and autonomy in learning, thereby improving their overall professional identity and future occupational commitment (Guo Liansheng, 2024) (Deng Fang et al., 2017).

Brief summary

Currently, the professional identity of designated students is relatively low. Although there is not a large body of research focused on enhancing medical students' professional identity, many studies suggest that strengthening education can help improve medical students' professional identity.

2.14 Professional ideological education

To enhance the professional identity of current students, this study simultaneously employed methods of professional ideology education within the action research framework.

In the new era, students are characterized by active mindsets, diverse personalities, and a reluctance to conform to traditional norms. Their worldviews, outlooks on life, and values are in a stage of maturing development, and their ideological and value systems are highly malleable. (Wang J, 2021) Consequently, in China, professional ideological education is routinely implemented among university students.

"Professional ideology," a form of moral education, generally refers to students' comprehensive understanding and perspective on their chosen majors, encompassing learning motivation, affinity for the major, academic performance, intention to change majors, cognitive understanding of the major, and psychological adaptation to it. Through professional ideological education for freshmen, they can

gain insights into professional knowledge, grasp the main content and frontier trends of their study directions, and acquire learning methods for both basic and specialized courses in universities. This is crucial for stabilizing freshmen's emotional states, stimulating their enthusiasm for delving into their majors, and consolidating their professional ideology. (Gao Tao, 2011) In terms of its goal and value, professional ideological education aims to guide students to correctly understand their majors and studies, assist them in formulating career development plans, facilitate smooth employment, and integrate student value with social value to maximize benefits for both students and society.

As to rural-oriented medical students, Universities often prioritize skill development over ideological education in the training of them, which results in low professional awareness among rural order-oriented medical students during their school years. (Gao Qin et al., 2020) Moreover, existing professional ideological education courses face numerous issues: educational content is overly theoretical and disconnected from students' actual needs, making it difficult for students to apply the knowledge they have learned to real-life situations; Educational methods are monotonous and lack specificity, failing to meet the personalized needs of different students; The educational evaluation system is imperfect, overly emphasizing grades and exams while neglecting a comprehensive evaluation of students' ideological and political qualities. (Xiaojuan Han, 2023) With the rapid development of society and constant changes in the global landscape, outdated and hollow professional ideological education content has become unsuitable for the times. (Ping Wang, 2020).

American educator John Dewey believed that "morality is the highest and ultimate end of education." Thus, moral education occupies an important position in Dewey's educational thought. Dewey advocated that moral education should permeate the entire process of student education, enabling students to cultivate moral values subtly. "The moral process and the educational process are unified; even broadly speaking, morality is education." (Zhong Zhaoxu, 2023). The developmental principle of Marxist educational methods emphasizes that education should adapt to the requirements of the times and continuously update educational concepts, methods, and means. This necessitates the continuous reform and innovation of ideological and

political education to meet the development requirements of the new era (Xiaojuan Han, 2023). Educators have discovered that various medical professional courses, if deeply explored, can find advantages in conducting ideological and political education from their characteristics, content, and methods, thereby enhancing students' professional ethics through professional ideological education. (Han Dan, 2020).

To this end, the concept of "centering on moral education and permeating ideological and political work throughout the entire process of education and teaching" has been proposed. (Chen Hongzhi et al., 2023). Its core is to integrate the content and methods of ideological and political education into every aspect of education and teaching to promote students' comprehensive development. (Tian F, 2023). Meanwhile, the innovation of professional ideological education methods requires the integration of multiple educational methods. This means educators need to break away from traditional educational models and employ various educational methods and means to make ideological and political education more vivid, engaging, and interesting, thereby enhancing students' interest in learning and learning outcomes. (Xiaojuan Han, 2023). Educators should actively innovate teaching methods and means to make professional ideological education closer to students' actual needs. This requires teachers to deeply consider how to seamlessly integrate medical ethics and professional values into subject knowledge during the course design process. By flexibly applying various teaching methods and integrating ideology, knowledge, and fun, the effectiveness of professional ideological education can be improved. Common teaching methods in medical professional courses, such as Problem-Based Learning (PBL), Case-Based Learning (CBL), and situational teaching methods, can be used to integrate elements of ideological and political education into professional course teaching and enhance the effectiveness of professional ethics cultivation. (Han Dan, 2020).

Brief summary

It is evident that many scholars have suggested integrating moral education into the curriculum, and some experts have even provided specific recommendations regarding teaching methods. However, empirical research in this area is still relatively scarce. This study will attempt to translate these recommendations into reality.

2.15 Conceptual framework of the study

This study has carried out a two-stage research.

In phase I, this study aims to enhance the educational quality of rural doctors. Firstly, it investigates the current status of primary medical education both internationally and domestically. Based on the Anderson Model and the Stakeholder Model, a mixed-methods research approach is adopted to examine the educational needs of rural doctors. In phase II, the action research method is employed to test whether the teaching approach integrating narrative medicine, professional ideological education, and the curriculum can improve students' empathy and professional identity.

The output to improve the rural grassroots doctor training system based on the demand of rural primary care in Jiangsu Province. The outcomes are improve rural oriented students' empathy and professional identity.

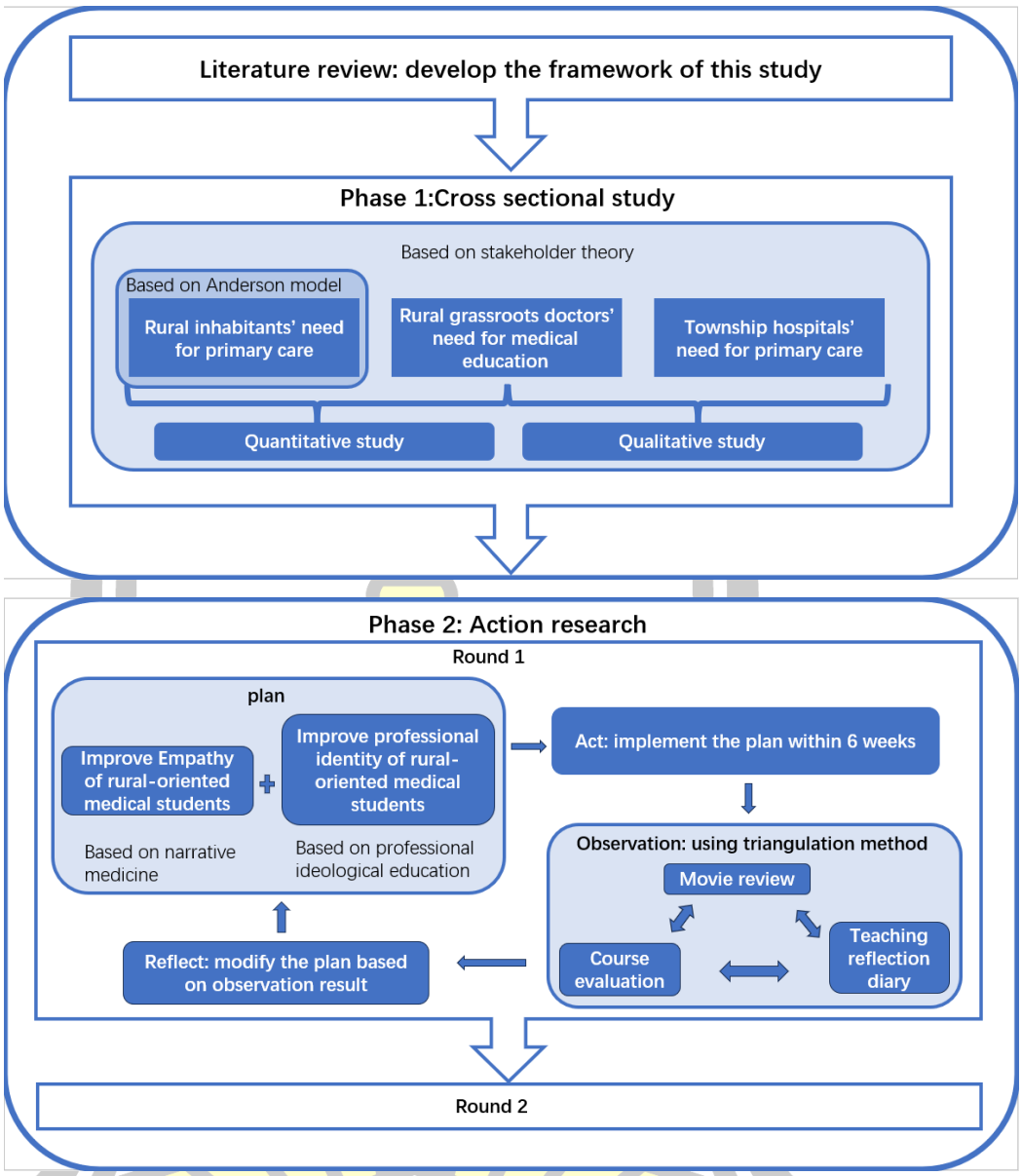


Figure 3 *Conceptual Framework*

Chapter III
Methodology

This research is composed by 2 parts, the first part is mixed research, which plan to collect data to explore the demand and service status of rural primary care in Jiangsu Province by hiring cross-sectional study and in-depth interview. The second part is action research, aiming to improve the existing primary health personnel training system based on the demand found in the first part of this research.

3.1 Phase 1 Cross Sectional Study

3.1.1 Study design

The quantitative method as the cross-sectional study was used to illustrate the current situation and demand from rural inhabitants and rural grassroots doctors. The qualitative methods such as in-depth interview of key information were used to township hospital directors and rural grassroots doctors to explore the improvement of rural grassroots doctors' medical education.

3.1.2 Population and samples

3.1.2.1 Quantitative study population and samples

The study population in quantitative research in phase1 include rural inhabitants and rural grassroots doctors in Jiangsu Province.

Sample

the sample size of quantitative study was estimated using the formula of calculating cross sectional study as following:

$$\text{Sample size}=\frac{z_{1-\frac{\alpha}{2}}^2 p(1-p)}{d^2}$$

When sampling rural inhabitants,

$$P=\frac{population\ served\ by\ rural\ grassroots\ medical\ institution\ in\ Jiangsu}{total\ population\ seek\ for\ medical\ care\ in\ Jiangsu}=\frac{9680}{61721.74}=15.7$$

$$\text{Sample size}=\frac{1.96^2 * 15.7\% * (1-15.7\%)}{0.05^2}=203$$

When sampling rural grassroots doctors,

$$P=\frac{number\ of\ rural\ grassroots\ doctors\ in\ Jiangsu}{number\ of\ total\ doctors\ in\ Jiangsu}=\frac{39642}{254700}=15.56\%$$

$$\text{Sample size}=\frac{(1.96^2 * 15.56\% * (1-15.56\%))}{0.05^2}=201$$

Therefore, the sample size of rural inhabitants is 203, the sample size of rural grassroots doctors is 201.

Inclusion criteria and exclusive criteria

Inclusion and exclusive criteria for rural inhabitants and rural grassroots doctors are shown in table 1.

Table 1 inclusion criteria and exclusive criteria for participants

Inclusion criteria		**Exclusion criteria**	
Rural inhabitants	**Rural grassroots doctors**	**Rural inhabitants**	**Rural grassroots doctors**
1. Over 16 years old	1. The administrative division of practicing place is rural areas in Jiangsu.	1.Under the age of 16 years	1. Refuse to participate in the investigation
2. The administrative division of residence is rural areas in Jiangsu	1.Able to read and understand Chinese mandarin independently or with the help of others.	1. Refuse to participate in the investigation	1.Unable to participate in the survey completely
3. Able to read and understand Chinese mandarin independently or with the help of others.	1.Willing to participate	1.Unable to participate in the survey completely	
4. Willing to participate			

Sampling

Sampling of participants

In this study, the rural inhabitants who met the eligible criteria were selected by simple random sampling. The rural inhabitants were delivered questionnaires via medical students, in fact, selected rural medical students of the researcher's university were asked to distribute questionnaires around their neighborhood. The researcher made the sampling frame of each area of Jiangsu and will select sample from each area according to proportion to size as table 2.

Rural grassroots doctors were selected by random cluster sampling. Due to the need to conduct in-depth interviews, the research team site visited the selected rural grassroots hospitals in different areas of Jiangsu Province, questionnaires were distributed to all the rural grassroots doctors of visited hospitals. The sampling frame is shown in table 2.

Table 2 Sample size in each area of Jiangsu

Area	**Population of**		**Number of samples**	
	Rural inhabitants	**Rural grassroots doctors**	**Rural inhabitants**	**Rural grassroots doctors**
Northern of Jiangsu	10529300	93467	98	69
Central of Jiangsu	4653200	49819	43	37
Southern of Jiangsu	6682500	129380	62	95
Total	21865000	272666	203	201

Due to the fact that the questionnaire distributed to doctors was released through electronic questionnaires, there were too many uncontrollable factors such as non-response rate, dropout rate, and questionnaire completion rate that cannot be controlled on site. In order to ensure the sample size, in addition to visiting hospitals, the research team increased the number of sampled hospitals. Finally, the doctor sample came from 12 hospitals (3 hospitals in southern Jiangsu, 3 hospitals in central Jiangsu, 6 hospitals in northern Jiangsu, with a total of 489 clinical doctors from all

12 hospitals), and the sample size requirement is not less than the minimum number of 201.

3.1.2.2 qualitative study population and samples

The study population in qualitative research in phase 1 include township hospital directors and rural grassroots doctors in Jiangsu Province.

Sample

The qualitative research with the township hospital directors and rural grassroots doctors did not calculate the sample size. When the information reached saturation, it naturally stopped.

Inclusion criteria and exclusion criteria

Inclusion criteria of rural grassroots doctors and township hospital directors:

1.The administrative division of practicing place is rural areas in Jiangsu.

2.Able to read and understand Chinese mandarin independently or with the help of others.

3.Willing to participate

Exclusion criteria of rural grassroots doctor's township hospital directors:

1.Refuse to participate in the investigation

2.Unable to participate in the survey completely

Sampling in Qualitative Research

Using purposive sampling, 2-3 township hospitals in Wuxi and Nanjing in southern Jiangsu, as well as in Nantong, Yangzhou, Xuzhou, and Lianyungang in northern Jiangsu were selected. Within the selected township hospitals, 1-2 hospital directors and several on-duty grassroots doctors were included. The sample size was determined based on the information saturation principle, meaning that when repeated information emerges from mobile data, and adding new research subjects does not yield new, meaningful insights, the inclusion of research subjects will cease. A total of 9 hospital directors were ultimately included, with 3 from northern Jiangsu, 2 from central Jiangsu, and 4 from southern Jiangsu. Additionally, 21 doctors were included, comprising 7 from northern Jiangsu, 8 from central Jiangsu, and 6 from southern Jiangsu.

3.1.3 Research instrument

3.1.3.1 Questionnaire for rural inhabitants

The self-administered questionnaire of rural inhabitants was developed based on the Anderson model and literature review. It consists of the following 3 parts:

Part 1 Demographic characteristics

This part consists of enabling factors include location, monthly household income, type of medical insurance, annually health expenditure; predisposing factors include gender, age, education level, career, needing factors include private health status.

Part 2 Opinions on rural primary care

This part consists of predisposing factors include rural grassroots hospitals distance from home, Willing to go to the rural grassroots hospitals when sick, understanding of tiered medical services, opinions on primary diagnosis; needing factors include demand of rural primary care, opinion of the convenience of rural primary care, advise of rural primary care.

Part 3 opinions on rural grassroots doctors

This part consists of predisposing factors include the evaluation of rural grassroots doctors' attitude(8versions), profession(4 versions), effectiveness(8 versions), opinion on the responsibilities of rural grassroots doctors, opinion on the patient-doctor relationship of rural grassroots doctors, trust of rural grassroots doctors.

3.1.3.2 Questionnaire for rural grassroots doctors

The self-administered questionnaire of rural grassroots doctors was developed based on the literature review and consists of the following 7 parts:

Part 1 Demographic characteristics

This part consists of variables include gender, age, education level, subject, length of employment, professional title, monthly income, budgeted post.

Part 2 Opinions on resident standardization training

This part consists of variables include whether trained or not, Level of training unit, length of training, departments of training, advise on training departments.

Part 3 job satisfaction of rural grassroots doctors

This part consists of variables include the self-evaluation of rural grassroots doctors' basic clinical ability, professional spirit and quality, ability to learn and use what you have learned, ability of doctor-patient communication and language expression, performance in teamwork, ability to provide basic public health services, ability to manage your information technology daily and academic research ability. Interpersonal relationships between colleagues, work cooperation among colleagues, relationship with superiors, patient's doctor-patient relationship, job competency, workload and stress, job Professional Matching, work-family balance, recognized by leaders, get the respect of colleagues, get the patient's respect, be respected by society, hospital management, humanized management, reasonable job responsibilities, incentives, liability risk, work environment, medical equipment conditions, informatization configuration, opportunity for job performance, skills training opportunities, opportunities for further study and participation in academic activities, professional title promotion opportunities, reasonable and fair distribution of wage system, current salary level, salary and welfare benefits, intention of leaving and where to leave.

Part 4 services can be offered

This part based on the competency of the responders. Variables include services you can offer, services you are reluctant to offer, services you can't offer.

Part 5 Opinion on skills to be mastered in medical education

This part collects opinions on skill to be mastered by rural grassroots doctors at the stage of campus study, stage of resident standardization training, and stage of further education.

Part 6 Opinions on courses to be strengthened in medical education

This part consists of variables include humanities, social sciences and natural sciences, biomedicine, public health and clinical medicine.

Part 7 Opinions on further education

This part consists of variables include current situation of participation in academic meetings, further studies, and publications of papers.

3.1.3.3 Semi structured interview outline of rural grassroots doctors

The semi structure interview outline of rural grassroots doctors consists of the following questions:

1. What do you think is the biggest motivation to support you in your grassroots work so far.
2. Are there any highlights in your career?
3. Looking back at your medical education stage, which one do you think was successful? Describe it. Which paragraph was a failure? Why? What is the reason?
4. Based on your current job needs, what are the requirements for your current medical education?

3.1.3.4 Interview outline of township hospital directors

The semi structure interview outline of township hospital directors consists of following questions:

1. Please summarize the characteristics of doctors with strong professional abilities and popular with patients in your hospital.
2. What other aspects of the abilities of general practitioners working in grassroots medical and health institutions need to be strengthened and improved?
3. At present, what kind of workforce is most lacking in your hospital? general practitioners? public health doctors? Nurses? Pharmacists? or medical technicians?
4. If you would like to provide comments on medical education, what is your opinion?
5. If giving advice to medical students, what is your suggestion?

3.1.4 The evaluation of research instruments quality

Content validity: Both the questionnaire and semi structure interview outline were developed using Delphi methods by 3 expert who expertise in related field of medical education and rural primary care, including:

1. Name: GXY; field: General Practice, Professor.
2. Name: SGX, field: Epidemiology, Associate Professor.
3. Name: WW, filed: Adolescent mental health, Associate Professor.

then, the research team re-corrected it and check for complete before implement. These operations ensure the validity of the questionnaire content.

Reliability: To verify that the research instrument fits the study population, a pre-experiment was conducted with 30 randomly selected rural inhabitants and 15 rural grassroots doctors who met the inclusion criteria before starting the formal study and was used to test the reliability of the questionnaire. The Cronbach's alpha coefficient was calculated to measure the internal consistency of the question. High Cronbach's alpha values indicate that the response value for each participant across a set of questions are consistent. The acceptable value of alpha is 0.7 or above. The Cronbach's alpha coefficient was calculated in two areas: the rural inhabitants' questionnaire regarding their satisfaction with rural grassroots doctors (Cronbach' alpha coefficient was 0.993), and the questionnaire for rural grassroots doctors regarding their self-work satisfaction (Cronbach' alpha coefficient was 0.958).

3.1.5 Data collection

3.1.5.1 Quantitative data

The research team selected 72 rural students with Jiangsu Province residency from Xuzhou Medical University to act as surveyors, Among them, 31 students from rural areas in northern Jiangsu, 15 from rural areas in central Jiangsu, and 22 from rural areas in southern Jiangsu. The student list was randomly selected from the household registration information form. The tool used for rural inhabitants' data collection was paper questionnaire, which was taken home by surveyors on National day vocation. These surveyors underwent training before vocation and were instructed to conduct face-to-face interviews with inhabitants in their villages after returning home for the vocation, this was done to ensure that the respondents understood the questionnaire content and to maximize the completion rate. Each surveyor was tasked with collecting three questionnaires, and they were encouraged to select villagers of different ages and genders for the survey, the completed questionnaires were submitted upon returning to school.

The tool used for rural grassroots doctors' data collection was Questionnaire Star, a software with powerful features to design questionnaires, collect questionnaires, and perform simple data statistics (Zhou Ling et al., 2021). The method of implementation was as follows: first, the entries of the collection scale or survey were poured into Questionnaire Star, next, the entries were edited to form a

usable questionnaire, and finally, the completed questionnaire was produced with a QR code. 12 hospitals (3 hospitals in southern Jiangsu, 3 hospitals in central Jiangsu, 6 hospitals in northern Jiangsu) were selected randomly, The QR code for the questionnaire was given to the liaison officer, who then distributed it to the clinical doctors' WeChat group in their hospital. Based on the number of people in the WeChat group, red envelopes of 5 yuan each were distributed to encourage participation in the survey.

3.1.5.2 Qualitative data

The in-depth interview was conducted face-to-face. Before the interview, the respondents were informed of the purpose of the interview, the interview is led by the researcher, and the interviewee talks about their own ideas about the issues in the interview outline. The data collection adopts a combination of audio recording and on-site recording methods. To capture the interviewee's true thoughts, interviews were typically arranged in a private room where only the interviewer and the interviewee are present. The interview began with the interviewee's personal work experiences to ease them into a natural state. The interviewer flexibly adjusted the order and manner of questioning based on the interview outline and the interviewee's actual situations. Techniques such as guiding and probing were employed to encourage the interviewees to express their thoughts more deeply and fully. The interviewer made every effort to avoid inducing relevant contexts and to prevent personal opinions from influencing the respondents' perspectives. During the interview, attention was paid to observing the respondents' tone of voice, expressions, and gestures, as well as other non-verbal cues. The interview concluded when the interviewees could no longer provide new information, lasting between 30 to 60 minutes.

3.1.6 Data analysis

3.1.6.1 Quantitative data

IBM’s SPSS version 23.0 was used to analyze all quantitative data. Descriptive statistics was performed for describe demographic characteristics variables. Means and standard deviations of descriptive statistics were used to describe quantitative variables like age, monthly household income. A number of

cases and percentage were applied to describe other categorical variables like gender, educational level, health status, professional title, et al. Chi square test was used to test the distribution of inhabitants' opinions on rural primary care and rural grassroots doctors; rural grassroots doctors' opinions on resident standardization training, job satisfaction, services can be offered, opinions on skills to be mastered, opinions on courses to be strengthened, opinions on further education among different demographic characteristic subgroups. The Multivariable logistic regression analysis was used to determine the association between all demographic characteristics and inhabitants' opinions on rural primary care and rural grassroots doctors; rural grassroots doctors' opinions on resident standardization training, job satisfaction, services can be offered, opinions on skills to be mastered, opinions on courses to be strengthened, opinions on further education. The statistically significant level was set as $P < 0.05$.

3.1.6.2 Qualitative data

Qualitative content analysis was used to analyze the interview content. The steps were as follows:

1. **Familiarization with the data**: Each audio recording and field notes were numbered according to a specific rule, and the interview dates were noted. Within 24 hours of completing the interviews, the recordings were transcribed into Word documents using a standardized template. The transcripts were carefully read, and the audio recordings were repeatedly listened to in order to compare them with the field notes, ensuring the accuracy of the transcription and organization process.

2. **Determining the units of analysis**: After thoroughly reading 1-2 interview transcripts, the research team identified the units of analysis as independent themes—words, sentences, or paragraphs that convey a complete idea. An encoding manual was developed to form the analysis framework.(The coding manual can be check in the Appendix)

3. **Coding and classification**: Based on the encoding manual, descriptions under the same theme were highlighted in the same color or marked with comments. Then he coded data were categorized and organized. This work was carried out independently by two members of the research team, who then compared their results. For any disputed issues, a third member served as an arbitrator until the

disputes were resolved.

4. **Organization**: Objective and accurate descriptions were finally made of the classified materials.

3.2 Phase 2 Action research

3.2.1 Study design

The second phase of the research extracted important findings from the results of the first phase, specifically that the clinical skills and humanistic qualities of rural grassroots doctors in Jiangsu Province need improvement, as do the teaching methods in medical education. In this phase, action research was employed to refine these findings into a problem that needs to be addressed: how to integrate various teaching methods, combining narrative medicine and professional ethics education with medical curricula, in order to enhance students' empathy and professional identity. This study followed a cycle of planning, actioning, observing, and reflecting as part of the action research framework. This study employs a two-cycle action research approach to optimize the intervention measures.

3.2.2 Population and Sampling

Students

Target sampling was hired to select second year rural oriented medical students in Xuzhou Medical University as the research subjects. Second year medical students are still in the stage of learning basic knowledge, and there are relatively few clinical courses available. They have a preliminary understanding of medicine and have mastered some basic medical concepts and knowledge, such as the basic structure of human anatomy and the basic functions of physiology. But the overall knowledge system is not yet perfect, and the understanding of medical knowledge is still at a relatively shallow level, with little knowledge of clinical knowledge.

In this study, Grade 2021 rural oriented medical students in Xuzhou Medical University were chose in Cycle 1, include 25 students, Grade 2022 rural oriented medical students in Xuzhou Medical University were chose in Cycle 2, include 30 students.

Lecturer

In this study, the lecturer is both the researcher and an object of observation. The lecturer has been dedicated to the education of rural oriented students for 14 years, teaching the subject of "Introduction to General Practice", which is closely relate to the work content of grassroots doctors. The lecturer has a comprehensive understanding of rural primary healthcare and have the ambition to continuously reform teaching. The lecturer also possesses knowledge of psychology and has participated in a research class on "Developmental and Educational Psychology" and obtained a certificate. She has the ability to use scientific methods in the process of education to capture observations of students' empathy and professional identity.

Course

The course "Introduction to General Practice" was chose as the research vehicle, as it serves as a foundational course for rural-oriented medical students. This course not only introduces the basic theories of general practice but also illustrates the application of these theories in clinical settings through case discussions. It plays a significant role in helping rural-oriented students gain a comprehensive understanding of grassroots healthcare in rural areas.

The "Introduction to General Practice Medicine" course for rural oriented students has a total of 56 hours, 44 hours of theoretical courses, and 12 hours of practical courses.

Specific course content and hours undertaken by this study:

Doctor patient Communication in General Practice (3 credit hours)

General Medical Management of Hypertension (3 credit hours)

General Medical Treatment of diabetes (3 class hours)

General Medical Management of Malignant Tumors (3 credit hours)

Practical Course: General Practice Medicine and Humanities (6 hours)

3.2.3 Research instrument

The research tool for this study is an action research intervention plan developed by the teaching and research group. This plan was formulated through collective discussions within the Department of Community and Health Education at Xuzhou Medical University, which comprises four members who focus on teaching and research in primary healthcare. The specific action research plan is as in Table 3:

Table 3 intervention plan of increasing empathy and professional identity of rural oriented students

Week	Plan	Theory
1	Topic “doctor-patient communication” by showcasing examples of poor and effective communication through clips from medical documentaries	Narrative medicine
2	Topic “the comprehensive management of hypertension”. Integrate narrative case to simulate the diagnostic and management approaches encountered in clinical practice	Narrative medicine
3	Topic “the comprehensive management of diabetes”, using narrative case to illustrate the importance of empathy in medical decision-making	Narrative medicine
4	1.Topic “the comprehensive management of malignant tumors”, presenting real clinical cases to demonstrate the importance of fully understanding the patient's story in making accurate diagnoses. 2.Organize an online meeting for current students and graduates who working in township hospitals. They will showcase their work environment, discuss job responsibilities, share memorable stories, and offer advice to current students	Narrative medicine + Professional ideological education
5	Practical session where students share their own stories related to grassroots healthcare or their aspirations for future work	Narrative medicine + Professional ideological education
6	Watch a movie “Rural grassroots doctors” and write down movie comments	Narrative medicine + Professional ideological education

3.2.4 Evaluation

The observation process involves triangulation using analyses of their film reviews, course evaluations from the students, and the instructor's teaching reflection journal as measurement indicators.

Film review

The evaluation criteria for the film reviews were created by three experts who are both psychology experts and lecturers in Universities, which include

Sun Guoren, filed in Medical Psychology , Associated Professor.

Lu Wenchun, field in Medical Psychology, Lecturer.

Yu Jianjian , field in Developmental and Educational Psychology, Teaching Assistant.

The criteria consist of five key points, which assess whether the students' film reviews address emotional empathy, cognitive empathy, professional beliefs, professional confidence, and the students' reflections on the reviews, as in Table 4.

Table 4 Film review criteria of rural oriented students

Criteria	Assessment	Criteria
Emotional empathy	Empathy	Whether the film review contains statements expressing the experience of emotions towards the characters in the film.
Cognitive empathy		Whether the film review contains statements that understand the motives behind the characters' actions in the film.
Professional belief	Professional identity	Whether the film review contains statements agreeing with the working methods and beliefs of the doctors in the film.
Professional confidence		Whether the film review contains statements that relate to oneself and express the vision for future occupations.
Reflection	Minimum effectiveness of intervention	Whether the film review contains statements about the perception of the movie.

Pre-test data:

Film review data from the Grade 2020 of rural-oriented medical students (No intervention) as baseline data.

Post-test data of cycle 1:

Film review data from the Grade 2021of rural-oriented medical students.

Post-test data of cycle 2:

Film review data from the Grade 2022 of rural-oriented medical students.

Course Evaluation

The course evaluation consists of two parts. The first part addresses the subjective experiences of the intervention measures, which differ between the first and second cycles. The second part utilizes a drawing format to allow students to express their views on medical humanities (see Chapter 3 for details).

reflected through four questions: the presence of medical humanities in real healthcare services, their ideal perception of medical humanities in healthcare, the role of medical humanities in medical education, and the integration of medical humanities in this course. The course evaluation was conducted after the final exam of the course to ensure objectivity.

Teaching Reflection Journal

The teaching reflection diary is completed by the lecturer on the same day after class, documenting their observations and reflections on classroom phenomena.

3.2.5 Data collection

Film reviews are distributed and collected in the form of assignments. For the 2021 cohort, as they did not complete the film viewing and review writing in class, students are required to watch the film and write the review on their own within a week. The collection of reviews is done via the Chaoxing App (an online class platform), where students can either type their responses or write them by hand and upload photos. The 2022 cohort completed the film viewing and review writing activity in class, requiring students to write their reviews immediately after watching the film and submit them within 40 minutes of the screening.

Course evaluation is conducted only after the exam for the course has concluded. It takes place during the 10-20 minutes before a student meeting, where

paper questionnaires are distributed and collected.

Teaching reflection diary consists of observations made by the teacher during the class and a summary after the class, completed by the instructor on the day of teaching. For details, see Chapter Four.

3.2.6 Data analysis

Film review

Film reviews were analyzed using content analysis, with themes that fully express a single idea serving as the units of analysis. Based on the evaluation criteria for the reviews, each review was assessed for its relevance to the standards and marked accordingly. This work was carried out independently by two members of the research team, who then compared their results. For any disputed issues, a third member served as an arbitrator until the disputes were resolved. The review data were then organized into tables. Finally, baseline data were compared with the results from the first and second cycles of action research, and the findings were described.

Course evaluation

The course evaluation scores for each item were statistically analyzed by Microsoft Excel 2019, and the average values were calculated to enable direct comparisons of the scores.

Teaching reflection

The teaching reflection diary has already been summarized and can be directly used as evidence. The Department of Community and Health Education held a discussion meeting where the four members reviewed the film critiques, course evaluations, and teaching reflection diaries, leading to the following conclusions and suggestions for improvement.

3.3 Ethical considerations

This research has been approved by the Ethics Committee of Xuzhou Medical University (No.XZHMU-2023088) and the Ethics Committee of Mahasarakham University (409-363/2023). Participants will be informed of the research objectives, risks, and methods, and their participation will be voluntary. In order to maintain ethical principles, the information of all participants must be kept confidential.

Chapter IV
Results

This chapter presents the research findings, beginning with Phase 1, which investigates the demand for medical education. This phase employed a mixed-methods approach to explore the primary healthcare needs of rural inhabitants, as well as the educational requirements of grassroots doctors and township hospitals. The chapter also includes Phase 2, which features an action research project aimed at enhancing the empathy and professional identity of medical students by integrating narrative medicine and Professional ideological education into the curriculum.

4.1 Phase 1 SURVEY

4.1.1 Survey on exploring the basic medical needs among Rural Inhabitants in Jiangsu Province

4.1.1.1 Demographic characteristics

Among the 203 respondents, 136 (67%) female and 67 (33%) male. The age range was from 16 to 86 years (P25=21 years, P50=31 years, P75=46years), monthly income distribution ranged from 0 yuan to 20000 yuan (P25=0 yuan, P50=2000 yuan, P75= 5,000 yuan), and average monthly personal medical expenses ranged from 0 yuan to 5,000 yuan (P25=0 yuan, P50=80 yuan, P75=200 yuan). The rest of demographic characteristics can be found in Table 5.

Table 5 Demographic characteristics of rural inhabitants in Jiangsu Province

Demographic characteristics		N (%)
Region	Northern Jiangsu Province	98 (48.3%)
	Central Jiangsu Province	43 (21.2%)
	Southern Jiangsu Province	62 (30.5%)
Education Level	Primary school or lower	13 (6.4%)
	Junior high school:	30 (14.8%)
	High school or vocational school	39 (19.2%)
	Graduated from vocational colleges	28 (13.8%)
	Bachelor's degree or above	93 (45.8%)

Demographic characteristics		N (%)
Insurance Coverage	Employee medical insurance	67 (33%)
	Inhabitant medical insurance	95 (46.8%)
	Rural cooperative medical insurance	38(18.7%)
	Beneficiaries of subsistence allowances	3 (1.5%)
Chronic Diseases	Total with chronic diseases	33 (16.3%)
	High blood pressure	19 (9.4%)
	Diabetes	9 (4.4%)
Self-reported Health Status	Very good health	80 (39.4%)
	Good health	67 (33%)
	Average health	49 (24.1%)
	Poor health	7 (3.4%)

4.1.1.2 Satisfaction on township hospitals

Among the surveyed inhabitants, 176 (86.7%) had been treated in township hospitals, the walk time from home to the nearby township hospitals ranged from 0 to 75 minutes (P25=7 minutes, P50=10 minutes, P75=20 minutes). When encountering small health issues such as cold and fever, 133 respondents (65.5%) would choose the township hospitals near their home. 102 (50.2 %) were familiar or know what the hierarchical medical system is, and 156 (76.8%) supported it. 65people (32.0%) believed that township hospitals play an important role, 135 people (66.5 %) believed that township hospitals could play a certain role, but the role was limited. There is no significance between different regional inhabitants' view. Detail can be check in Table 6.

Table 6 Views of rural inhabitants from different regions on township hospitals

		Total	Northern Jiangsu	Middle Jiangsu	South Jiangsu	$\chi 2$	*P*
With small health issues (Multiple choice)	Primary-level hospital	133	66	29	38	0.706	0.703
	Tertiary hospital	24	7	6	11	4.330	0.115
	Pharmacy	115	54	24	37	0.339	0.844
Hierarchical medical system in China	Familiar with	23	16	2	5	6.333	0.387
	Know	79	38	15	26		
	Heard of	64	28	17	19		
	Not know	37	16	9	12		
The policy “first visit in primary-level hospital”	Support	156	79	33	44	4.697	0.320
	Unsupported	24	10	3	11		
	Not know	23	9	7	7		
Whether you have been to a primary hospital	Yes	176	86	38	52	0.629	0.730
	No	27	12	5	10		
Views on Primary-level hospitals	Very useful	65	34	10	21	4.165	0.384
	Limited role	135	62	32	41		
	Useless	3	2	1	0		

The waiting time of the respondents ranged from 0 minutes to 180 minutes (P25=5, P50=10, P75=20). 125(71.1%) respondents claimed satisfied or very satisfied with the medical expense in Primary-level hospitals. The satisfaction rate (satisfied and very satisfied) is 91(51.7%), 71(40.3%), 142(80.7%) and 147(83.5%) on types of medicine, types of medical facilities, convenience of medical processes and hospital environment separately. No statistical difference was found by regional group, so only descriptive statistics were performed. Detail can be check in Table 7.

Table 7 Inhabitants' satisfaction on township hospitals

		total	Northern Jiangsu	Central Jiangsu	Southern Jiangsu	$\chi 2$	*P*
Medical expense	Very dissatisfied	8	4	1	3	5.375	0.497
	Dissatisfied	43	25	7	11		
	Satisfied	121	54	30	37		
	Very satisfied	4	3	0	1		
Types of medicine	Very dissatisfied	7	4	2	1	2.561	0.862
	Dissatisfied	78	36	16	26		
	Satisfied	80	39	18	23		
	Very satisfied	11	7	2	2		
Types of	Very	5	4	1	0	7.369	0.2888

		total	Northern Jiangsu	Central Jiangsu	Southern Jiangsu	χ2	*P*
medical facilities	dissatisfied						
	Dissatisfied	100	48	23	29		
	Satisfied	65	32	11	22		
	Very satisfied	6	2	3	1		
Convenience of medical process	Very dissatisfied	12	8	1	3	7.508	0.276
	Dissatisfied	22	7	9	6		
	Satisfied	125	64	24	37		
	Very satisfied	17	7	4	6		
Hospital environment	Very dissatisfied	3	3	0	0	6.900	0.330
	Dissatisfied	26	14	5	7		
	Satisfied	132	63	31	38		
	Very satisfied	15	6	2	7		

4.1.1.3 Satisfaction on grassroots doctors

187(92.1%) respondents believed that the doctor-patient relationship in township hospitals is very harmonious and relatively harmonious. 113(55.7%) believed that in maintaining inhabitants' health, rural grassroots doctors just played a part role. 123(60.1%) were most concerned about the doctors' treatment experience. The views of the respondents are shown in Table 8.

Table 8 Views of urban and rural inhabitants in different regions on rural grassroots doctors

		Total	Northern Jiangsu	Middle Jiangsu	South Jiangsu	χ2	*P*
Relationship with patients	Very harmonious	57	32	10	15	5.848	0.440
	Relatively harmonious	130	57	30	43		
	tense	15	9	3	3		
	Very tense	1	0	0	1		
maintaining inhabitants' health	Play a great role	51	29	5	17	9.334	0.156
	Play a part	113	53	29	31		
	Very limited role	37	16	8	13		

		Total	Northern Jiangsu	Middle Jiangsu	South Jiangsu	χ2	*P*
quality of grassroots doctors	Mostly useless	2	0	1	1	8.898	0.179
	Education level	25	12	2	11		
	Experience	123	59	25	39		
	Attitude	44	20	13	11		
	Other	11	7	3	1		

It seems that the main problem of primary healthcare is the quality of services provided by grassroots doctors, then, a survey was conducted on inhabitants' satisfaction with grassroots doctors. The satisfaction scale was self-designed by the research team, and it divided into three dimensions: attitude, service capability and need meet. The score was calculated by "very good" (5 points), "good" (4 points), "average" (3 points), "poor" (2 points) and "very poor" (1 point). The Cronbach's alpha is 0.991 of this scale, and the KMO value is 0.967. The self-designed questionnaire showed a good reliability and validity. The results of satisfaction scale showed that the scores of satisfactions were the lowest in professional (3.72±0.988) and treatment effectiveness (3.72±0.920), respondents in Central Jiangsu seemed most unsatisfied with rural grassroots doctors in all items, as shown in Table 9.

Table 9 Inhabitants' satisfaction with rural grassroots doctors

		Total score	Northern Jiangsu	Central Jiangsu	Southern Jiangsu	F	*P*
Attitude	Have a kind attitude during therapy	3.84±1.062	3.97±1.030	3.30±1.166**	4.00±0.923	7.386	0.001
	Easygoing language during consultation	3.87±1.075	3.99±1.030	3.28±1.182**	4.08±0.929	8.949	<0.001
	Focus while treating	3.81±1.022	3.91±1.036	3.33±1.040**	4.00±0.887	6.716	0.002
	Patience to communicate with	3.79±1.037	3.92±1.062	3.33±1.063**	3.92±0.893	5.806	0.004
	Mutual respect	3.78±1.073	3.91±1.066	3.33±1.085**	3.90±1.003	5.170	0.006
	Protect your privacy	3.85±1.011	3.93±1.028	3.47±1.077**	3.98±0.878	4.079	0.018
	Adequate visit time	3.79±1.014	3.90±1.040	3.40±1.027**	3.89±0.907	4.223	0.016
Service capability	Detailed consultation during treatment	3.76±0.987	3.85±1.009	3.37±0.976**	3.90±0.900	4.507	0.012
	Professional	3.72±0.988	3.81±1.022	3.37±0.952*	3.82±0.915	3.458	0.033
	Clear and understandable	3.77±0.999	3.85±1.049	3.44±0.959	3.89±0.907	3.098	0.047

		Total score	Northern Jiangsu	Central Jiangsu	Southern Jiangsu	F	*P*
	disease explanation						
	Definite diagnosis	3.76±0.968	3.87±0.991	3.35±0.973**	3.87±0.859	5.090	0.007
	The diagnosis and treatment process is crisp and smooth	3.80±0.956	3.91±0.985	3.42±0.906**	3.89±0.889	4.452	0.013
	Effective treatment	3.72±0.920	3.81±0.991	3.40±0.877*	3.81±0.786	3.462	0.033
Need	Timely reception	3.81±0.979	3.94±1.003	3.33±0.944**	3.94±0.866	7.019	0.001
meet	Answer questions in time	3.79±1.024	3.90±1.050	3.30±1.013**	3.95±0.895	6.529	0.002
	Meet your prescription requirements	3.78±0.978	3.92±0.991	3.35±0.997**	3.85±0.865	5.589	0.004
	Meet your inspection requirements	3.75±0.969	3.88±1.018	3.40±0.955*	3.81±0.846	3.944	0.021
	Meet your health education needs	3.75±0.964	3.87±1.027	3.44±0.908*	3.79±0.871	3.036	0.050
	Choose the right treatment for you based on the financial situation	3.74±0.983	3.87±0.981	3.28±1.031**	3.85±0.865	6.286	0.002
	The treatment plan respects the choice of patients and their families	3.81±0.994	3.97±1.010	3.30±0.964**	3.90±0.882	7.611	0.001

*Statistically significant difference in scores between the Central Jiangsu and Northern Jiangsu groups
** Statistically significant difference in scores between Northern Jiangsu groups, Central Jiangsu and Southern Jiangsu groups

4.1.1.4 Inhabitants' needs from Primary healthcare

At the end of the study are four questions what we highlight in this study. When asked what examinations they have undergone in township hospitals and what examinations they hope to do, the most common examinations are B-ultrasound, the supply and demand of various laboratory tests, X-ray examination, CT scan and electrocardiogram were basically balanced, while the demands of gastrointestinal endoscopy exceeded supply. The responses of respondents are shown in Figure 4.

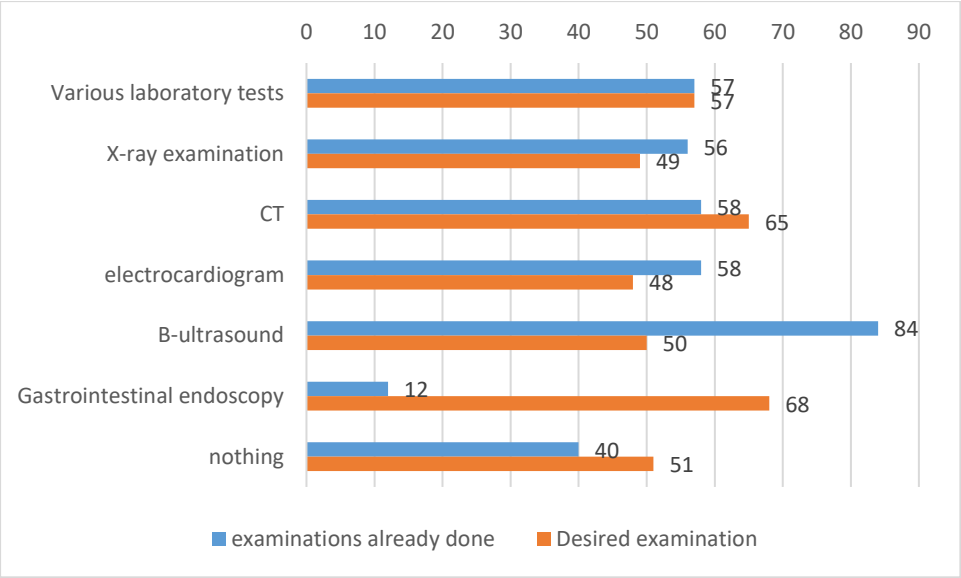


Figure 4 *Demand for various examinations in primary-level hospitals (number of people)*

"Diagnosis and treatment of common disease" (133(65.5%)) and "Regular physical examination" (104(50.7%)) were top two ranked answers of the question "What services do you hope primary-level hospitals provide for you?" Detail is in Figure 5.

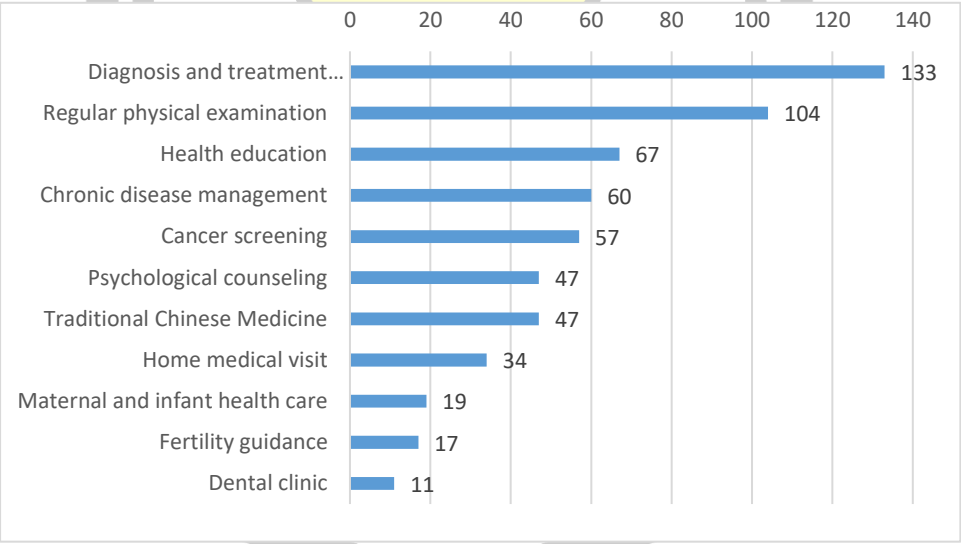


Figure 5 *Services need to be provided in primary-level hospitals (number of people)*

When asked about the aspects that need to be improved in township hospitals, 150(73.9%) inhabitants hoped the medical facilities can be improved and 131 (64.5%) said that the service capability of grassroots doctors needs to be improved, and the specific views of the surveyed inhabitants are shown in Figure 6.

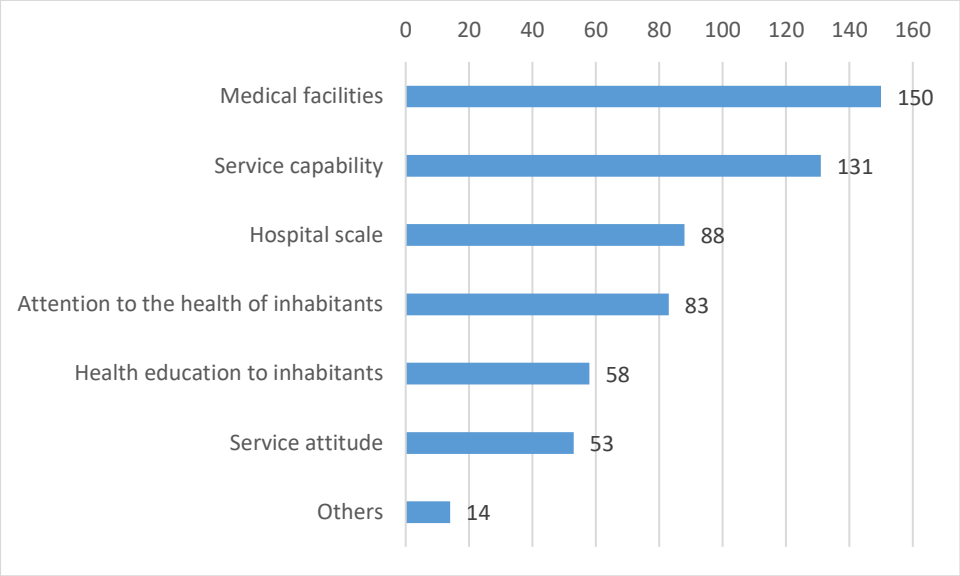


Figure 6 *Areas for improvement in primary-level hospitals (number of people)*

For the responsibilities of grassroots doctors, the top priority among inhabitants is still to diagnose and treat diseases (171 (84.2%)), followed by the health education to inhabitants (144(70.9%)) regular physical examination of inhabitants (133(65.5%)) and doctor-patient communication (122(60.1%)), as shown in Figure 7.

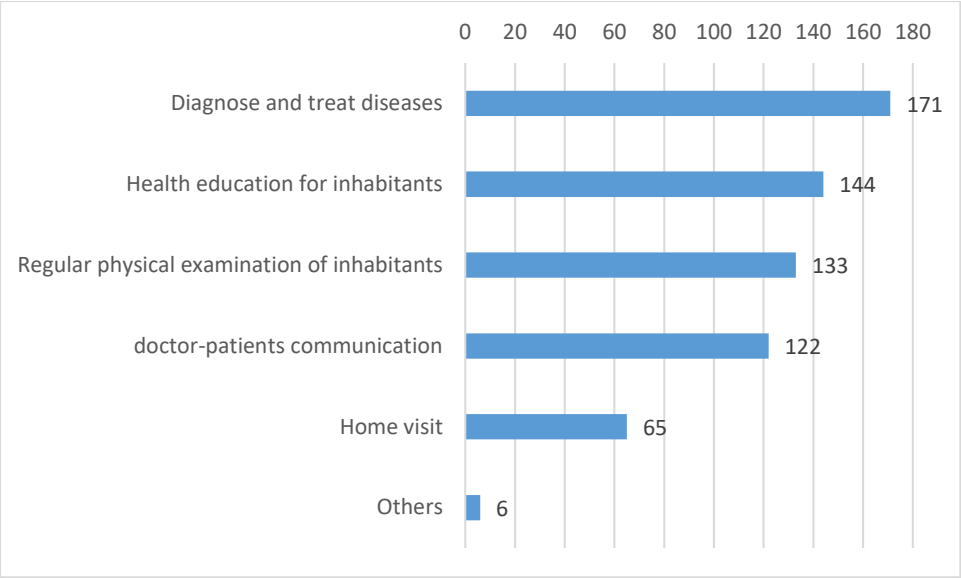


Figure 7 *The responsibilities of grassroots doctors according to the respondents*

Summary of Stage Content

The above section is based on a questionnaire survey conducted among rural inhabitants, aiming to understand their needs for primary healthcare. There are several key points:

1. Grassroots medical treatment rate for rural residents: 86.7%

2. Residents value the medical experience of rural grassroots doctors more (60.1%)

About half of the residents (55.7% believe that rural grassroots doctors play a partial role in maintaining health)

4. The lowest score is given to the medical professionalism（3.72±0.988） and treatment effectiveness (3.72±0.920) of rural grassroots doctors.

5.64.5% of residents believe that the service capabilities of rural grassroots doctors need improvement.

6. Rural primary healthcare mainly includes diagnosis and treatment, health education, physical examinations, and doctor-patient communication.

4.1.2 Survey on exploring the medical education needs of Rural grassroots doctors in Jiangsu Province

The total number of rural grassroots doctors in the 12 target township health centers was 489, among which 272 respondents met the inclusion criteria, for an effective response rate of 55.6%.

4.1.2.1 Demographic characteristics of the respondents

In this study, the age of the respondents varied from 23 years to 64 years (p25=30 years, p50=36.5 years, p75=46 years). The service years of the respondents varied from 1 year to 42 years (p25=7 years, p50=13 years, p75=25 years), and the monthly income (the response rate of this question is 31.6%) span was also significant, from 1000 yuan to 20000 yuan (p25=5000 yuan, p50=6000 yuan, p75=8000 yuan). Among all the respondents, 47.1% were male, 79.0% had a bachelor's degree, 41.9% were from northern Jiangsu, 80.1% were trained by institutions within the province, and 34.2% were from the Department of General Practice. The details can be found in Table 10.

Table 10 Demographic characteristics of the rural grassroots doctors

Demographic characteristics		N(%)
Gender	Male	128(47.1%)
	Female	144(52.9%)
Education level	Vocational school or below	6(2.2%)
	Junior college degree	48(17.6%)
	Bachelor's degree	215(79.0%)
	Master's degree or above	3(1.1%)
Location	Northern JS	114(41.9%)
	Central JS	59(21.7%)
	Southern JS	99(36.4%)
Graduation institution	Within JS	218(80.1%)
	Without JS	54(19.9%)
Department	General Practice	102(37.5%)
	Internal Medicine	55(20.2%)
	Surgery	33(12.1%)

Demographic characteristics	N(%)
Public Health	16(5.9%)
Traditional Chinese Medicine	24(8.8%)
Stomatology	5(1.8%)
Others	37(13.6%)

4.1.2.2 Job competence self-evaluation of the respondents

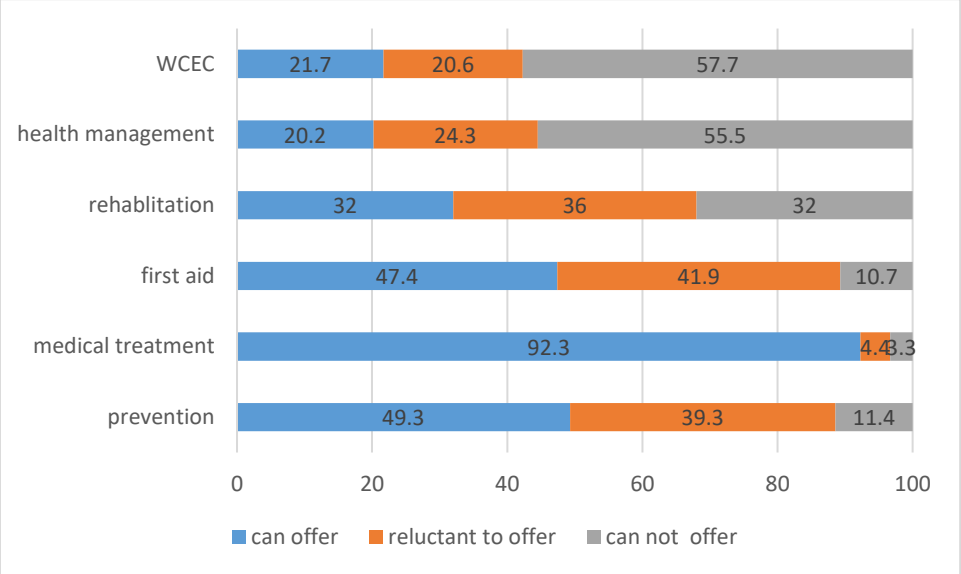
Because job competence is related not only to medical education before graduation but also to practices in the workplace after graduation, respondents were grouped by region to test whether there were differences. Overall, they had the highest self-evaluation of their professional spirit (4.19±0.834) and the lowest self-evaluation of their academic abilities (3.53±0.952). In addition to public health services, the vast majority of items show regional differences, and rural grassroots doctors in southern Jiangsu showed absolute advantages. The details are shown in Table 11.

Table 11 Job competence self-evaluation of the respondents

	Total	Northern JS	Central JS	Southern JS	F	*P**	*P*(NC)**	*P*(NS)***	*P*(CS)****
Clinical ability	3.81±0.848	3.62±0.886	3.76±0.751	4.04±0.807	6.805	0.001	0.294	<0.001	0.043
Professional spirit	4.19±0.834	4.09±0.826	4.10±0.845	4.37±0.815	3.653	0.027	0.916	0.012	0.046
Ability to learn and use	3.93±0.810	3.80±0.822	3.85±0.715	4.13±0.816	5.020	0.007	0.701	0.003	0.031
Doctor–patient communication	4.03±0.780	3.92±0.800	3.95±0.753	4.19±0.752	3.628	0.028	0.821	0.011	0.057
Performance in teamwork	4.04±0.779	3.91±0.771	4.02±0.777	4.20±0.769	3.773	0.024	0.398	0.007	0.146
Ability of public health services	3.96±0.793	3.89±0.784	3.86±0.776	4.10±0.802	2.516	0.083	0.865	0.048	0.069
Information manage ability	3.91±0.801	3.85±0.801	3.75±0.779	4.08±0.791	3.882	0.022	0.409	0.036	0.011
Research ability	3.53±0.952	3.36±0.979	3.46±0.837	3.78±0.943	5.524	0.004	0.515	0.001	0.039

* Statistically significant difference in scores between Northern Jiangsu groups, Central Jiangsu and Southern Jiangsu groups
** Statistically significant difference in scores between the Northern Jiangsu groups and Central Jiangsu groups
*** Statistically significant difference in scores between the Northern Jiangsu groups and Southern Jiangsu groups
**** Statistically significant difference in scores between the Central Jiangsu groups and Southern Jiangsu groups

The service content of rural primary healthcare in China includes prevention, medical treatment, first aid, rehabilitation, health management, nursing, women-children-elders care (WCEC), and the question "What services can you offer? What kind of service do you reluctant to offer? What services can you not offer?" were asked. The details are shown in Figure 8.



WCEC: Women–Children–Elders Care

Figure 8 *Services can offer/reluctant to offer/unable to offer*

4.1.2.3 Rural grassroots doctors' standardized training situation

Among the 272 respondents, only 113 (41.5%) had received standardized resident training. The average duration of college graduates was 22.091±2.503 months (24 months required), and the average duration of university graduates was 29.417±0.953 months (36 months required). Based on the characteristics of Jiangsu Province and the varying levels of hospital development in different regions, respondents were grouped by region to check their standardized medical training situation and their opinions on departments that require extended practice hours. In terms of the needs of the rotation departments for regular training, rural grassroots doctors in southern Jiangsu showed interest in surgery, pediatrics, B-ultrasound, community and other departments. Details can be found in Table 12 and Table 13.

Table 12 The situation of "Rural Grassroots Doctors' Standardization Training"

		Northern JS	Central JS	Southern JS	χ^2	p
Participated in "Resident Standardization Training"	Yes	54	17	42	5.561	0.062
	No	60	42	57		
Training hospital level	Provincial Hospital	5	2	9	11.253	0.081
	Municipal Hospital	33	13	22		
	County/District Hospital	2	2	11		
Reached training duration	Yes	28	6	30	5.691	0.058
	No	25	9	12		

Table 13 Interned departments of respondents and departments require extended practice hours

	Interned departments					Departments require extended practice hours				
	Northern JS(yes/no)	Central JS(yes/no)	Southern JS(yes/no)	χ^2	*P*	Northern JS(yes/no)	Central JS(yes/no)	Southern JS(yes/no)	χ^2	*P*
Internal Medicine	52/2	16/1	40/2	5.875	0.209	36/18	15/2	27/15	8.207	0.084
Surgery	48/6	15/2	37/5	5.732	0.220	22/32	12/5	16/26	9.843	0.043
Gynecology	44/10	11/6	36/6	8.849	0.065	8/46	5/12	10/32	7.900	0.095
Pediatrics	47/7	14/3	37/5	6.051	0.195	9/45	7/10	16/26	12.659	0.013
Emergency	47/7	14/3	36/6	5.941	0.240	30/24	11/6	23/19	5.965	0.202
Electro cardiogram Room	20/34	9/8	20/22	7.321	0.120	8/46	3/14	10/32	6.973	0.137
B Ultrasound Room	5/49	3/14	9/33	8.615	0.071	4/50	3/14	10/32	10.954	0.027
Radiology Department	12/42	6/11	17/25	9.681	0.041	7/47	3/14	10/32	7.610	0.107
Primary health centers	35/19	12/5	32/10	7.128	0.129	3/51	2/15	10/32	12.617	0.013

We also collected subjective information from respondents on “What other aspects of training do you think should be added?” The answers included “emergency” (7 mentions), “clinical operational skills” (7 mentions), “Chinese traditional medicine” (5 mentions), “public health skills” (4 mentions), “chronic disease management” (2 mentions), “doctor–patient communication”, “B-ultrasound”, “rehabilitation”, “cardiovascular diseases”, “digestive diseases”, “data interpretation”, and “medical document writing”.

4.1.2.4 Rural grassroots doctors’ service skills that should be mastered at different stages of medical education

According to the respondents, some specific service skills need to be mastered in different stages of medical education; for example, 90.8% and 89.7% of the respondents claimed that first aid and medical treatment skills needed to be mastered during the academic stage; 63.2% and 58.1% of the respondents believed that additional class hours are required for first aid and rehabilitation skills; and 90.8% and 84.9% of the respondents considered that first aid and medical treatment skills needed to be mastered during the Resident Standardization Training, respectively. The details are shown in Figure 9 to Figure 11.

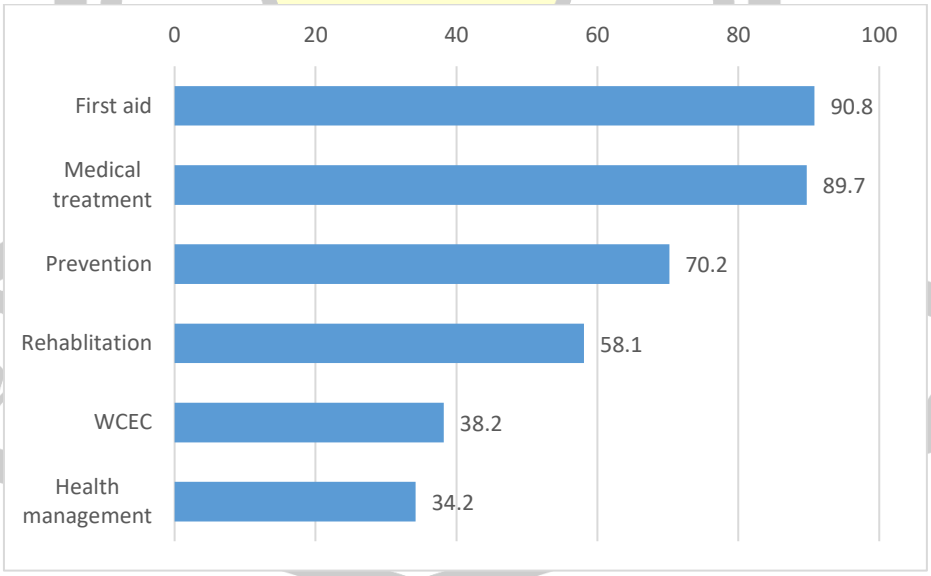


Figure 9 *Service skills need to be mastered in the academic stage*

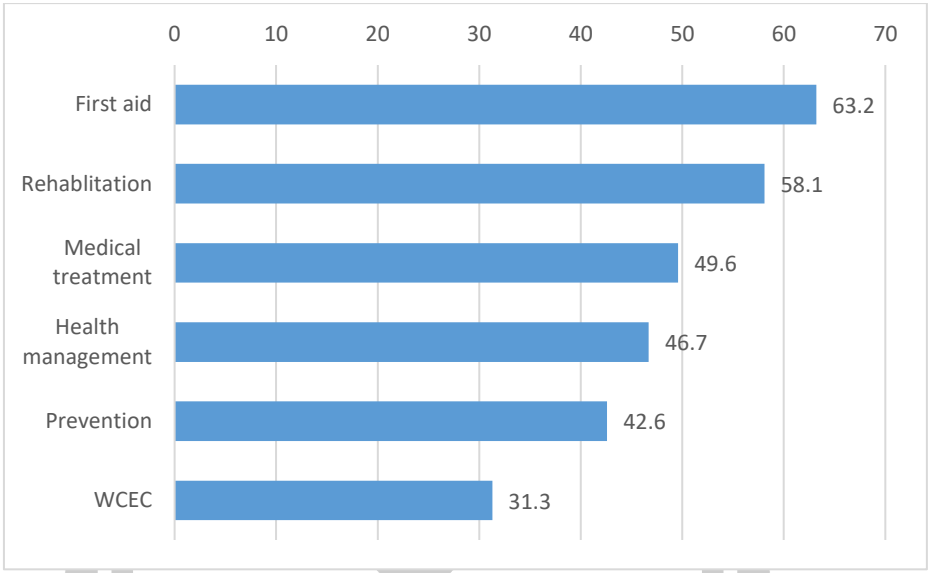


Figure 10 *Service skills that require additional class hours*

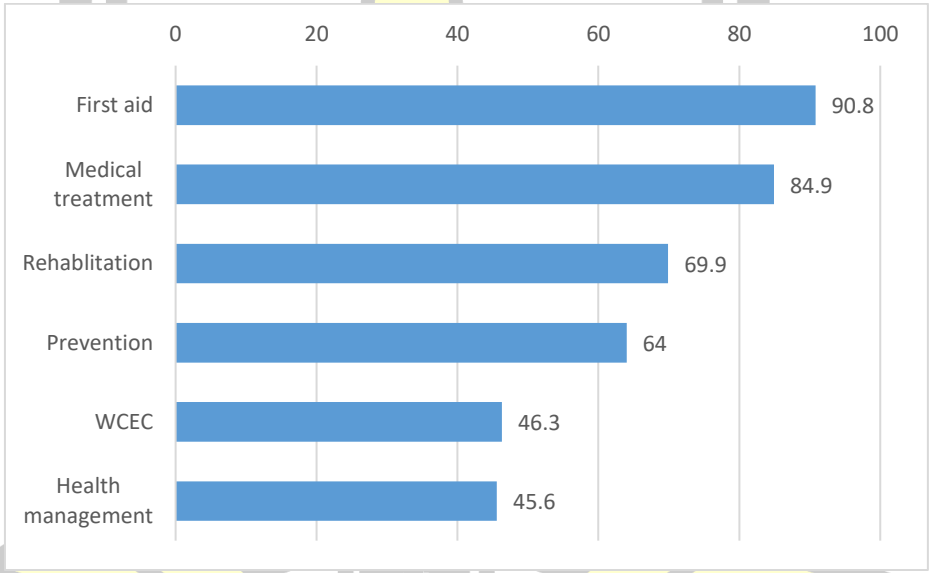


Figure 11 *Service skills needed to be mastered during resident standardization training*

4.1.2.5 Courses need to be improved or strengthened

The most intuitive aim of this study is to determine the key courses that need to be improved or strengthened according to the respondents. All the courses in the education stage were divided into four categories: humanities, biomedical, public health and clinical medicine. Prominent results include Doctor–Patient

Communication and Psychology in Humanities; Anatomy and Pathology in Biology; Epidemiology and Health Education in Public Health; and Diagnostics and Internal Medicine and Surgery in Clinical Medicine. The ranking of each course category is detailed in Figure 12-Figure 15.

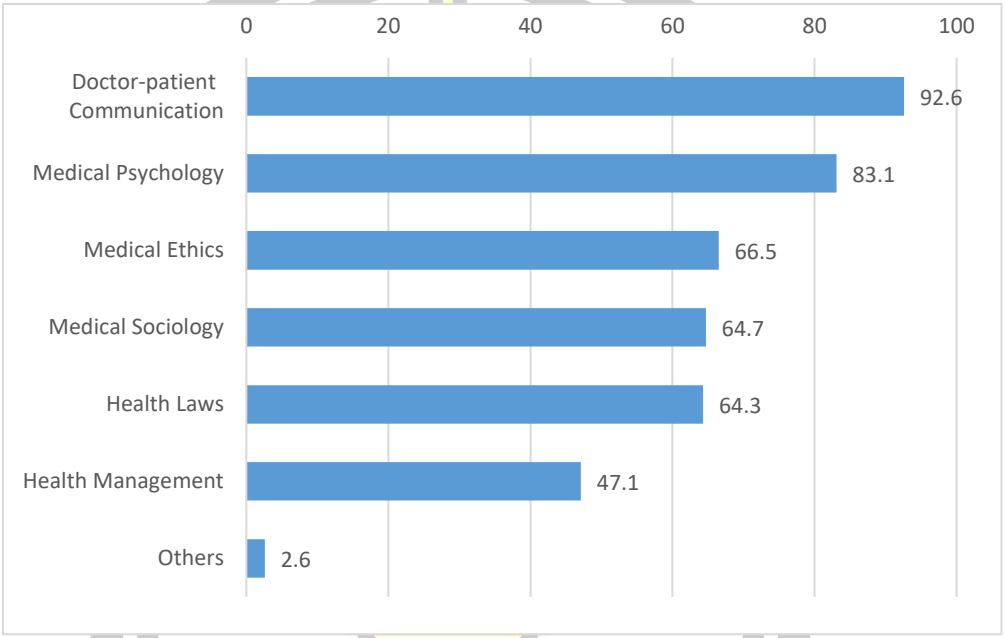


Figure 12 *Ranking of courses that need to be strengthened in humanities*

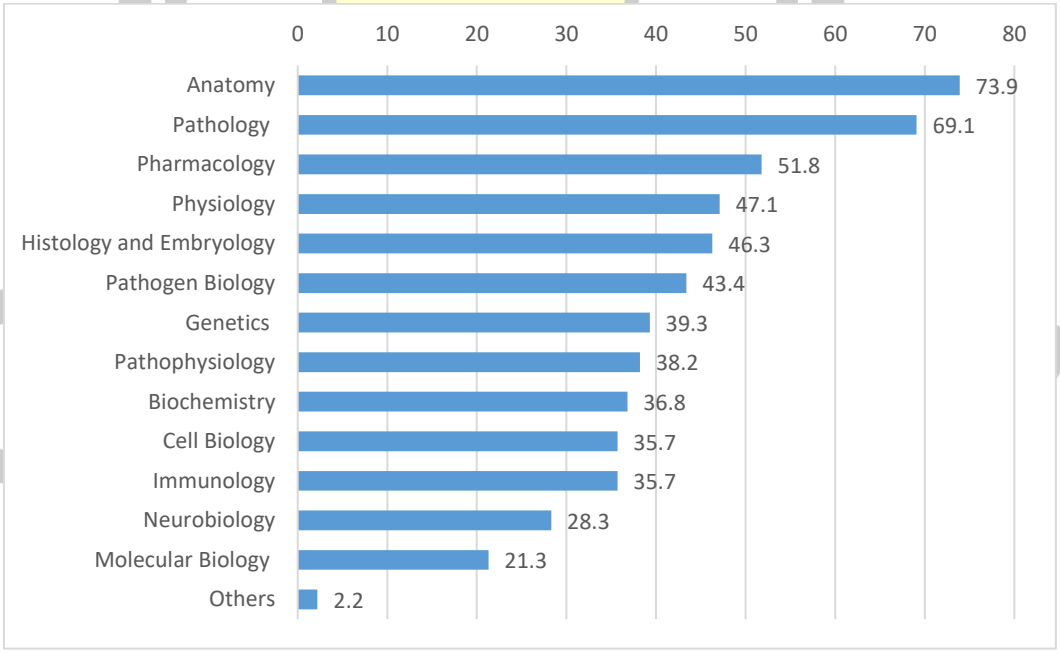


Figure 13 *Ranking of courses that need to be strengthened in biomedical*

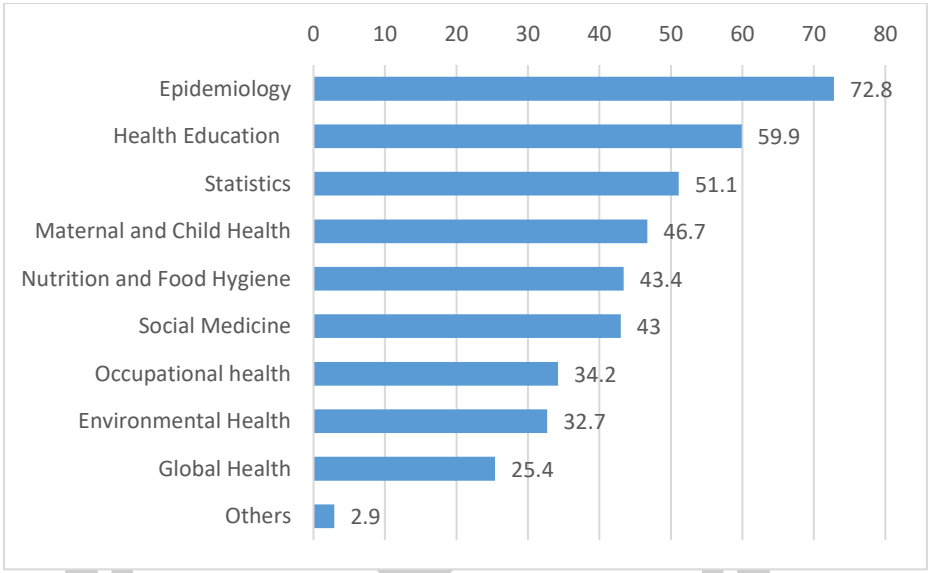
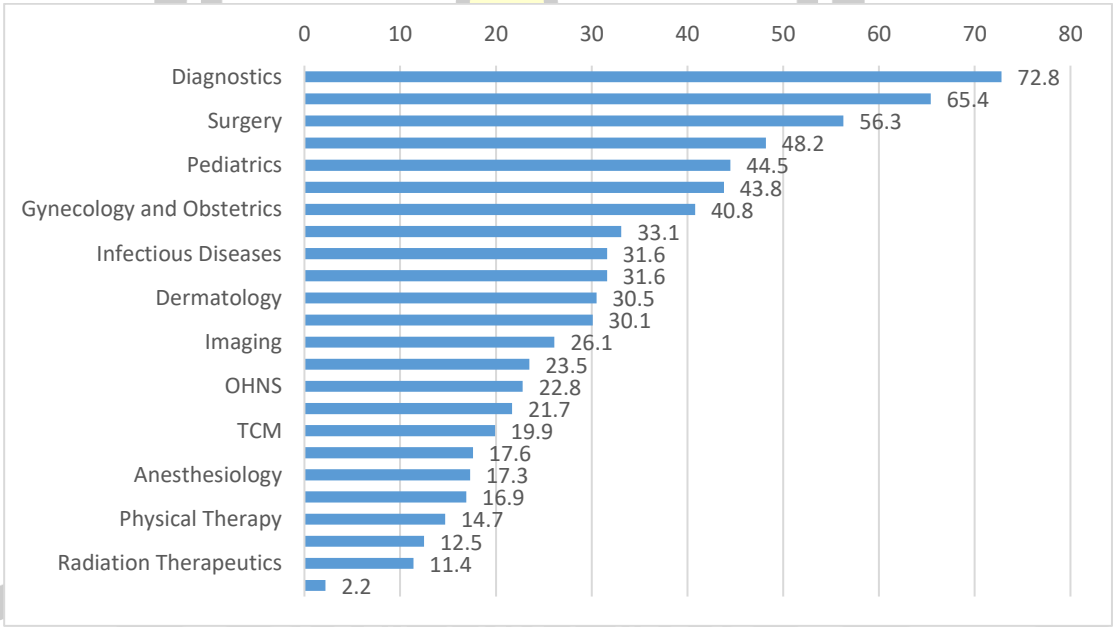


Figure 14 *Ranking of courses that need to be strengthened in public health*



OHNS: Otolaryngology and Head and Neck Surgery

TCM: Traditional Chinese Medicine

Figure 15 *Ranking of courses that need to be strengthened in clinical medicine*

Summary of Stage Content

This section explores the educational needs of grassroots rural doctors through a questionnaire survey. There are some key points of this survey:

1. In the self-competency evaluation of rural grassroots doctors, research

ability (3.53±0.952) and clinical ability (3.81±0.848) are the lowest.

2. Only no more the half (41.5%) rural grassroots doctors who have received standardized clinical training.

3. Diagnosis and treatment of disease, first aid are of paramount importance throughout the entire process of medical education.

4. Emphasize the teaching of the following courses: doctor-patient communication and psychology in humanities courses; Anatomy and pathology in basic courses; Epidemiology and health education in public health courses; Diagnosis and Internal Medicine in Clinical Courses

4.2 Interview on exploring the demand of township hospitals for medical education

4.2.1 Interview Results with Township hospital Directors in Jiangsu Province

In this section, we interviewed a total of 9 directors of township hospitals in Jiangsu Province (ID numbers 0101-0109). Among them, 3 directors (ID numbers 0101-0103) are from northern Jiangsu, 2 directors (ID numbers 0104-0105) are from central Jiangsu, and 4 directors (ID numbers 0106-0109) are from southern Jiangsu. This study employed content analysis, and based on the coding manual, the interviews with the directors were organized into the following conclusions. We provided an interpretation based on the interview results and included the original quotes.

4.2.1.1 Problems with Township Health Centers

1. Hospital Development Trends

The business of township hospitals in northern Jiangsu is shrinking because rural residents have not established a correct medical concept and still adhere to outdated views from decades ago. They are used to going to major hospitals for treatment, leading to a decrease in patients at township hospitals. In southern Jiangsu, due to economic development and significant financial investment in primary healthcare, the development prospects of township hospitals are good, and doctor salaries are also high. Local governments provide additional subsidies for primary healthcare, implementing strong measures to guide patients to township hospitals.

"…The decline in primary hospitals is partly due to residents' lack of

awareness regarding medical visits; whether it's for surgery or obstetrics and gynecology, people tend to go to major hospitals…" (0102 2023.10.21)

"…Primary health centers are public welfare undertakings with a dual-line funding system and full funding, so benefits and salaries are good…" (0106 2023.10.23)

"…Wuxi is implementing a "one hospital, one brand…" initiative, with each township health center developing its own characteristics. Due to additional funding, the family doctor contract system is popular among doctors…" (0109 2023.10.23)

2. Impact of Medical Insurance Policies

With the establishment and improvement of urban and rural inhabitants' medical insurance systems, more medical services are covered by insurance funds. The allocation of insurance quotas by county or city insurance bureaus and policies regarding deductibles, average costs, and reimbursement rates directly affect community inhabitants' demand for medical services provided by t township hospitals and community health service centers.

"…On the other hand, due to insurance issues, the income of township health centers depends on insurance funds. They need at least 2 million yuan in outpatient income to sustain doctors, but cannot exceed…" (0102 2023.10.21)

"…Our hospital is operating well with many patients, but due to medical insurance restrictions, bonuses have not been issued for four months…" (0103 2023.10.19)

3. Lack of Talent

Due to the lack of appeal for talent at township hospitals (especially in northern Jiangsu), poor geographic location, etc., these centers face severe shortages of clinical, nursing, and public health workers. Recruiting new employees requires reporting to the local Health and Family Planning Commission, which allocates personnel based on the number of rural oriented students graduating and the hospital's scale and business volume. Smaller, less busy township health centers find it challenging to recruit talent.

"…Our hospital lacks staff, mainly nursing and clinical doctors. Nursing recruits with associate degrees, and clinical recruits with bachelor's degrees…" (0102 2023.10.21)

"…Although our hospital is developing well, talent still drifts away due to its location in a township. People have different aspirations…" (0103 2023.10.19)

"…We report recruitment plans every year, but it's not easy to find people; there are few willing to come…" (0105 2023.10.24)

"…Our hospital has a shortage of public health doctors, so some doctors returning from standardized training might be converted to public health doctors…" (0106 2023.10.23)

"…Our hospital faces a tight shortage of positions, especially clinical doctors and public health doctors…" (0109 2023.10.23)

4.2.1.2 Disadvantages of Newly Employed Doctors

1. Weak Clinical Practice Ability

Traditionally, medical schools often fail to provide timely practical teaching, with few and short internship opportunities for medical students. This leads to a relatively weak development of clinical skills. Although there are standardized training programs for doctors, some hospitals do not involve new hires in standardized training due to tight human resources or do not provide full training, resulting in weak clinical practice abilities.

"…Newly graduated students have relatively poor clinical diagnostic thinking and need long-term practice…" (0101 2023.10.20)

"…There is a gap between current graduates and those from the past, especially in practical abilities, which are inferior to previous graduates…" (0107 2023.10.23)

2. Weak Communication Skills

Medical education usually focuses more on clinical skills and theoretical knowledge, and communication skills may not receive adequate attention. Additionally, communication skills need to be improved through practice and repeated exercises. New doctors, having less experience in interacting with patients, families, and colleagues, tend to have weaker communication skills.

"…Today's students also have inadequate communication skills…" (0101 2023.10.20)

"…Recent graduates have poor business skills and qualities, with low

communication abilities…" (0105 2023.10.24)

3. Low Initiative and Proactivity

Newly employed doctors generally show insufficient dedication, leaving the hospital immediately after work hours, having poor teamwork skills, and lacking a serious attitude towards learning.

"…Recent students show low initiative. For example, they only write case notes and complete assigned tasks without observing how experienced doctors diagnose patients. If they come, we will enthusiastically teach them…" (0104 2023.10.25)

"…They do not communicate with leaders or colleagues and struggle to integrate into the team…" (0105 2023.10.24)

"…Some students have unprofessional attitudes, not showing up for internships and only wanting us to write their internship evaluation reports without contributing…" (0107 2023.10.23)

4.2.1.3 Characteristics of Popular Doctors

1. **Strong Professional and Communication Skills**

Popular doctors generally possess excellent professional and communication skills, which complement each other and jointly affect patient satisfaction and treatment outcomes.

"…Common traits include being responsible, meticulous, caring for patients, having strong communication skills, and being proactive at work…" (0102 2023.10.21)

"…Successful doctors first have strong medical skills, and secondly, excellent doctor-patient communication abilities…" (0106 2023.10.23)

4.2.1.4 Views on Standardized Medical Training Programs

1. Clinical Practice as the Focus of Medical Education

In China, medical education involves three stages: academic education, internship and clinical training, and advanced studies after graduation. From the perspective of hospital administrators, the emphasis in medical education should be on clinical practice.

"…The most important aspects of medical education are internships, standardized training, and post-graduation education…" (0104 2023.10.25)

"…Students who have undergone standardized training have strong capabilities and many are promoted to leadership positions…" (0103 2023.10.19)

2. Training Focus Should be on Common Diseases

Due to perennial staff shortages at township hospitals, and since the basic salary of doctors during clinical training must be paid by these centers, directors believe that for general practitioners in township hospitals, it is not necessary to rotate through every department. Mastering the diagnosis and treatment of common diseases is sufficient.

"…Doctors at township health centers do not need standardized training in every department; it is enough to thoroughly understand the prevention, diagnosis, and treatment of common diseases…" (0101 2023.10.20)

3. Training Duration is Too Long

China's standardized medical training program includes three years of clinical training for bachelor's degree graduates and two years for diploma graduates. For township hospitals, where doctors' salaries are paid monthly without equivalent returns, directors generally believe the training duration is too long.

"…The current issue is that the standardized training period is too long. Isn't there already a one-year internship period before standardized training? Strict management during that year should suffice…" (0103 2023.10.19)

"…Three years of standardized training is too long. If students study diligently, a year and a half should be sufficient…" (0105 2023.10.24)

4. Work Experience Before Standardized Training

Starting clinical training immediately after graduating from medical school can result in students lacking focus and not grasping key learning points. If they work in their positions for some time first and then undergo clinical training, they will better identify learning priorities based on actual work needs, improving the effectiveness of the training.

"…Don't rush into standardized training. After graduation, stay in your job for a while, see various diseases, and then go for standardized training with specific questions. All questions will be answered, and training will become more targeted…"

(0101 2023.10.20)

"...During the three years of standardized training, it would be better to return to the hospital for a while and then continue the training, which would be more effective..." (0108 2023.10.23)

4.2.1.5 Views on On-the-Job Training

1. Significant Enhancement for Doctors

For township hospitals, the platform cannot be compared with large hospitals. Regular training helps broaden the horizons of township hospitals doctors, and with continuous advancements in the medical field, new technologies, drugs, and therapies emerge. Through training, doctors can stay updated and master these techniques.

"...I used to be a poor student, but after a year of training at Xuzhou Medical University Affiliated Hospital, I grew significantly..." (0101 2023.10.20)

2. Training More Important than Academic Education or Clinical Training

The focus of doctor training is on advanced studies, as after starting work, doctors can choose relevant field training based on their career development needs, leading to more targeted learning and improvement of professional abilities.

"...Academic education, standardized training, and post-graduation education are all important, but I believe advanced studies is more important and more targeted..." (0108 2023.10.23)

3. Training Systems

To encourage advanced studies, some hospitals have established clear training systems.

"...Advanced studies should be encouraged. According to the hospital's development and layout, key departments should focus on advanced studies. During the training period, the hospital provides salaries and performance, but for the training, the hospital does not provide additional allowances..." (0103 2023.10.19)

4.2.1.6 Recommendations for Educating and Training Doctors for Township Health Centers

1. Assess Students' Career Aspirations

Evaluating medical students' career aspirations after enrollment can help them understand whether they are suited for rural grassroots work, assist in long-term career planning, ensure alignment between their chosen career path and personal interests and goals, improve job satisfaction, and reduce burnout and dissatisfaction.

"...As educational institutions, evaluations should be conducted before graduation or during standardized training. Sometimes, students may not have a personal inclination towards medicine. If after five years they are still uninterested, it is advisable to suggest they consider other related fields in healthcare..." (0102 2023.10.21)

2. Enhance Various Course Teachings

From the perspective of hospital management, the diagnostic and treatment levels of township health center doctors remain a weak link, so clinical course teachings should be strengthened. Mastery of clinical courses is based on understanding the mechanisms of disease occurrence and development, so foundational courses should also be reinforced.

"...Medical education can enhance teaching in "Diagnosis," "Internal Medicine," "Surgery," "Obstetrics and Gynecology," "Pediatrics," and "Infectious Diseases." Increase content in clinical subjects and reduce content in foundational subjects..." (0104 2023.10.25)

"...All subjects are important; even English and biochemistry are crucial. Without basic physiology and hypothetical cases, where does diagnosis come from?..." (0107 2023.10.23)

"...For targeted students, clinical subjects are all very important, including "Internal Medicine," "Surgery," "Obstetrics and Gynecology," "Pediatrics," as well as "Ophthalmology," "Otorhinolaryngology," and "Dermatology," as these common conditions are prevalent in primary healthcare..." (0108 2023.10.23)

3. Use More Case-Based Teaching

Medical principles are abstract and complex. By combining clinical cases, students can link theoretical knowledge with real-life cases and understand how to apply this knowledge in a practical medical environment. Clinical cases usually involve specific patient symptoms, signs, and examination results, helping students practice and develop clinical thinking skills.

"...Strengthen case explanations in class; avoid sticking strictly to textbooks..." (0104 2023.10.25)

"...Focus on case-based teaching for general practitioners, possibly incorporating role-playing methods..." (0108 2023.10.23)

4. Strengthen Values Education

Values education shapes medical students' personal virtues such as honesty, respect, and responsibility, making them more professional in medical practice. These factors directly impact the quality of medical services and the career development of medical students.

"...Emphasize responsibility education, be accountable to patients, and "treat patients as family..." (0104 2023.10.25)

"...During school, students should develop good values, unlike current doctors who lack initiative and ambition. A doctor's duty is to save lives; if someone wants to make a lot of money, they should not choose medicine..." (0105 2023.10.24)

"...Our grassroots doctors are indeed skilled, mainly due to solid foundational training during school. Attitudes need to be correct..." (0107 2023.10.23)

"...Schools should guide students to correct their learning attitudes..." (0108 2023.10.23)

5. Enhance Communication Skills Education

Communication skills play an extremely important role in grassroots medical activities. Good communication is crucial for doctor-patient relationships, and since grassroots medical activities often involve teamwork, good communication can foster team cohesion.

"...Develop the ability to communicate with patients based on their characteristics. Not only communicate with patients but also be lively, actively integrate into the team, and communicate more with colleagues..." (0105 2023.10.24)

"...With social changes and an increasing number of only children, these students need to make timely role transitions. In educational settings, emphasis should be placed on humanistic communication. Strong skills in this area will help them quickly adapt to grassroots work..." (0106 2023.10.23)

"...Focus on improving communication skills and humanistic qualities..."

(0107 2023.10.23) "…Two key areas of school learning: basic knowledge and communication skills…" (0109 2023.10.23)

4.2.1.7 Advice for Medical Students

1. Build Solid Fundamentals

Township hospitals lack advanced medical equipment found in large hospitals, so doctors must rely on their diagnostic and treatment skills. Medical students should focus on building a solid foundation in medical knowledge, clinical skills, and professional procedures.

"…New doctors should still handwrite large case records instead of copying and pasting on computers. Insist on doing this for at least five years to help build diagnostic thinking…" (0101 2023.10.20)

"…In primary healthcare hospitals, with simple medical equipment and limited examination capabilities, basic skills must be solid! Physical examinations must be standardized! Learn differential diagnosis!…" (0104 2023.10.25)

"…Basic skills are very important; they must be mastered during standardized training!…" (0107 2023.10.23)

2. Enhance Personal Humanistic Qualities

Medical students should focus on developing cultural literacy, moral ethics, and social responsibility during their studies and practice. Improving humanistic qualities helps students understand patient needs and societal health issues more comprehensively.

"…In clinical practice, communication skills often determine the success or failure of situations. For instance, if you maintain a good relationship with patients and ask "Have you eaten?" regularly, patients may be more forgiving if a medical accident occurs. However, if you are unfriendly, patients will be less forgiving in case of an accident…" (0101 2023.10.20)

"…Attitude and service are very important. For example, offer patients a glass of water and be polite and empathetic. This will increase patient satisfaction and encourage them to return. A good attitude and diligence will prompt mentors to teach you more, thus broadening your future opportunities…" (0107 2023.10.23)

"…Grassroots doctors should excel not only in their professional skills but

also in psychological counseling, health education, communication, and kindness. A good doctor enjoys interacting with patients and finds self-worth in their work. Maintain a professional appearance and confident demeanor when facing patients…" (0108 2023.10.23)

3. Emphasize Personal Effort

Personal effort plays a crucial role in career development. Medical students should take responsibility for their learning and professional growth through diligent study, active practice, and continuous self-improvement to become outstanding doctors. Personal effort and self-motivation are key to success.

"…Since you have chosen the path of medicine, do not pursue a comfortable life and be prepared for hardship. Medical students must be lifelong learners. Have a clear understanding of the situation, constantly assess: What can I do? How can my personal abilities contribute to the department or hospital's development?…" (0102 2023.10.21)

"…While platforms are important, personal effort is even more crucial…" (0108 2023.10.23) "…Young doctors should be diligent and have practical methods to achieve their goals, reflecting and improving continuously…" (0109 2023.10.23)

4. Focus on Comprehensive Development

The versatile work model of township health center doctors requires familiarity with various tasks. Therefore, students should avoid specializing in only one area during their education and should strive to master knowledge in foundational courses, clinical courses, and public health courses comprehensively.

"…Family doctor teams are led by grassroots doctors, so as a grassroots doctor, you need to be familiar with various aspects of grassroots work…" (0106 2023.10.23)

Summary of Stage Content

The interviews with the directors of township hospitals reveal the current development status of primary healthcare and the demand for medical education in rural Jiangsu:

1. The development level of rural grassroots hospitals varies, but there is a common problem, which is the lack of doctors.

2. Newly graduated medical students have weak clinical skills, weak

communication abilities, and low initiative.

3. Popular doctors are generally characterized by strong professional skills and excellent communication abilities.

4. Clinical standardized training for graduates should focus on key areas, and it is best to work for a period of time before attending the training.

5. Because doctors need to achieve a certain level of psychological resilience to excel, medical education should strengthen education on values and communication skills. Attention should be paid to the teaching of various courses and various teaching methods should be adopted.

6. Students should strengthen their basic skills and enhance their humanistic literacy.

4.2.2 Interview Results with Rural Grassroots Doctors in Jiangsu Province

In this section, we interviewed a total of 21 rural grassroots doctors who work in township hospitals in Jiangsu Province (ID numbers 0201-0221). Among them, 8 doctors (ID numbers 0201-0208) are from central Jiangsu, 6 doctors (ID numbers 0209-0214) are from southern Jiangsu and 7 doctors (ID numbers 0215-0221) are from northern Jiangsu. This study employed content analysis, and based on the coding manual, the interviews with the doctors were organized into the following conclusions. We provided an interpretation based on the interview results and included the original quotes.

4.2.2.1 Highlights in a Medical Career

1.Recognition by Patients

For a doctor, the primary service recipients are patients. Being acknowledged for the results of one's work greatly enhances the doctor's sense of professional achievement. This recognition is a significant reason why doctors continue to dedicate themselves to rural primary healthcare despite low salaries and challenging working conditions.

"…As I see more patients, I feel a sense of achievement. Now, many patients come to me for treatment…" (0201 2023.10.25)

"…Initially, it was to support my family, but as patient satisfaction increased,

I fell in love with the job…" (0210 2023.10.23)

"…Natural actions left a deep impression on patients, so they return for treatment. I reflect on this to improve myself further. I've never been as happy as when I receive recognition from patients, even more than when I got a promotion or entered graduate school…" (0211 2023.10.23)

"…The highlight is still being recognized by patients. I was temporarily assigned to the Health Commission for two months, which was equivalent to a promotion, but I didn't like it. I prefer being a small doctor; aligning with my values and career perspective makes me happy…" (0212 2023.10.23)

2.Strong Technical Competence

Some interviewees mentioned that their professional pride comes from their technical expertise, such as "…treating conditions that others could not…" This unique competence attracts more patients and provides both psychological and material rewards.

"…When patients are in severe pain and have seen many doctors without success, and you manage to treat them, it's rare—perhaps once a year—but that one success can make you happy for the whole year…" (0203 2023.10.25)

"…Let me share two stories: Shortly after graduation, I treated a patient in a near-death state, with his family already preparing for his funeral. He was emaciated and had ulcers all over his mouth. I checked his blood and found his hemoglobin was only 62 grams. Further testing revealed typical megaloblastic anemia. Our hospital didn't have the medication, so I instructed him to buy folic acid, vitamin B, and iron supplements from the pharmacy, which were inexpensive. Within a short time, he could eat normally. From initially not being able to eat to being able to consume five large buns and a bowl of vegetables, I felt a great sense of accomplishment. From then on, patients from near and far came to seek my help. Another story is that I was the first at this hospital to suggest using heparin for anticoagulation, a practice that was previously untried. There are many such pioneering efforts I have made…" (0216 2023.10.20)

"…I saved two patients: one with postpartum hemorrhage and another with neonatal asphyxia, both of whom survived…" (0219 2023.10.21)

"…My highlight: The sense of achievement in surgery is much greater

compared to internal medicine. Internal diseases often cannot be cured but only 'self-heal,' while surgical procedures can actually cure the disease…" (0221 2023.10.19)

4.2.2.2 Views on Rural Primary Healthcare Work

1.Lack of Trust in Grassroots Hospitals in the Social Environment

The purpose of China's three-tiered medical system is to direct patients to grassroots institutions to control costs, but it has had limited success. One reason is the deeply ingrained belief among Chinese residents that doctors at large hospitals are superior, leading them to prefer large hospitals even when they need care. This perception results in less exposure and slower improvement in diagnostic and treatment skills for doctors at grassroots hospitals.

"…The current environment is poor, and societal values have deteriorated…" (0203 2023.10.25)

"…In our time, grassroots doctors had a high social status, but now the status of township hospitals has declined significantly. Patients don't understand and expect doctors to cure their illnesses, and if they don't, it's seen as a failure. This also reflects inadequate media coverage…" (0203 2023.10.25)

2.Grassroots Hospitals as a Good Career Choice

Working in a township hospital involves less workload compared to large hospitals, with lower stress levels. Doctors can leave work on time and balance work with family life, which enhances job satisfaction. Many doctors mention this as a significant advantage. Additionally, many grassroots hospitals offer attractive conditions to attract graduates, such as job security. In traditional Chinese views, having a secure position ensures stable employment and future retirement benefits, balancing issues like low salaries and poor working conditions.

"…I work for children health management, which is relatively relaxed and without night shifts. This position suits me well…" (0209 2023.10.23)

"…Choosing the right career gives a strong sense of achievement. With good work-life balance and high cost-effectiveness, grassroots work is quite satisfying. I once considered pursuing graduate studies but eventually abandoned the idea. I have no regrets and am very satisfied with the job I enjoy now…" (0211 2023.10.23)

"…My academic performance was good, but I chose job security over further

studies…" (0213 2023.10.23)

"…Our hospital has the highest salary in the same tier. I might move my family here in a few years, as I'm committed to staying at this hospital…" (0214 2023.10.23)

"…The incentive system here is effective: more work means more pay, with no upper limit. I don't want to switch to a large hospital. I'm satisfied here with stable patients…" (0216 2023.10.20)

"…With children, I focus more on family. Grassroots hospitals are a good job choice. I don't plan to leave since I have job security here, which might not be the case in a new hospital…" (0218 2023.10.18)

"…I previously worked in obstetrics and gynecology but moved to women's health, which I enjoy. It allows me to manage family life well and provides strong job satisfaction…" (0220 2023.10.19)

3.Functions of Rural Grassroots Doctors

Grassroots health work, especially in rural areas, encompasses basic medical and public health services, including managing health records, health education, vaccination, child health management, and maternal health management. Due to chronic shortages of human resources, doctors often juggle multiple roles.

"…Because we lack public health doctors, we handle both clinical and public health tasks. For example, I work in obstetrics and gynecology and also take on women's health duties…" (0213 2023.10.23)

"…In grassroots hospitals, the main focus is on patient interaction and public health work…" (0214 2023.10.23)

"…The pressure in grassroots hospitals is less compared to large hospitals. Our main task is to identify patient issues, and if we can't solve them, we refer them to higher-level facilities…" (0216 2023.10.20)

"…My daily work is quite complex, involving creating excellent grassroots hospitals, clinical work, checking if medical insurance funds are spent correctly, and handling patient refunds…" (0218 2023.10.18)

"…In grassroots hospitals, doctors can't focus solely on clinical work; they must also handle public health tasks, distribute contraceptives, and perform administrative duties…" (0219 2023.10.21)

4.Limitations of Rural Primary Healthcare

Due to geographical factors, the positioning within the health system, insufficient human resources, and an aging workforce, the actual work often falls short of the expectations of young or newly employed doctors, leading to a psychological gap.

"…There is serious factionalism in grassroots hospitals, with old power dominating, leaving little room for capable newcomers…" (0216 2023.10.20)

"…Grassroots hospitals have poor conditions with incomplete medications and equipment, making accurate diagnosis challenging…" (0219 2023.10.21)

"…Due to limitations in grassroots authority, the capabilities of grassroots doctors are restricted…" (0221 2023.10.19)

4.2.2.3 Issues Faced by Rural Grassroots Doctors

1.Lack of Proactive Learning

The general perception of young people today is that they are restless, impatient, have poor resilience to setbacks, are self-centered, and lack clear career planning. Newly graduated doctors are no exception. While they may excel academically, their development has often been overly focused on learning, neglecting the comprehensive development of their personalities.

"…Young people are unable to endure hardship; they clock out on time and may not even look at patients for days. Printing out a discharge report when a patient leaves is considered a success…" (0204 2023.10.25)

"…Today's young people are more dynamic but have poor hands-on skills, lack initiative, and have a strong fear of difficulties. Their ability to communicate with patients is also lacking…" (0208 2023.10.24)

"…Most grassroots doctors do not actively seek additional learning opportunities; they just follow the methods of their predecessors, knowing what to do but not understanding why…" (0216 2023.10.20)

2.Insufficient professional competency

Compared to large hospitals, township hospitals suffer from a lack of resources, outdated medical equipment, and incomplete supplies of medications and tools. This makes it challenging for them to provide high-quality medical services.

Additionally, the low patient flow, limited experience of doctors, and relatively low technical skills further contribute to the problem. Insufficient training and advanced studies result in limited proficiency in new technologies and methods.

"…Last time I reviewed a patient's medical record and found an ECG indicating a heart attack, but the attending doctor had missed it and treated it as a normal ECG. I quickly informed the doctor and made the necessary corrections…" (0216 2023.10.20)

4.2.2.4 The Importance of Basic Medical Knowledge

From analyzing the interviewees' discussions and considering their backgrounds, an interesting phenomenon emerges: using the three levels of Zen meditation by Song Dynasty master Qingyuan Xingsi as a metaphor: during school, "…mountains are mountains"…; when starting work, "…mountains are not mountains"…; after years of work, "…mountains are mountains again…"

1.Useful, but Not Highly Impactful

In the three stages of medical education, medical school represents the foundational stage. This stage may not be as intuitive or constantly refreshing as clinical practice, and sitting through lectures can be monotonous. Basic courses are often dense and seem detached from practical application, giving a sense of "…not necessary…"

"…What I learned in school is certainly useful, but not a large proportion of it. Textbooks focus on common diseases, while in reality, one encounters more complex situations…" (0214 2023.10.23)

"…University learning was mostly about cramming for exams; what I learned during standardized training is more useful…" (0218 2023.10.18)

"…Theoretical courses don't provide much guidance for actual clinical practice. Introductory general medicine is quite dull and lacks real-world relevance. It would be better if it were connected with real clinical practice…" (0221 2023.10.19)

2.Highly Impactful

In China, being a doctor involves continuous examinations, making basic knowledge exceptionally important. Moreover, many experienced grassroots doctors believe that foundational medical knowledge has become the underlying logic of their

medical thinking. Mastery of basic knowledge is crucial for solid clinical skills and developing clinical reasoning when facing patients.

"...Basic knowledge must be well-learned as it is essential for exams..." (0201 2023.10.25)

"...Theoretical knowledge is still very important, especially for career advancement..." (0202 2023.10.25)

"...During school, it's crucial to master basic knowledge because it is necessary for certification exams..." (0206 2023.10.24)

"...Good theoretical knowledge makes standardized training easier..." (0208 2023.10.24)

"...Although theoretical knowledge is not used frequently, it is ubiquitous. For example, chest punctures and chest compressions require precise anatomical knowledge..." (0207 2023.10.24)

"...University education is about laying the foundation, standardized training is like practical simulation, and post-work becomes narrower and deeper..." (0213 2023.10.23)

"...Basic subjects are extremely important as they form your underlying logic. For example, if a patient asks, 'Doctor, how many bags of IV fluids should I receive?' It is calculated based on body weight and specific gravity, applying physiological knowledge. How to treat bronchial dilation is based on anatomical knowledge. To explain the condition to the patient, you need to use this knowledge..." (0216 2023.10.20)

4.2.2.4 Views on Clinical Practice Learning

1.Importance of Clinical Practice

Many interviewees believe that among the three stages of medical education (academic education, clinical practice, and post-graduate training), clinical practice is the most important. It provides opportunities to apply theoretical medical knowledge to real medical situations, enabling students to translate what they've learned into practical skills and experience the true environment of medical work. For those who did not fully grasp the theory, clinical practice serves as a remedial phase, allowing them to address knowledge gaps revealed during clinical activities through additional

study after work.

"...Compared to academic education and further study, standardized training is the most important..." (0204 2023.10.25)

"...During standardized training, learning in both large hospitals and community hospitals is important, especially for accumulating experience in doctor-patient relationships..." (0205 2023.10.24)

"...Compared to classroom learning, internships and practical experience are more important..." (0206 2023.10.24)

"...Students gain more from clinical internships than from school learning..." (0207 2023.10.24)

"...Standardized training is more important than academic education or further study..." (0209 2023.10.23)

"...University education focuses on cramming for exams, while the learning during standardized training is more useful..." (0218 2023.10.18)

"...Basic courses are important, standardized training and internships are also important, but experience is even more crucial..." (0219 2023.10.21)

"...The key to medical learning is in internships and standardized training: university learning accounts for 30%, standardized training for 50%, and post-work learning for 20%..." (0220 2023.10.19)

"...Not having standardized training is regrettable; it's something you can't make up for later..." (0209 2023.10.23)

"...Not having standardized training is a lifelong regret. The platform provided by large hospitals offers different perspectives, and encountering various medical conditions broadens your approach, which cannot be learned from textbooks..." (0214 2023.10.23)

"...Standardized training is extremely important. I haven't participated in it, so I lack many skills..." (0215 2023.10.20)

2.Design for Standardized Training

In China, standardized clinical training refers to the 3 years (for undergraduates) or 2 years (for specialists) of structured training after graduation. Some interviewees expressed dissatisfaction with the timing, content, and departmental rotations in this training program, suggesting improvements.

"...Internships should be placed later in the curriculum, as some knowledge may not be fully mastered yet..." (0206 2023.10.24)

"...Three years of standardized training is a waste; a year and a half is enough. More focus should be on hands-on practice, not just observation..." (0210 2023.10.23)

"...There is a disconnect between standardized training and actual clinical practice; learned skills are not always applicable because grassroots hospitals often have centralized drug procurement, lack many medicines, and cannot conduct certain tests, hampering work..." (2023.10.18)

3.Documentation Issues

Some interviewees, who are also instructors in standardized training programs, discussed the issue of documentation from their perspective. They believe that, while providing guidance to medical students is challenging enough, the additional requirement to complete documentation consumes a significant amount of their energy.

"...Standardized training requires a lot of documentation for grassroots instructors, which is superficial work. When students come to the community, they mostly observe and have few hands-on opportunities..." (0210 2023.10.23)

"...The problem with standardized training is the excessive and cumbersome documentation, which increases the workload for grassroots instructors and shifts the focus away from teaching..." (0212 2023.10.23)

4.Importance of Hands-On Practice

Interviewees emphasized the importance of hands-on practice in clinical training. Currently, standardized training programs often prioritize observation over practice. This is partly due to students' lack of confidence and motivation, and partly because patients in large hospitals may have high expectations and prefer not to have trainees perform medical procedures.

"...The social atmosphere is not as simple as before; doctor-patient relationships are tense, leading instructors to be cautious and not allow trainees to practice. Patients should understand that if trainees don't practice now, they will face them later without instructors, increasing their own risk..." (0207 2023.10.24)

"...Doctors are made through practice, not just learning. Five years in school

is not necessary; a year or two of study followed by hands-on experience in the hospital is better…" (0210 2023.10.23)

"…The cultivation of clinical thinking primarily comes from seeing more patients in outpatient settings…" (0214 2023.10.23)

"…I really appreciate a thoracic surgery instructor from my standardized training hospital who allowed students to perform procedures. Whenever a patient arrived, students were involved, and one-on-one teaching was provided, even during emergency care…" (0220 2023.10.19)

4.2.2.5 Views on Advanced studies

1.Importance of Advanced studies

Many doctors working in township hospitals emphasize that advanced studies is the most important stage in medical education. Their reasoning is straightforward: to stand out among peers in a hospital setting, one must have a specialty, such as expertise in a specific disease or proficiency in a particular medical technique. Advanced studies is seen as essential for achieving this goal.

"…After starting work, you should at least take six months of advanced studies in emergency medicine. In community settings, the emergency room is typically the weakest area, yet emergency cases are frequent…" (0206 2023.10.24)

"…Newer, younger practitioners often lack emergency knowledge and should receive corresponding training…" (0210 2023.10.23)

"…Advanced studies is very necessary. For short-term training aimed at grassroots healthcare, I would consider attending if it meets my needs, but often it's just a task assigned to attend lectures…" (0214 2023.10.23)

"…Compared to academic education and internships, advanced studies has been more beneficial for me…" (0215 2023.10.20)

2.Limited Importance of Advanced studies

A significant number of respondents (mainly from northern Jiangsu) feel that advanced studies is not very useful for them, as even if they learn new techniques, they lack the platform to apply them due to outdated equipment and facilities in rural health clinics.

"…Advanced studies may not be that important since new techniques may not

be implementable due to the lack of supportive facilities in the hospital…" (0202 2023.10.25)

"…It's more important to make good use of the existing instruments in the hospital. Advanced studies may expose you to advanced equipment, but if you don't have it in the grassroots setting, it's of no use…" (0204 2023.10.25)

"…Doctors are reluctant to engage in advanced studies as it may interfere with their income…" (0218 2023.10.18)

"…Doctors' willingness to advanced studies is not strong because the practical guidance it provides for their actual work is limited…" (0221 2023.10.19)

4.2.2.6 Manifestation of Medical Humanities in Work

1.Sense of Responsibility

A doctor's sense of responsibility is crucial in medical service. It not only reflects personal professional quality but also directly impacts patient health and the quality of care provided.

"…For young practitioners, while it is essential to be skilled, having a strong sense of responsibility is even more important…" (0204 2023.10.25)

2.Doctor-Patient Communication

In clinical practice, humanistic qualities are most evident in doctor-patient communication. Doctors, through empathy, can understand patients' pain, anxiety, and needs. They should explain complex medical information in simple terms, engage in thorough discussions, and involve patients in decision-making. Effective communication significantly impacts patient experience, treatment adherence, and overall medical outcomes.

"…The doctor-patient relationship and communication rely on the doctor's extensive clinical experience, as there are many uncertainties between people…" (0207 2023.10.24)

"…I know a few principles for emergency care in rural areas: first establish an intravenous line, then promptly call 120, and communicate well with the family to avoid unnecessary disputes. If you do nothing and just transfer the patient, it is not acceptable; communication comes first…" (0211 2023.10.23)

"…Doctor-patient communication is best learned through hands-on

experience in clinical settings…" (0213 2023.10.23)

"…Communicate more and with patience to gain patient recognition…" (0218 2023.10.18)

"…Communication is crucial. If done well, no one will blame you if the treatment doesn't work; if done poorly, even if the treatment succeeds, the patient won't appreciate it…" (0219 2023.10.21)

"…The most important thing I learned at work is communication. The effect varies with different tones. Communication relies on talent but can also be developed through practice…" (0220 2023.10.19)

3.Professional Pride

Doctors in rural health clinics play a key role in improving the health of local residents. Their work in treating diseases, preventing infections, and conducting health education directly affects community health. This positive contribution to residents' health fills them with immense pride. Additionally, long-term work in the community often fosters deep trust between doctors and patients, making them feel respected and recognized, which enhances their professional pride.

"…After working and experiencing life, I realize that a sense of achievement does not always have to be grand. Experts have their own sense of achievement, and ordinary workers have theirs…" (0211 2023.10.23)

4.2.2.8 Advice for Junior Medical Students

1. On Fundamental Knowledge

Medical foundational knowledge is the bedrock of the medical profession and is crucial for a doctor's career and the quality of care provided. Experienced practitioners recognize the often tedious nature of learning this knowledge but stress its importance based on their own experiences.

"…Mastering fundamental knowledge is crucial; you'll need it during exams…" (0201 2023.10.25)

"…Theoretical knowledge is still very important, especially for title promotions…" (0202 2023.10.25)

"…During school, focus on mastering fundamental knowledge as it is critical for certifications…" (0202 2023.10.24)

"...Make sure to pay attention in class and accumulate knowledge regularly; cramming won't be effective later on..." (0218 2023.10.18)

"...Having a solid grasp of theory during class will help you avoid fear of being questioned during cycles..." (0220 2023.10.19)

2. Importance of Practice

Respondents emphasize the importance of practical experience during clinical rotations, internships, residency training, and post-graduation. They highlight the necessity of being proactive and engaged in these experiences.

"...Practice is accumulated year by year. Initially, I wasn't very skilled, but over time, I became familiar with disease processes and medications..." (0201 2023.10.25)

"...See and practice as much as possible..." (0203 2023.10.25)

"...Learning at large hospitals and community hospitals during residency is very important, especially for accumulating experience in doctor-patient relationships..." (0205 2023.10.24)

"...During internships and rotations, focus on learning practical skills, as you will directly face patients later..." (0206 2023.10.24)

"...Be highly proactive and enthusiastic during residency; you will learn more hands-on skills..." (0208 2023.10.24)

"...During internships, thoroughly learn and rotate through various departments; these experiences will set the ceiling for your career..." (0218 2023.10.18)

3. Correct Attitude for New Graduates

Rural health clinic doctors can feel isolated, especially when starting out. It is essential to maintain conviction, stay committed, learn from colleagues, and continuously improve oneself. Over time, this dedication will lead to professional growth.

"...If you choose a medical career, you must persevere. It may seem difficult and arduous at first, but it will gradually improve. Everyone goes through this process. It takes time for patients to become familiar with you..." (0202 2023.10.25)

"...Doctors need to stay focused and not be distracted by fame or wealth..." (0203 2023.10.25)

"...If your skills are initially not sharp, it's okay; take your time to improve..." (0204 2023.10.25)

"...In the medical field, your efforts might not show immediate results, but in the long term, all efforts are rewarded..." (0210 2023.10.23)

"...When starting out with few patients, proactively observe how experienced doctors handle cases..." (0219 2023.10.21)

4. Limitations in Rural Settings

Unfortunately, some rural health clinic doctors are dissatisfied with their profession. They feel that their career development and living conditions significantly lag behind those of their peers. Some regret their decisions, while others are quietly enhancing their skills and preparing to switch jobs.

"...If possible, further your education; it's beneficial..." (0201 2023.10.25)

"...I advise junior students to consider further studies rather than being restricted by a fixed position..." (0217 2023.10.18)

"...Those who chose to pursue graduate studies against the rules have already set themselves apart from us, and the gap continues to widen..." (0221 2023.10.19)

4.2.2.9 Suggestions for Improving Medical School Education

1.Key Subjects to Master

Overall, clinical courses remain the core of medical education, with foundational and humanities subjects also playing significant roles in rural primary healthcare settings.

"...Subjects such as Anatomy, Diagnostics, and Pathology are crucial, especially for mastering differential diagnosis..." (0203 2023.10.25)

"...Psychology and Doctor-Patient Communication are very important..." (0206 2023.10.24)

"...The most useful subjects in practice are Internal Medicine, Surgery, Obstetrics and Gynecology, and Pediatrics; Biochemistry and Pathology are most useful for exams..." (0217 2023.10.18)

"...Internal Medicine, Surgery, Obstetrics and Gynecology, Pediatrics, General Medicine, Psychiatry, and Diagnostics are particularly important..." (0218 2023.10.18)

"…Among the courses in school, Internal Medicine, Surgery, Obstetrics and Gynecology, and Pediatrics are the most useful…" (0220 2023.10.19)

2.Medical Humanities Education

Historically, medical schools have focused heavily on professional education, but it has become evident that medical humanities should be strengthened. Incorporating humanities throughout medical education will help students become well-cycleed medical professionals, enhancing the overall quality of healthcare services.

"…Schools should strengthen ethical and hardship education; without experiencing hardship, one cannot fully develop. Additionally, education should be tailored to individual needs and foster empathy…" (0203 2023.10.25)

"…I appreciate teachers who care for, guide, and comfort students, and who take time to communicate with them during class…" (0216 2023.10.20)

3.Teaching Methods

Effective teaching methods should include clear learning objectives, diverse instructional approaches, use of modern technology, student engagement, feedback and assessment, consideration of student diversity, development of self-directed learning, provision of practical learning tools, creation of a positive learning environment, and flexible teaching strategies.

"…In Surgery, although clinical courses are very vivid, teachers often use various examples to fill the class time, but they do not cover all the necessary content, leaving students to self-study after class…" (0205 2023.10.24)

"...I prefer when teachers present material in a more organized manner. Schools should help students gain more observation and internship opportunities and engage with more patients…" (0207 2023.10.24)

"…Teachers should use teaching aids and multimedia more during lectures…" (0208 2023.10.24)

"…Clinical courses like Internal Medicine and Surgery are studied for three semesters, but it's still insufficient. Some content is not covered in class, and when encountered in practice, there's no prior knowledge. While clinical stories are engaging, they lack substantive content…" (0213 2023.10.23)

"…Reforms in schools could start with exams. Currently, exams test

comprehensive application of knowledge and abilities. Instead of overwhelming students with lectures, include some exam questions periodically…" (0214 2023.10.23)

"…Our learning was not detailed, and the time was too short, leading to a superficial understanding of many topics…" (0215 2023.10.20)

"…Most teachers are very good, but the teaching of Diagnostics and Medical Laboratory Science needs improvement. Some teachers merely read from PowerPoint slides. Teachers should share their clinical stories but should also follow outlines…" (0217 2023.10.18)

"…Even though school courses are often too theoretical, teachers could make them more engaging…" (0218 2023.10.18)

"…Teachers should not just stick to the textbook; they should vividly incorporate their own experiences…" (0219 2023.10.21)

"…Theoretical courses have limited practical guidance for clinical work. General Medicine was particularly dull; integrating it with real clinical practice is advisable…" (0221 2023.10.19)

Summary of Stage Content

The interviews with the rural grassroots doctors of township hospitals in rural Jiangsu reveal their own professional development status and the demand for medical education:

1. Highlights in a medical career: The highlight moments in life are when patients recognize and have strong technological competitiveness.

2. Views on rural primary healthcare work: Rural grassroots doctors are a good profession. They are versatile and important to residents, but they have not yet gained widespread social recognition.

3. Issues faced by rural grassroots doctors: For the rural grassroots doctors, there is a problem of poor initiative in learning, which leads to low quality of medical services.

4. The importance of basic medical knowledge: There are different opinions about the basic knowledge of medicine, but as people age, doctors generally believe that basic medical knowledge is important.

5. Views on clinical practice learning: Clinical practice should focus on the

rationality of top-level design and practicality for the students.

6. Views on advanced studies: The importance of advanced studies varies among hospitals of different development scales.

7. Manifestation of medical humanities in work: The sense of responsibility towards rural grassroots health, good doctor-patient relationships, and professional pride supported oneself to continue on the path of rural grassroots health.

8. Advice for junior medical students: We hope that current students can strengthen their foundation, value practical experience, and have a correct attitude towards their careers.

9. Suggestions for improving medical school education: Medical education should focus on strengthening medical humanities education, and clinical courses are also of utmost importance. Various teaching methods should be used to improve teaching effectiveness.

Phase 1 Survey Research Summary

The quantitative research results indicate a significant demand for grassroots healthcare among rural residents, primarily focusing on disease diagnosis and treatment, health education, physical examinations, and doctor-patient communication. When seeking care at the grassroots level, rural residents prioritize the clinical abilities and service attitudes of doctors over their educational qualifications. However, the current clinical capabilities of grassroots doctors are inadequate, and these doctors are aware of their own limitations. There is an urgent need to strengthen medical education: less than half of rural grassroots doctors have completed standardized clinical training. The curriculum in medical schools should also be enhanced, particularly in key subjects related to grassroots healthcare, such as diagnostics, internal medicine, and doctor-patient communication. Qualitative research has deepened the understanding of the issues in grassroots healthcare: while economic and political factors contribute to the uneven development of rural healthcare, deficiencies in medical education are also evident, including a lack of clinical skills, initiative, engagement, values, and communication abilities among doctors. Additionally, the design of the clinical practice component is not sufficiently rational, and the teaching process lacks appeal.

4.3 Phase 2 Action research to explore a mode of integrating narrative medicine and professional ideological education into medical course through multiple teaching methods to enhance medical students' empathy and professional identity

The second phase of this research will adopt an action research approach to improve certain aspects of the rural oriented medical training program based on the findings from the first phase.

4.3.1 Cycle 1

4.3.1.1 Plan

The most significant results from the first phase of research indicate that the rural doctor training program needs to improve in three key areas: **Enhancing Students' Humanistic Literacy**, **Improving Students' clinical skills in the work of grassroots rural doctors**, and **Improve Teaching Methods.** Humanistic Literacy in the work of rural grassroots doctors reflected in values, responsibility, proactivity in work et al, and, more importantly, in doctor-patient communication (Li F et al., 2017). and doctor-patient communication relies on doctor's **empathy**. The enhancement of **clinical skills** is a goal across all courses in the medical education process, as indicated in the literature review in Chapter Two, clinical skills can be promoted by increasing **professional identity**. While professional identity not only improve clinical skills, but also improve doctors' correct values, responsibility and proactivity in work. The improvement of students' empathy and professional identity can not be simply taught in class, it requires diverse **teaching methods** and a well-structured educational design. Therefore, the question has been transformed into "How to enhance students' empathy and professional identity through diverse teaching methods". The concept of this action research is illustrated in the figure 16.

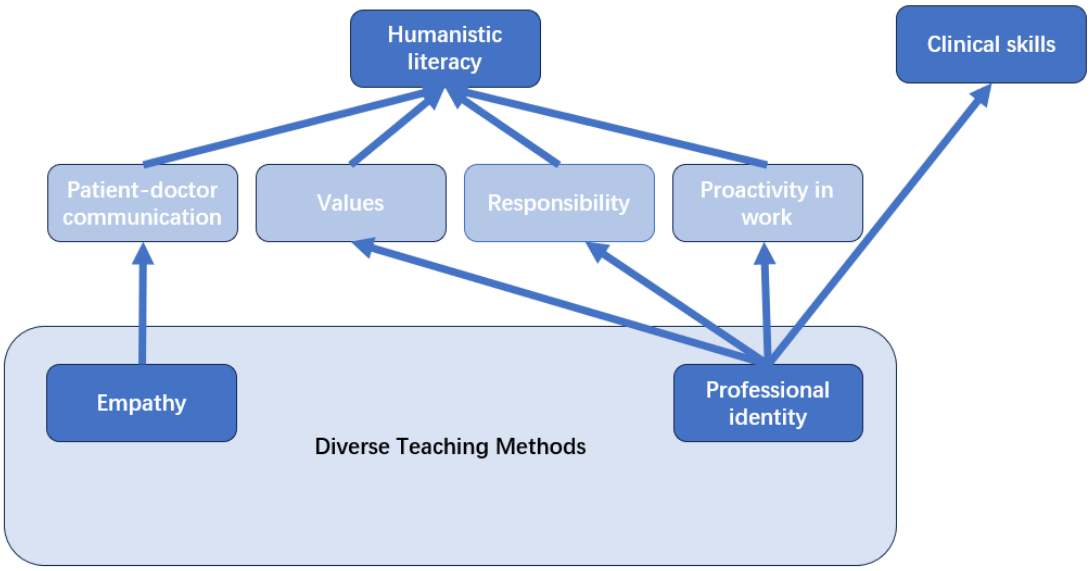


Figure 16 *concepts relate to humanistic literacy, clinical skills and teaching methods*

In China, most of the rural grassroots doctors were cultured via “rural oriented medical students training program” since 2010. In ordering to start from the stage of medical education and enhance the humanistic literacy of rural grassroots doctors, this study decided to take rural oriented medical students as the research object and conduct action research on them, improve their empathy and their professional identity. As introduced in Chapter 2, narrative medicine is an effective means to enhance medical students' empathy, while professional ideological education is a good teaching method to strengthen their professional identity, Therefore, we plan to focus on rural-oriented medical students as the research subjects and conduct an action research study that integrates narrative medicine and professional ideological education into the curriculum using diverse teaching methods to enhance students' empathy and professional identity. The design of the action research plan is illustrated in Figure 17.

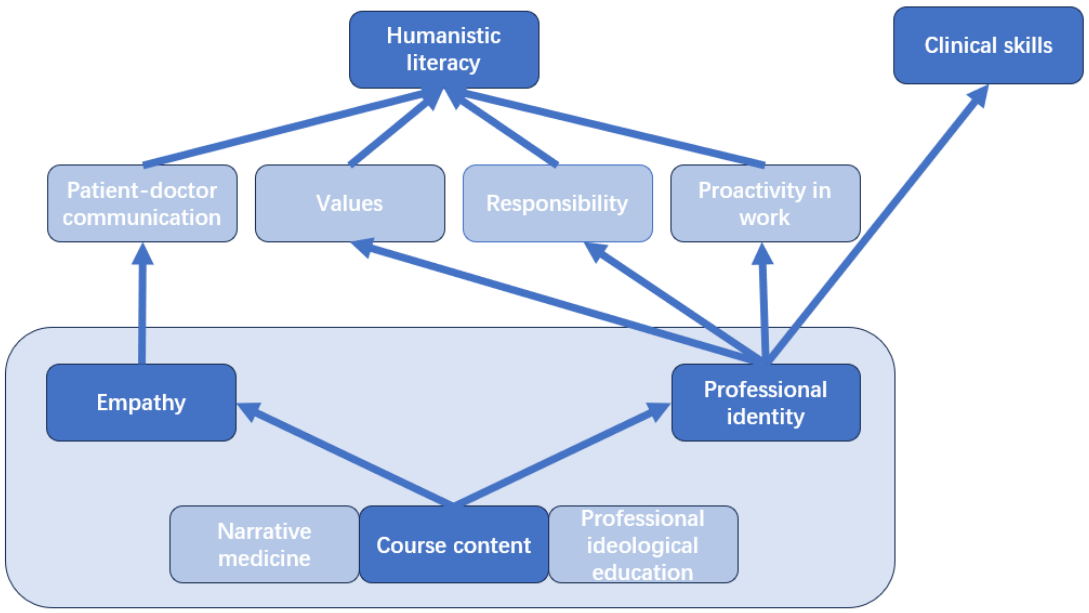


Figure 17 *the design of the action research which aims to enhance the empathy and professional identity of rural oriented medical students through diverse teaching methods*

We chose the course **"Introduction to General Medicine"** because it serves as a foundational course for rural oriented medical students. It covers essential concepts in primary healthcare and addresses the general medical management of common and prevalent diseases. The research plan was developed through collective discussions in the **Department of Community and Health Education** at Xuzhou Medical University (This departments has four members, all of whom focus on teaching and researching primary healthcare). We intended to complete the study over **six weeks**, with interventions taking place each week for **2 hours**, totaling **12 hours of intervention** (other studies range from 20 minutes to 42 hours, with an average of 10.2 hours). We have decided to conduct **four theoretical interventions, two practical interventions** and **an on-line meeting**. The theoretical sessions will cover four key topics: “doctor-patient communication”, “the comprehensive management of hypertension”, “the comprehensive management of diabetes” and “the comprehensive management of malignant tumors”. This choice is based on the importance of doctor-patient communication in rural primary healthcare, as well as the prevalence of hypertension, diabetes, and malignant tumors in these communities. The two practical

sessions will include narrative sharing, watching movies and writing film reviews, as these methods encourage high participation and are closely related to empathy and professional confidence. In the implementation plan, we incorporated **various teaching methods** with the intention of enhancing students' empathy and professional identity while teaching them key concepts. The specific action research plan is as follows:

Week 1: Doctor-Patient Communication

Objective: To enhance students' awareness and skills in doctor-patient communication by analyzing contrasting examples.

Procedure:

Introduction: Initiate the class with a brief lecture on the significance of doctor-patient communication in healthcare, emphasizing its impact on patient outcomes and satisfaction.

Video Screening: Show carefully selected clips from medical documentaries that vividly depict both poor and effective doctor-patient communication scenarios. For instance, a clip might display a doctor who rushes through an appointment, ignoring the patient's concerns, leading to misunderstandings and patient dissatisfaction. In contrast, another clip could feature a doctor who actively listens, shows empathy, and uses clear language to explain medical conditions and treatment options, resulting in a trusting relationship and better patient compliance.

Group Discussion: Divide students into small groups to discuss the observed communication behaviors. Each group should identify the strengths and weaknesses in the examples, analyze the impact on the patient-doctor relationship, and propose strategies for improvement. Facilitators can circulate among the groups, providing guidance and prompting deeper analysis.

Plenary Session: Reconvene as a whole class to share group insights. Encourage students to draw connections between the video examples and their future practice, considering how they can apply effective communication techniques in various clinical situations.

Week 2: The Comprehensive Management of Hypertension

Objective: To help students master the comprehensive management of hypertension through an immersive narrative-based approach.

Procedure:

Case Presentation: Introduce a detailed narrative case study of a patient with hypertension. The case should incorporate the patient's lifestyle, family history, initial symptoms, and the diagnostic process. For example, describe a middle-aged patient with a sedentary job, a family history of hypertension, and recent episodes of headaches and dizziness. The narrative should unfold as the doctor conducts a series of examinations, including blood pressure measurements, laboratory tests, and consultations with the patient to gather a comprehensive medical history.

Diagnostic Analysis: Guide students to analyze the case, identify the risk factors, and formulate a diagnosis. Encourage them to consider not only the medical data but also the patient's individual circumstances and concerns. Facilitate a discussion on the importance of understanding the patient's perspective in arriving at an accurate diagnosis.

Management Plan Development: Have students work in groups to develop a comprehensive management plan for the patient. This should include lifestyle modifications (such as diet and exercise recommendations), pharmacological interventions, and strategies for patient education and follow-up. Each group should present their plan, justify their choices, and engage in a peer-review process.

Reflection and Summary: Conclude the session by reflecting on the process and summarizing key learning points. Reinforce the idea that effective management of hypertension requires a holistic approach that considers the patient as a whole.

Week 3: The Comprehensive Management of Diabetes

Objective: To enable students to recognize the crucial role of empathy in diabetes management.

Procedure:

Case Introduction: Present a narrative case of a patient with diabetes, highlighting the challenges faced by the patient in managing the disease, both physically and psychologically. For instance, describe a patient who struggles with dietary restrictions, experiences fluctuations in blood sugar levels, and faces social and emotional stress due to the condition.

Empathy Exercise: Conduct an empathy-building exercise where students are asked to put themselves in the patient's shoes. They can write down their thoughts and

feelings as if they were the patient, considering the impact of the disease on their daily life, relationships, and self-esteem.

Group Sharing and Discussion: In small groups, students share their empathetic responses and discuss how empathy can influence medical decision-making. They should explore how understanding the patient's emotional state can lead to more patient-centered care, such as tailoring treatment plans to fit the patient's lifestyle and preferences.

Case Continuation and Decision-Making: Present the next phase of the case, where the patient faces a treatment decision, such as choosing between different insulin regimens or dealing with a complication. Students, armed with their newfound empathy, discuss and decide on the most appropriate course of action, considering both the medical and emotional aspects.

Week 4: The Comprehensive Management of Malignant Tumors

Objective: To instill in students the importance of understanding the patient's story for accurate cancer diagnosis and management.

Procedure:

Real Case Presentation: Share a real clinical case of a patient with a malignant tumor. Include details about the patient's symptoms, medical history, family context, and the diagnostic journey. For example, describe a patient who presented with unusual symptoms that were initially misdiagnosed, the emotional turmoil experienced during the process, and the impact on their family.

Patient Story Analysis: Have students analyze the patient's story, identifying key events, emotions, and factors that could have influenced the diagnostic process. Encourage them to consider how cultural, social, and psychological aspects can play a role in a patient's perception and reporting of symptoms.

Diagnostic and Management Discussion: Facilitate a discussion on the challenges of diagnosing and managing malignant tumors, emphasizing the need for a comprehensive understanding of the patient. Students should explore how integrating the patient's story with medical data can lead to more accurate diagnoses and personalized treatment plans.

Expert Insights: If possible, invite an oncologist or a healthcare professional experienced in cancer care to share their insights and experiences. They can discuss

real-world cases, the importance of communication and empathy, and the latest advancements in cancer management.

Online meeting: Organize an online meeting for current students and graduates who working in township hospitals. They showed case their work environment, discussed job responsibilities, shared memorable stories, and offered advice to current student

Week 5: Practical Session

Objective: To encourage students to share and reflect on their personal experiences and aspirations related to grassroots healthcare.

Procedure:

Sharing Circle: Create a safe and supportive environment where students can take turns sharing their own stories related to grassroots healthcare. This could include experiences during internships, volunteer work, or interactions with patients in rural settings. Alternatively, students can share their aspirations for future work in this area, discussing the impact they hope to make and the challenges they anticipate.

Group Interaction: After each student shares, encourage the group to ask questions, offer feedback, and share similar experiences or perspectives. This interactive process will foster a sense of community and allow students to learn from one another.

Reflection and Goal Setting: Guide students to reflect on their shared experiences and aspirations. Ask them to identify common themes, challenges, and opportunities. Encourage them to set personal goals related to their growth and development in grassroots healthcare, considering how they can apply the skills and knowledge gained in the course.

Week 6: Movie Session

Objective: To deepen students' understanding of rural grassroots doctors' roles and values through cinematic exploration.

Procedure:

Movie Screening: Screen the movie "Rural Grassroots Doctors" without interruption.

Comment Writing: Instruct students to write detailed movie comments, integrating their thoughts on the movie's themes, its connection to the course content,

and the lessons they can draw for their future practice. Encourage them to be critical and reflective, considering different perspectives and interpretations.

4.3.1.2 Action

Time: November 2, 2023 - December 7, 2023

Target Group: 2021 Rural oriented Medical Students (25 students)

Location: Main Teaching Building, Xuzhou Medical University

Course: Introduction to General Practice

Duration: 2hours (total 12 hours)

Instructor: Yan Wenjun

Details: can be check in Table 14.

Table 14 intervention contents and mechanism of action research cycle 1

Week	Time	Topic	Intervention contents	Mechanism of intervention	Evaluation
1	November 2, 2023	Doctor-Patient Communication	At the start of the course, we will use a clip from the medical documentary "The Life Gate," Episode 4 (0:00-11:13), to showcase a doctor-patient conflict and its resolution. This will help students appreciate the importance of doctor-patient relationships and	This intervention is based on one of the tools of narrative medicine: close reading of literary works. The focus is on one of the three focal points of narrative medicine: human connection. By understanding the patient's	1. Film review analysis 2. Course evaluation 3. Teaching reflection journal

Week	Time	Topic	Intervention contents	Mechanism of intervention	Evaluation
			foster empathy. While teaching the language and non-verbal communication skills in doctor-patient interactions, we will repeatedly review the video clips to help students intuitively understand the roles of various techniques in enhancing these relationships.	background, experiences, and emotions, doctors can gain a comprehensive understanding of patients' needs and expectations. This deep communication helps build trust, thereby improving doctor-patient relationships.	
2	November 9, 2023	Comprehensive Management of Hypertension	1.When discussing "Pharmacological and Lifestyle Treatments for Hypertension," we will integrate a narrative case study: Mr. Zhang's Journey	2.This intervention is based on one of the tools of narrative medicine: close reading of literary works. The focus is on one of the three	1. Film review analysis 2. Course evaluation 3. Teaching reflection journal

Week	Time	Topic	Intervention contents	Mechanism of intervention	Evaluation
			with Hypertension. This self-created case focuses on the psychological aspects of the patient's experience and doctor-patient communication.	focal points of narrative medicine: human emotions, particularly negative emotions. This helps medical students gain a comprehensive understanding of the psychological states of patients, including their pain, anxiety, fear, and sadness, enhancing their empathy.	

Week	Time	Topic	Intervention contents	Mechanism of intervention	Evaluation
			2.we also ask the students to make a music prescription for hypertension patients.	2.This intervention aim to connect art and medicine for students, demonstrating that medicine is not just a cold science, but can also be aesthetics.	
3	November 16, 2023	Comprehensive Management of Diabetes	While teaching "Patient Education for Diabetes," we will integrate a narrative medicine case titled "The Diabetes Story: Long-term Patient Education." This case, provided by Dr. Wang Shiying from the Qingdao Endocrinology	This intervention is based on one of the tools of narrative medicine: close reading of literary works. The focus is on one of the three focal points of narrative medicine: empathy between people. Enhancing	1. Film review analysis 2. Course evaluation 3. Teaching reflection journal

Week	Time	Topic	Intervention contents	Mechanism of intervention	Evaluation
			and Diabetes Hospital, emphasizes the doctor's empathy towards diabetic patients.	empathy is a key goal of this action research and also a research method. Medical students will experience empathy in narrative stories, recognizing its vital role in building trust, improving communication, and enhancing treatment adherence.	
4	November 23, 2023	Comprehensive Management of Malignant Tumors	1.While discussing "Early Detection of Malignant Tumors," we will incorporate a narrative medicine case: "Aunt's Cough."	1.This intervention is based on one of the tools of narrative medicine: close reading of literary works. The focus is on	1. Film review analysis 2. Course evaluation 3. Teaching reflection journal

Week	Time	Topic	Intervention contents	Mechanism of intervention	Evaluation
			This story, which occurs in the instructor's surroundings, highlights the importance of a comprehensive understanding of the patient for early cancer diagnosis.	one of the three focal points of narrative medicine: human connection. This helps students understand that a thorough understanding of the patient not only builds trust but also plays a crucial role in the diagnosis and treatment of diseases.	
			2.We will invite a graduate working in a grassroots healthcare setting (ZZY) to connect online with current students, showcasing the work	2.This intervention is based on Bandura's social learning theory, emphasizing that personal learning	1. Film review analysis 2. Course evaluation 3. Teaching reflection journal

Week	Time	Topic	Intervention contents	Mechanism of intervention	Evaluation
			environment of township hospitals, discussing job responsibilities, sharing memorable clinical cases, and engaging in Q&A.	activities are mainly influenced by observing the behaviors of others in specific contexts, examining the reinforcements they receive, and using their examples as models for imitation. This will enhance the professional confidence of township health center doctors.	
5	November 30, 2023	Practical Class	In a narrative medicine sharing session, each student will share their stories related to township health centers or discuss their views on	This will utilize two key tools of narrative medicine: close reading of literary works and reflective writing (though only reflection,	1. Film review analysis 2. Course evaluation 3. Teaching reflection journal

Week	Time	Topic	Intervention contents	Mechanism of intervention	Evaluation
			working in these settings.	no writing). This aims to cultivate empathy and professional confidence among medical students.	
6	December 7, 2023	Practical Class	We will watch the French film "Rural grassroots doctors," which portrays the life of rural doctors, and students will be asked to write a review after watching it.	This research is based on Bandura's social learning theory, aiming to enhance the professional confidence of order-oriented students. By employing two key tools of narrative medicine: close reading of literary works and reflective writing, we aim to cultivate students' narrative skills	1. Film review analysis 2. Course evaluation 3. Teaching reflection journal

Week	Time	Topic	Intervention contents	Mechanism of intervention	Evaluation
				and enhance their empathy.	

4.3.1.3 Observation

The observation process involves triangulation using course evaluations from the students, analyses of their film reviews, and the instructor's observation journal as measurement indicators.

1. Film Review Analysis

The film review analysis utilizes the reviews from the 2020 rural oriented undergraduate medical students as a pre-test (before intervention, film "The Country Doctor") and the reviews from the 2021 rural oriented medical students as a post-test (after intervention, film "The Country Doctor")(details of this film can be check in appendix).

In the film "The Country Doctor", the two rural grassroots doctors serve the villagers with their distinct approaches to humanistic care. Although their methods differ, both reflect a deep love for their work as rural grassroots doctors and a strong sense of responsibility for the health of the residents.

Considering the aim of this study is to enhance students' empathy skills and professional identity, we developed evaluation criteria for the film reviews through the Delphi method. Three psychology experts, who are also faculty members in medical universities, collaboratively formulated the following 5 criteria, criteria 1 and criteria 2 reflect “empathy”, criteria 3 and criteria 4 reflect “professional identity”, criteria 5 is the minimum effectiveness of intervention (watching films). These criteria help assess whether the "film viewing and review writing" teaching method has met the minimum standard of teaching effectiveness. Details are in Table 15.

Table 15 Criteria for Students' Film Reviews

Criteria	**Assessment contents**	**Examples**
1.Can the author express their emotional experience regarding the characters in the film?	Whether students have emotional empathy	*"…She didn't show any impatience; on the contrary, she listened patiently and treated me sincerely.…"*—— Grade2020 ZTY
2.Is the author able to understand the motivations behind the characters' actions?	Whether students have cognitive empathy	*"…This stems not only from advancements in medical science but also from a deep sense of responsibility and compassion…"*—— Grade2020 WYS
3.Does the author agree with the working methods and beliefs of the rural doctor portrayed in the film?	Whether students have professional beliefs	*"…Nathalie represents our young doctors; as she steps into the countryside for the first time and joins the ranks of general practitioners, she struggles to adapt to the rural work model and gain the trust of the people. However, she perseveres, using her professional knowledge to gradually earn the villagers' trust…"*—— Grade2021 BWY

Criteria	Assessment contents	Examples
4.Can the author relate personally and express their vision for their career path?	Whether students have professional confidence	*"…In fact, as future general practitioners, we should engage more with the villagers, allowing them to open up and share their health issues honestly. This will enable us to provide better treatment for them.…"*——Grade2021 ZJW
5.Is there any insightful reflection about the film?	Whether the film had an reflection on the students.	*"…Overall, the film successfully portrays a well-cycleed rural general practitioner, allowing us to understand the hardships of their work…"*——Grade 2020 ZY

Review methods: The evaluation of the film reviews was completed by three evaluators: Evaluator A and Evaluator B assessed each review based on the evaluation criteria, while Evaluator C compared their results and provided assessments for any discrepancies. If there was no consensus among the three, they would discuss until an agreement was reached (the evaluation part was carried out by the other three members of Department of Community and Health Education, except Yan Wenjun, she was responsible for implementing the intervention measures).The evaluation results of the film reviews are shown in Table 16.

Table 16 Evaluation results of students' film review (Grade 2020 and Grade 2021)

Grade2020 (pre-test)		**Grade 2021 (post-test)**	
Name code	**Key points of film review**	**Name code**	**Key points of film review**
HSW	COPY*	BZX	1.2.5
STY	1.2.3.5	BWY	1.2.3.4.5
ZTY	5	CQQ	2.3.5
SMY	5	FB	1.2.3.5
ZY	2.5	HKA	1.3.5
ZTY	1.2.4.5	HQX	1.2.3.5
WZZ	4.5	LJQ	1.2.3.5
DLF	COPY*	LJK	1.2.3.5
ZQY	1.2.3.5	MHR	1.2.3.4.5
FSM	2.5	MZF	2.3.5
GTY	5	QYT	1.2.5
YJR	1.2.5	SL	2.3.4.5
WYX	5	SMY	4.5
SY	1	TYB	1.2.5
ZZC	5	WJR	1.2.4.5
QRQ	1.2.3.5	WSC	2.3.4.5
YJ	1.2.5	WSJ	1.2.5
WZJ	1.5	WZH	1.2.4.5
WSL	1.5	XTL	2.3.4.5
WYS	2.5	YDX	1.2.3.4.5
GXY	COPY*	ZB	1.2.3.5
LJS	1.2.3.4.5	ZJW	1.2.3.4.5
JHR	1.2.5	ZY	2.5
WQS	1.2.5	ZSR	2.5
LHX	5	ZJS	2.5
WLJ	5		
GCH	2.5		
LSX	2.3.5		

*COPY means the movie review is has been detected plagiarized throughout and would not be judged.

After further organizing the results, we obtain Comparison of Key Points in Film reviews Between the Grade 2020 and Grade 2021 Students, details can be check in table17.

Table 17 Comparison of Key Points in Film reviews Between the Grade 2020 and Grade 2021 Students

Key point	**Grade 2020**	**Grade 2021**
Emotional empathy	48	64
Cognitive empathy	58.3	92
Professional belief	20	60
Professional confidence	12	40
Reflection	96	100

The result of movie review shows, after 6 weeks of narrative medicine and Professional ideological education intervention, there was significant improvement in emotional empathy, cognitive empathy, professional belief and professional confidence.

2. Course Evaluation

The course evaluation required students to score anonymously. It involved rating the intervention measures added to each class session; however, since the narrative case interventions were part of the regular course content, no scores were assigned to them. Ratings were only given for four specific activities:"documentary "The Life Gate," Episode 4 (0:00-11:13)" , "Mr. Zhang's Journey with Hypertension" , "The Diabetes Story: Long-term Patient Education." , "Aunt's Cough." , "prescribing a playlist for hypertension patients," "online meeting with seniors," "narrative medicine story sharing session," and "film viewing and review writing." The scoring system ranged from 1 to 10, with 10 being the highest.

We want to understand students' perspectives on four key questions: the presence of medical humanities in real healthcare services, their ideal perception of medical humanities in healthcare, the role of medical humanities in medical education,

and the integration of medical humanities in this course. To gather these views, we designed a drawing task:

Medical services = A cup of milk tea

Medical humanistic = The sugar in milk tea

Then please make four cups of milk tea.as shown in Table 18.

Table 18 The students' opinion on the proportion of humanities in medical services or medical courses.

First cup: What do you think is the sugar content in medical humanities in this cup of milk tea for real medical services? 	Second cup: In your ideal cup of medical service, what is the sugar content in medical humanities that would make this milk tea taste better? 
Third Cup: Since becoming a medical student, what is the average sugar content in all the medical courses you have been exposed to, medical humanities? 	If we consider the course of Community Medicine as a cup of milk tea and the content of medical humanities as the sugar content of milk tea, then what is the sugar content of this cup of milk tea? 

Students were asked to draw a line on a milk tea cup and write the scale next to it, ranging from 0% to 100%, as shown in the figure 18:

Figure 18 *example of how to show respondents' opinion of humanities in medical services or medical courses*

The course evaluation was conducted after the final exam of the course to ensure objectivity.

Course Evaluation Results:

There are a total of 25 rural oriented students in the Grade 2021, with 23 participating in this segment. Response rate is 92%.

Ratings for each intervention measure details and their views on the role of humanities in healthcare can be check in Table 19 and Table 20.

Table 19 Students' ratings for various interventions

Grade	Documentary	Hypertension	Diabetes	Cancer	Song list	Online meeting	Movie review	Narrative sharing
2021	10	10	10	8	10	10	9	8
2021	8	6	7	4	4	9	3	8
2021	10	10	10	10	10	10	10	10
2021	10	10	10	10	10	10	10	10
2021	10	10	10	10	10	10	10	10
2021	10	10	10	10	10	10	10	10
2021	10	10	10	10	10	10	10	10
2021	10	10	10	10	10	10	10	10
2021	10	10	10	8	10	10	9	10
2021	10	10	10	10	10	10	10	10
2021	10	10	10	10	10	10	10	10
2021	10	10	10	10	10	10	10	10
2021	8	7	7	6	8	10	8	9
2021	10	10	10	10	10	10	10	10
2021	7	7	7	5	8	7	7	8
2021	8	8	8	7	8	7	8	6
2021	6	6	5	4	7	9	8	8
2021	8	7	7	5	8	10	9	10
2021	10	10	10	8	9	10	9	10
2021	9	10	9	8	9	10	9	10
2021	9	9	9	8	9	9	8	10
2021	10	10	10	9	10	10	9	10
2021	10	10	10	8	10	10	9	10
Average	9.26	9.13	9.09	8.17	9.13	9.61	8.91	9.43

Overall, the integration of narrative medicine and Professional ideological education into the teaching content is approved by students. The most popular interventions are meeting with the graduates via online meeting (9.61) and narrative story sharing(9.43). the least popular interventions are narrative case“ Aunt's cough” (8.17)(possible reason might because narrative case is lake of narrative details) and Watching films writing film reviews(8.91)(possible reason might be that narrative story sharing takes up course time, forcing students to watch this film in their spare time and causing dissatisfaction).

Table 20 Students' views on the role of humanities in healthcare.

Grade	1st cup(%)	2nd cup(%)	3rd cup(%)	4th cup(%)
2021	20	40	30	60
2021	25	50	20	70
2021	25	50	35	40
2021	30	60	40	70
2021	30	50	50	80
2021	70	70	50	80
2021	70	80	60	80
2021	60	90	50	75
2021	10	20	30	35
2021	20	50	30	70
2021	30	50	40	50
2021	20	50	50	50
2021	50	80	40	70
2021	30	50	20	50
2021	15	60	30	45
2021	20	40	20	50
2021	20	30	20	60
2021	20	80	50	80
2021	20	40	20	60
2021	20	40	20	60
2021	10	60	30	70
2021	30	60	10	80
2021	20	70	20	70
Average	28.91	55.21	33.26	63.26

*One student mentioned that it seems like primary healthcare medicine is all about humanism (this led me to reflect that the integration of medical humanities should not be excessive, should not overshadow the main content, and should not be too rigid, as it might provoke resistance among students).

Regarding views on medical humanities, the current level of humanism in medical services is perceived as low (28.91%), while expectations for ideal medical humanities are high (55.21%). However, the importance placed on medical humanities in current medical education is still insufficient (33.26%). Despite this, students do feel the presence of medical humanities in this course (63.26%). The result illustrated that the students recognized the importance of medical humanities in healthcare activities and held high expectations for it. They desired to enhance their own humanistic qualities; however, the medical education they received did not meet their expectations. Nonetheless, they are satisfied with the level of medical humanities in this course, believing it has reached and even exceeded their ideal standard.

3. Teaching Reflection Journal

The teaching reflection journal records the instructor's insights and observations after each class (Some photos can provide evidence, they can be checked in appendix). The results are as follows:

November 2, 2023

Today is the first week of teaching for the 2021 cohort of ordered students. I didn't inform the students beforehand that we were conducting an action research project, fearing they might feel resistant. In the first half of the class, I provided a brief overview of the content for the six sessions. I also mentioned that we would arrange an online meeting with a senior who has graduated and is working in a grassroots setting. This caused a slight stir among the students, and they seemed a bit excited. I then told them we would hold a story-sharing session where everyone would share their experiences related to primary healthcare, which sparked a small wave of unrest, as they appeared somewhat reluctant.

While watching the video, I noticed that the students were all looking up. Previously, when we played instructional videos, they would glance up briefly and then return to their own activities. This time, however, they kept their eyes glued to the screen, likely due to the intense doctor-patient conflict depicted in the video, which is highly relevant to their future. It seems that they are concerned about how to handle doctor-patient relationships. It seems that "narrative quality" is an important factor to consider when selecting case study videos.

November 9, 2023

Today's lesson focused on the primary healthcare management of hypertension. When discussing the treatment for hypertension, I selected a narrative case study. I noticed that although the students weren't looking at me, they were not distracted; they seemed to be listening intently to the story. Their willingness to listen encouraged me to engage more passionately, making the story come alive. After all, who doesn't like a good story?

When I mentioned music therapy for hypertension, I asked the students to create a playlist for "music therapy." My intention was to help them empathize with hypertensive patients and understand how soothing music can aid relaxation. However, after listening to their playlist, it contained a variety of music, including rock and upbeat fast-paced songs. It seems the students did not empathize with hypertensive patients; they simply shared their favorite songs with me. It makes sense; how could these young students empathize with experiences they have never encountered?

November 16, 2023

I noticed a few fewer students in class today, which made me feel somewhat disheartened. The lesson was on the primary healthcare management of diabetes. While discussing the five key components of diabetes treatment, I chose a narrative case that included patient education, as this is often the most overlooked aspect of diabetes management. Like last week, I read the story with vivid intonation, and the students listened attentively. During the break, I engaged with the students, and they mentioned that exams are approaching, which might explain why some students were absent, as they were likely studying.

November 23, 2023

Today's attendance was similar to the last class, likely still due to the upcoming exams. The lesson focused on the conprehensive management of malignant tumors, and I arranged for ZZY to meet with the students online. I spent the first 90 minutes covering the lesson content and shared a story about my aunt to illustrate that early detection of cancer sometimes relies on a deeper understanding of the patient. However, I may not have provided enough detail in this story, so it didn't count as a narrative; the students' reactions were not very enthusiastic, as they remained

distracted. Next time when I discuss this topic, I will reorganize my language to turn it into a proper narrative.

The connection with ZZY went very smoothly. While he was speaking, I noticed that all the students had their eyes on the screen, eagerly paying attention to the senior. They might have never had such close interactions with a peer in their field before. ZZY spoke about topics the students were interested in, such as the working environment in grassroots settings, his job responsibilities, memorable clinical stories, and advice for younger students. During the Q&A session, students eagerly asked questions, mostly about salaries and personal development in grassroots work. I didn't expect this segment to be so well-received; it seems we should continue to incorporate it in the future.

November 30, 2023

Today was a practical class, and as per the requirements of the first session, we held a narrative sharing session where each student took turns sharing their stories related to primary healthcare. The students came up with their phones and started reading pre-prepared scripts, which detracted from the essence of narrative sharing and turned it into a mere task. I asked everyone to speak without notes, and the results were much better. Some students, who were shy at first, gradually became more confident and expressive, and their stories flowed freely. To keep the atmosphere light, I didn't impose a time limit, but as a result, only a few students managed to share their narratives within the 120 minutes. I need to reflect on this and ensure that I set time limits for students in future classes.

December 7, 2023

Today was originally scheduled for a film appreciation class, but due to the delays in the previous session, we continued with the narrative sharing. The movie and reviews will have to be completed by the students on their own later, which left me with a bit of guilt. Some students were shy, while others were more confident; some shared personal experiences, and others expressed their aspirations to work as rural primary healthcare doctors. However, those who had already shared and those who were waiting for their turn were not very focused, often whispering to each other. A comment from a student at the podium might have sparked their thoughts, and it seemed everyone had endless conversations about the topic of rural healthcare. I had

to step in several times to maintain order.

After the intervention

I reviewed the students' film critiques, and most of them were written sincerely, indicating that they genuinely watched the film and were moved by it. They expressed their thoughts in relation to what we covered in class, making their reflections valuable. After class, two students added me on WeChat and initiated conversations about their anxieties regarding future work, asking for my advice. This made me very happy because I felt that I had gained the students' trust; they see me as someone they can confide in. I must have unknowingly demonstrated a lot of empathy throughout the course. I plan to follow these students over the years—one year, two years, five years, ten years—to see if they have rooted themselves in rural areas and whether they have become well-rounded doctors with a strong sense of humanity.

4.3.1.4 Reflection

The film reviews, course evaluations, and teaching reflections mutually support each other, forming a triangulated measurement. The Department of Community and Health Education held a discussion meeting where the four members reviewed the film critiques, course evaluations, and teaching reflection diaries, leading to the following conclusions and suggestions for improvement.

1. Feasibility of combining narrative medicine and professional ideological education with course content via rich teaching activities

Through this cycle of action research, we found that integrating narrative medicine with vocational education and course content by rich teaching activities is an effective teaching model. After adopting this approach, student participation in the classroom significantly increased, and there was a noticeable enhancement in their empathy and professional confidence.

2. Areas for Optimizing Teaching Methods:

Comprehensive Management of Hypertension:

In this unit, the originally planned activity of “prescribing a playlist for hypertension patients” was deemed impractical. Due to students’ lack of relevant knowledge and experience in hypertension management, they struggled to understand how certain environments could aid in blood pressure recovery. It is recommended to

shift the focus to guiding students in discussing environmental factors in real cases to enhance their empathy.

Comprehensive Management of Malignant Tumors:

In this module, students reported that the narrative of the case studies lacked engagement and did not effectively capture their attention. Therefore, it is suggested to rewrite the narrative medicine cases to include more emotional descriptions and real-life examples, allowing students to resonate better with the cases.

Online Meetings with Graduates:

For this segment, it is recommended to select graduates from the same regions as the current students for sharing their experiences. This will make the graduates' narratives more relevant to the students' career planning, leading to more focused questions and enhancing the effectiveness of the online interactions.

Organization of Narrative Sharing Sessions:

In the narrative sharing sessions, instructors should better manage the pacing to ensure that each student's speaking time is adequately controlled. It is advisable to notify students of their speaking times in advance to avoid time constraints that could affect subsequent classes. This will also encourage students to express their viewpoints more coherently.

4.3.2 Cycle 2

4.3.2.1 Plan

The reflection from the first cycle of "Action Research on Integrating Narrative Medicine and Professional ideological education into the Introduction to General Medicine." indicate that the rural doctor training program needs to improve in four key points:

1. When teaching " Comprehensive Management of Hypertension", the requirement for students to create a playlist was removed.
2. During the lecture on the "Comprehensive Management of Malignant Tumors", a rewritten narrative medicine story titled "Aunt's Cough" was used. This narrative case was developed through collective preparation and discussion within the research group, incorporating rich narrative elements.

3. In this Online Meetings with Graduates, we selected rural oriented graduates employed locally in Xuzhou. Prior to the event, we visited some graduates to understand their work situations, ultimately choosing the most representative and exemplary graduate, LX, to serve as a role model.

4. Before the narrative sharing session in the practical class, we clarified the requirements for students' narrative presentations: each student should keep their sharing to no more than 4 minutes, given that the class lasts 120 minutes and there are 30 students. This is to prevent students from exceeding their allotted time and encroaching on the time designated for watching the film and writing reviews.

We still chose the course **"Introduction to General Medicine"**. The second cycle action research plan was developed through collective discussions in the **Department of Community and Health Education** (include four members). We still intended to complete the study over **six weeks**, with interventions taking place each week for **2 hours**, totaling **12 hours of intervention**. We have decided to conduct **four theoretical interventions**, **two practical interventions** and an **on-line meeting** as what we did in first cycle of action research. The theoretical sessions will cover four key topics: “doctor-patient communication”, “the comprehensive management of hypertension”, “the comprehensive management of diabetes” and “the comprehensive management of malignant tumors”. The two practical sessions will include narrative sharing, watching movies and writing film reviews, just like the first cycle of action research. The specific action research plan is as follows:

Week 1: Doctor-Patient Communication

Objective: To enhance students' awareness and skills in doctor-patient communication by analyzing contrasting examples.

Procedure:

Introduction: Initiate the class with a brief lecture on the significance of doctor-patient communication in healthcare, emphasizing its impact on patient outcomes and satisfaction.

Video Screening: Show carefully selected clips from medical documentaries that vividly depict both poor and effective doctor-patient communication scenarios. For instance, a clip might display a doctor who rushes through an appointment, ignoring the patient's concerns, leading to misunderstandings and patient

dissatisfaction. In contrast, another clip could feature a doctor who actively listens, shows empathy, and uses clear language to explain medical conditions and treatment options, resulting in a trusting relationship and better patient compliance.

Group Discussion: Divide students into small groups to discuss the observed communication behaviors. Each group should identify the strengths and weaknesses in the examples, analyze the impact on the patient-doctor relationship, and propose strategies for improvement. Facilitators can circulate among the groups, providing guidance and prompting deeper analysis.

Plenary Session: Reconvene as a whole class to share group insights. Encourage students to draw connections between the video examples and their future practice, considering how they can apply effective communication techniques in various clinical situations.

Week 2: The Comprehensive Management of Hypertension

Objective: To help students master the comprehensive management of hypertension through an immersive narrative-based approach.

Procedure:

Case Presentation: Introduce a detailed narrative case study of a patient with hypertension. The case should incorporate the patient's lifestyle, family history, initial symptoms, and the diagnostic process. For example, describe a middle-aged patient with a sedentary job, a family history of hypertension, and recent episodes of headaches and dizziness. The narrative should unfold as the doctor conducts a series of examinations, including blood pressure measurements, laboratory tests, and consultations with the patient to gather a comprehensive medical history.

Diagnostic Analysis: Guide students to analyze the case, identify the risk factors, and formulate a diagnosis. Encourage them to consider not only the medical data but also the patient's individual circumstances and concerns. Facilitate a discussion on the importance of understanding the patient's perspective in arriving at an accurate diagnosis.

Management Plan Development: Have students work in groups to develop a comprehensive management plan for the patient. This should include lifestyle modifications (such as diet and exercise recommendations), pharmacological interventions, and strategies for patient education and follow-up. Each group should

present their plan, justify their choices, and engage in a peer-review process.

Reflection and Summary: Conclude the session by reflecting on the process and summarizing key learning points. Reinforce the idea that effective management of hypertension requires a holistic approach that considers the patient as a whole.

Week 3: The Comprehensive Management of Diabetes

Objective: To enable students to recognize the crucial role of empathy in diabetes management.

Procedure:

Case Introduction: Present a narrative case of a patient with diabetes, highlighting the challenges faced by the patient in managing the disease, both physically and psychologically. For instance, describe a patient who struggles with dietary restrictions, experiences fluctuations in blood sugar levels, and faces social and emotional stress due to the condition.

Empathy Exercise: Conduct an empathy-building exercise where students are asked to put themselves in the patient's shoes. They can write down their thoughts and feelings as if they were the patient, considering the impact of the disease on their daily life, relationships, and self-esteem.

Group Sharing and Discussion: In small groups, students share their empathetic responses and discuss how empathy can influence medical decision-making. They should explore how understanding the patient's emotional state can lead to more patient-centered care, such as tailoring treatment plans to fit the patient's lifestyle and preferences.

Case Continuation and Decision-Making: Present the next phase of the case, where the patient faces a treatment decision, such as choosing between different insulin regimens or dealing with a complication. Students, armed with their newfound empathy, discuss and decide on the most appropriate course of action, considering both the medical and emotional aspects.

Week 4: The Comprehensive Management of Malignant Tumors

Objective: To instill in students the importance of understanding the patient's story for accurate cancer diagnosis and management.

Procedure:

Real Case Presentation: Share the improved clinical case of a patient with a

malignant tumor. Include details about the patient's symptoms, medical history, family context, and the diagnostic journey. For example, describe a patient who presented with unusual symptoms that were initially misdiagnosed, the emotional turmoil experienced during the process, and the impact on their family.

Patient Story Analysis: Have students analyze the patient's story, identifying key events, emotions, and factors that could have influenced the diagnostic process. Encourage them to consider how cultural, social, and psychological aspects can play a role in a patient's perception and reporting of symptoms.

Diagnostic and Management Discussion: Facilitate a discussion on the challenges of diagnosing and managing malignant tumors, emphasizing the need for a comprehensive understanding of the patient. Students should explore how integrating the patient's story with medical data can lead to more accurate diagnoses and personalized treatment plans.

Expert Insights: If possible, invite an oncologist or a healthcare professional experienced in cancer care to share their insights and experiences. They can discuss real-world cases, the importance of communication and empathy, and the latest advancements in cancer management.

Online meeting: Organize online meeting for current students and a graduate who working in township hospital in Xuzhou. She showed case her work environment, discussed job responsibility, shared memorable stories, and offer advice to current students.

Week 5: Practical Session

Objective: To encourage students to share and reflect on their personal experiences and aspirations related to grassroots healthcare.

Procedure:

Sharing Circle: Create a safe and supportive environment where students can take turns sharing their own stories related to grassroots healthcare. This could include experiences during internships, volunteer work, or interactions with patients in rural settings. Alternatively, students can share their aspirations for future work in this area, discussing the impact they hope to make and the challenges they anticipate.

Group Interaction: After each student shares, encourage the group to ask questions, offer feedback, and share similar experiences or perspectives. This

interactive process will foster a sense of community and allow students to learn from one another.

Reflection and Goal Setting: Guide students to reflect on their shared experiences and aspirations. Ask them to identify common themes, challenges, and opportunities. Encourage them to set personal goals related to their growth and development in grassroots healthcare, considering how they can apply the skills and knowledge gained in the course.

Week 6: Movie Session

Objective: To deepen students' understanding of rural grassroots doctors' roles and values through cinematic exploration.

Procedure:

Movie Screening: Screen the movie "Rural Grassroots Doctors" without interruption.

Comment Writing: Instruct students to write detailed movie comments, integrating their thoughts on the movie's themes, its connection to the course content, and the lessons they can draw for their future practice. Encourage them to be critical and reflective, considering different perspectives and interpretations.

4.3.2.2 Action

Time: May 9, 2025 - June 13, 2024

Target Group: 2022 Rural oriented Medical Students (30 students)

Location: Main Teaching Building, Xuzhou Medical University

Course: Introduction to General Practice

Duration: 2hours (total 12 hours)

Instructor: Yan Wenjun

Details: can be check in Table 21.

Table 21 intervention contents and mechanism of action research cycle 2

Week	Time	Topic	Intervention contents	Mechanism of intervention	Evaluation
1	May 9, 2024	Doctor-Patient Communication	At the start of the course, we will use a clip from the medical documentary "The Life Gate," Episode 4 (0:00-11:13), to showcase a doctor-patient conflict and its resolution. This will help students appreciate the importance of doctor-patient relationships and foster empathy. While teaching the language and non-verbal communication skills in doctor-patient interactions, we will repeatedly review the video clips to help students	This intervention is based on one of the tools of narrative medicine: close reading of literary works. The focus is on one of the three focal points of narrative medicine: human connection. By understanding the patient's background, experiences, and emotions, doctors can gain a comprehensive understanding of patients' needs and expectations. This deep communication	1. Film review analysis

Week	Time	Topic	Intervention contents	Mechanism of intervention	Evaluation
			intuitively understand the roles of various techniques in enhancing these relationships.	helps build trust, thereby improving doctor-patient relationships.	
2	May 16, 2024	Comprehensive Management of Hypertension	When discussing "Pharmacological and Lifestyle Treatments for Hypertension," we will integrate a narrative case study: Mr. Zhang's Journey with Hypertension. This self-created case focuses on the psychological aspects of the patient's experience and doctor-patient communication.	This intervention is based on one of the tools of narrative medicine: close reading of literary works. The focus is on one of the three focal points of narrative medicine: human emotions, particularly negative emotions. This helps medical students gain a comprehensive understanding of the	2. Course evaluation

Week	Time	Topic	Intervention contents	Mechanism of intervention	Evaluation
				psychological states of patients, including their pain, anxiety, fear, and sadness, enhancing their empathy.	
3	May 23, 2024	Comprehensive Management of Diabetes	While teaching "Patient Education for Diabetes," we will integrate a narrative medicine case titled "The Diabetes Story: Long-term Patient Education." This case, provided by Dr. Wang Shiying from the Qingdao Endocrinology and Diabetes Hospital, emphasizes the	This intervention is based on one of the tools of narrative medicine: close reading of literary works. The focus is on one of the three focal points of narrative medicine: empathy between people. Enhancing empathy is a key goal of this action research and also a	3. Teaching reflection journal

Week	Time	Topic	Intervention contents	Mechanism of intervention	Evaluation
			doctor's empathy towards diabetic patients.	research method. Medical students will experience empathy in narrative stories, recognizing its vital role in building trust, improving communication, and enhancing treatment adherence.	
4	May 30, 2024	Comprehensive Management of Malignant Tumors	1.While discussing "Early Detection of Malignant Tumors," we will incorporate a narrative medicine case: "Aunt's Cough." This story, which has been re-edited and is full of narrative	1.This intervention is based on one of the tools of narrative medicine: close reading of literary works. The focus is on one of the three focal points of narrative medicine:	

Week	Time	Topic	Intervention contents	Mechanism of intervention	Evaluation
			value. It highlights the importance of a comprehensive understanding of the patient for early cancer diagnosis.	human connection. This helps students understand that a thorough understanding of the patient not only builds trust but also plays a crucial role in the diagnosis and treatment of diseases.	
			2.We will invite a graduate working in a grassroots healthcare setting in Xuzhou (LX) to connect online with current students, showcasing the work environment of township health centers, discussing job	2.This intervention is based on Bandura's social learning theory, emphasizing that personal learning activities are mainly influenced by observing the behaviors of others in	1. Film review analysis

Week	Time	Topic	Intervention contents	Mechanism of intervention	Evaluation
			responsibilities, sharing memorable clinical cases, and engaging in Q&A.	specific contexts, examining the reinforcements they receive, and using their examples as models for imitation. This will enhance the professional confidence of township health center doctors.	
5	June 6, 2024	Practical Class	In a narrative medicine sharing session, each student will share their stories related to township hospitals or discuss their views on working in these settings.	This will utilize two key tools of narrative medicine: close reading of literary works and reflective writing (though only reflection, no writing). This aims to cultivate empathy and professional confidence	2. Course evaluation

Week	Time	Topic	Intervention contents	Mechanism of intervention	Evaluation
				among medical students.	
6	June 13, 2024	Practical Class	We will watch the French film "Rural grassroots doctors," which portrays the life of rural doctors, and students will be asked to write a review after watching it.	This research is based on Bandura's social learning theory, aiming to enhance the professional confidence of order-oriented students. By employing two key tools of narrative medicine: close reading of literary works and reflective writing, we aim to cultivate students' narrative skills and enhance their empathy.	3. Teaching reflection journal

4.3.2.3 Observation

The observation process involves triangulation using course evaluations from the students, analyses of their film reviews, and the instructor's observation journal as measurement indicators.

1.Film Review Analysis

The film review analysis utilizes the reviews from the 2020 rural oriented undergraduate medical students as a pre-test and the reviews from the 2021 and 2022 rural oriented medical students as a post-test.

The criteria and review method are the same as Cycle 1, can be check in Table 11.

The evaluation results of the film reviews are shown in Table 22.

Table 22 Evaluation results of students' film review (Grade 2020 , Grade 2021 and Grade 2022)

Grade2020 (pre-test)		**Grade 2021 (Cycle 1)**		**Grade 2022(Cycle 2)**	
Name code	**Key points of film review**	**Name code**	**Key points of film review**	**Name code**	**Key points of film review**
HSW	COPY	BZX	1.2.5	CS	2.3.5
STY	1.2.3.5	BWY	1.2.3.4.5	CQS	1.2.3.4.5
ZTY	5	CQQ	2.3.5	CYH	COPY
SMY	5	FB	1.2.3.5	CZH	COPY
ZY	2.5	HKA	1.3.5	CXY	1.2.3.4.5
ZTY	1.2.4.5	HQX	1.2.3.5	DQC	3.5
WZZ	4.5	LJQ	1.2.3.5	FZ	2.3.4.5
DLF	COPY	LJK	1.2.3.5	FYH	1.2.3.4.5
ZQY	1.2.3.5	MHR	1.2.3.4.5	HXY	3.5
FSM	2.5	MZF	2.3.5	JFY	1.2.3.4.5
GTY	5	QYT	1.2.5	JST	1.2.3.4.5
YJR	1.2.5	SL	2.3.4.5	LX	1.2.3.4.5
WYX	5	SMY	4.5	LJB	3.5
SY	1	TYB	1.2.5	LKR	4.5
ZZC	5	WJR	1.2.4.5	LYH	1.2.3.4.5
QRQ	1.2.3.5	WSC	2.3.4.5	MWQ	1.2.3.4.5
YJ	1.2.5	WSJ	1.2.5	MYY	1.2.3.4.5
WZJ	1.5	WZH	1.2.4.5	TQY	1.2.3.4.5
WSL	1.5	XTL	2.3.4.5	TYF	1.2.3.4.5

Grade2020 (pre-test)		Grade 2021 (Cycle 1)		Grade 2022(Cycle 2)	
Name code	**Key points of film review**	**Name code**	**Key points of film review**	**Name code**	**Key points of film review**
WYS	2.5	YDX	1.2.3.4.5	WBJ	1.3.4.5
GXY	COPY	ZB	1.2.3.5	WJM	1.2.3.5
LJS	1.2.3.4.5	ZJW	1.2.3.4.5	WMX	2.5
JHR	1.2.5	ZY	2.5	WMZ	1.2.3.4.5
WQS	1.2.5	ZSR	2.5	XXW	1.2.5
LHX	5	ZJS	2.5	XC	1.2.3.4.5
WLJ	5			XY	4.5
GCH	2.5			YFQ	5
LSX	2.3.5			ZZY	COPY
				ZCY	1.2.3.5
				ZJR	1.2.3.4.5

*COPY means the movie review is has been detected plagiarized throughout and would not be judged.

After further organizing the results, we obtain Comparison of Key Points in Film reviews Between the Grade 2020, Grade 2021 and Grade 2022 Students, details can be check in Table 23.

Table 23 Comparison of Key Points in Film reviews Between the Grade 2020, Grade 2021 and Grade 2022 Students

Key point	**Pre-test (%)**	**Cycle 1(%)**	**Cycle 2(%)**
Emotional empathy	48	64	66.7
Cognitive empathy	58.3	92	74
Professional belief	20	60	81.4
Professional confidence	12	40	66.7
Reflection	96	100	100

The result shows, after second cycle of action research, there was an improvement in emotional empathy, significant improvement of professional belief and professional confidence than first cycle, there is a decline in cognitive empathy, but still higher than that of the pre-test group.

2. Course Evaluation

The course evaluation required students to score anonymously. It involved rating the intervention measures added to each class session; however, since the narrative case interventions were part of the regular course content, no scores were assigned to them. Ratings were only given for four specific activities:"documentary "The Life Gate," Episode 4 (0:00-11:13)" , "Mr. Zhang's Journey with Hypertension", "The Diabetes Story: Long-term Patient Education.", "Aunt's Cough.", "online meeting with seniors," "narrative medicine story sharing session," and "film viewing and review writing." The scoring system ranged from 1 to 10, with 10 being the highest.

We want to understand students' perspectives on four key questions: the presence of medical humanities in real healthcare services, their ideal perception of medical humanities in healthcare, the role of medical humanities in medical education, and the integration of medical humanities in this course. To gather these views, we designed a drawing task, which can be check in Figure 16 and Figure 17.

The course evaluation was conducted after the final exam of the course to ensure objectivity.

Course Evaluation Results:

27 samples of 30 were collected. Response rate is 90%.

Ratings for each intervention measure details and their views on the role of humanities in healthcare can be check in Table 24 and Table 26.

Table 24 Students' ratings for various interventions

Grade	Documentary	Hypertension	Diabetes	Cancer	Online meeting	Movie review	Narrative sharing
2022	10	10	8	10	10	9	10
2022	10	9	9	9	10	8	10
2022	9	8	8	8	10	8	10
2022	10	10	10	10	10	10	9
2022	8	7	7	7	8	7	7
2022	7	8	8	8	9	7	5
2022	10	10	10	10	10	10	10
2022	10	10	9	9	10	8	10
2022	10	10	10	10	10	10	10
2022	8	8	8	8	8	10	7
2022	7	7	7	7	9	10	7
2022	6	6	6	6	6	9	10
2022	10	10	10	10	10	10	8
2022	5	5	5	5	8	4	10
2022	10	8	8	8	10	7	9
2022	10	9	8	9	10	9	10
2022	10	8	7	7	9	6	9
2022	9	9	9	9	10	9	9
2022	10	10	10	10	10	10	10
2022	10	9	9	9	10	9	10
2022	7	7	7	7	10	7	10
2022	8	8	8	8	8	9	9
2022	10	9	9	9	10	9	9
2022	10	10	10	10	10	10	10
2022	7	7	7	7	7	8	9
2022	7	7	6	7	9	7	4
2022	7	7	7	7	9	7	8
Average	8.70	8.37	8.15	8.30	9.26	8.41	8.85

The most popular interventions are meeting with the graduates via online meeting (9.26) and narrative story sharing (8.85). the least popular interventions are 3 narrative case "The Diabetes Story: Long-term Patient Education." (8.15), "Aunt's Cough" (8.30) and “Mr. Zhang's Journey with Hypertension.”(8.37)

After further organizing the results, we obtain Comparison of interventions rating Between the Grade 2021 and Grade 2022 Students. Overall, the integration of narrative medicine and Professional ideological education into the teaching content is approved by students. The comparison of the first and second cycles of action research shows a general decrease in the scores for course evaluations, but the distribution remains the same. Specifically, online meetings and narrative sharing are still the most popular. In the second cycle, the rewritten narrative story "Aunt's Cough" received significantly higher scores than in the first cycle, details can be check in table21.

Table 25 Comparison of interventions rating Between the Grade 2021 and Grade 2022 Students

Grade	**Documentary**	**Hypertension**	**Diabetes**	**Cancer**	**Song list**	**Online meeting**	**Movie review**	**Narrative sharing**
2021(Cycle 1)	9.26	9.13	9.09	8.17	9.13	9.61	8.91	9.43
2022(Cycle 2)	8.70	8.37	8.15	8.30		9.26	8.41	8.85

Table 26 Grade 2022 Students' views on the role of humanities in healthcare

Grade	1st cup(%)	2nd cup(%)	3rd cup(%)	4th cup(%)
2022	20	40	30	60
2022	10	50	20	30
2022	75	50	60	99
2022	30	50	50	50
2022	40	70	10	60
2022	35	50	45	70
2022	65	80	50	80
2022	10	30	5	50
2022	5	60	5	80
2022	60	95	40	80
2022	60	80	50	70
2022	20	60	15	50
2022	30	45	25	60
2022	20	60	30	40
2022	30	70	60	60
2022	30	80	60	90
2022	70	100	50	70
2022	50	70	35	60
2022	50	70	40	60
2022	66	80	25	80
2022	90	50	40	80
2022	40	70	40	70
2022	30	60	45	80
2022	10	100	15	100
2022	40	70	60	90
2022	70	35	65	40
2022	20	50	30	60
Average	39.85	63.89	37.04	67.37

*One student specifically noted on the questionnaire that they really enjoyed the online meeting with seniors, feeling that the humanistic care at community health service centers is much greater than that in hospitals.

Regarding views on medical humanities, the current level of humanism in medical services is perceived (39.85%) and medical humanities in current medical education is insufficient (37.04%), while expectations for ideal medical humanities are high (63.89%) and students do feel the presence of medical humanities in this course (67.37%). The result illustrated that the students recognized the importance of medical humanities in healthcare activities and held high expectations for it. They desired to enhance their own humanistic qualities and they are satisfied with the level of medical humanities in this course, believing it has reached and even exceeded their ideal standard, details can be check in Table 27.

Table 27 comparison between Grade 2021 and Grade 2022 Students' views on the role of humanities in healthcare

Grade	**1st cup(%)**	**2nd cup(%)**	**3rd cup(%)**	**4th cup(%)**
2021(Cycle 1)	28.91	55.21	33.26	63.26
2022(Cycle 2)	39.85	63.89	37.04	67.37

From the comparison of the first and second cycles of action research, we can see that students' recognition of the importance of medical humanities is increasing, as well as their expectations for it.

3. Teaching Reflection Journal

The teaching reflection journal records the instructor's insights and observations after each class (Some photos can provide evidence, they can be checked in appendix). The results are as follows:

May 9, 2024

Today was the first day of class for the 22nd cohort of directed students. Although I didn't inform them that we are conducting action research, I did communicate that the purpose of our classes is not only to teach knowledge points but also to enhance empathy. I emphasized that empathy can be developed if one is willing to improve it. However, I refrained from discussing professional ideology education, as university students generally dislike it. It's clear that our approach to professional education needs to change.

When I made it clear that I wouldn't require students to study materials before class or assign homework afterward, the students applauded. In recent years, every course has been undergoing teaching reform, including flipped classrooms, which has

increased pressure on students before and after class, leading to widespread complaints. If I want to foster empathy in my students, I first need to show them that I can empathize with their experiences.

May 16, 2024

Today's topic was the general medical management of hypertension. This time, I didn't ask students to create a playlist for hypertension, as they are only in their second year and haven't begun their clinical courses yet, so they lack an understanding of the treatment principles. To increase the practicality of the lesson, I brought a cooking oil dispenser and a salt spoon from home for the students to pass a cycle while discussing lifestyle management for hypertension. The students responded very positively, and no one was distracted. This experience highlighted for me that enriching classroom content and format can significantly enhance student focus.

The students' reactions to the narrative case studies on hypertension this year were similar to those of the previous year; they listened attentively.

May 23, 2024

Today's theme was the general medical management of diabetes. I felt that the students' reactions to the diabetes narrative stories were not as strong as in the last class; some were focused while others were looking down or distracted. Interestingly, during the screening of a diabetes awareness video, more students were engaged and watching intently. I'm starting to realize that with 120 minutes of class time, I need to consider students' fatigue and concentration levels, and adjust teaching methods to increase classroom engagement.

May 30, 2024

Today's lesson focused on the general medical management of malignant tumors, along with an online meeting with recent graduates. The revised narrative story, "Auntie's Cough," which incorporated more narrative elements, resonated much better with the students, and many of them were attentive and focused.

The online meeting was also very enjoyable. Choosing local graduates this year was definitely the right decision! Even before the Q&A session, students eagerly began asking questions. The graduate we invited was outstanding; she had excellent academic performance in school and is doing very well at work, with many patients visiting her. I noticed that as she shared her work stories, the students' eyes sparkled,

and they smiled, filled with hope.

June 6, 2024

Today was the narrative sharing session. Everyone in the class came to the podium to share their stories related to grassroots healthcare. Since I had set a limit of 4 minutes for each person, the rhythm of the class was well-managed, and all students completed their presentations before the class ended. The students were well-prepared, and each delivered their speeches with confidence. Some presentations were particularly remarkable, demonstrating that even ordinary rural doctors can have a significant impact and earn the respect and support of the villagers.

June 13, 2024

Today was reserved for watching a film and writing reviews. To create a relaxed atmosphere like that of a cinema, I told the students they could bring snacks to enjoy while watching. I turned off the lights in the classroom, mimicking a real cinema experience. The students were highly focused on the film. In the second half of the class, as they wrote their reviews, I saw each of them deep in thought. I truly hope this film helps them in their future careers.

4.3.2.4 Reflection

Similar to the first cycle, the second cycle also employed film reviews, course evaluations, and teaching reflections for triangulated validation. The Department of Community and Health Education held a discussion meeting where the four members reviewed the film critiques, course evaluations, and teaching reflection diaries, leading to the following conclusions and suggestions for improvement.

1.Feasibility of combining narrative medicine and professional ideological education with course content via rich teaching activities

Through second cycle of action research, we verify that integrating narrative medicine with vocational education and course content is an effective teaching model. The intervention's effect on enhancing students' cognitive empathy seems to be less pronounced than in the first cycle. but it is still higher than that of the pre-test group. The evaluation scores of each module in the course are lower than those of cycle 1 of action research, but the trend of scores remains consistent. As for why the improvement in students' cognitive empathy in cycle 2of action research was not as

high as in the cycle 1, there may be several reasons: **Changes in Sample Characteristics**: The students participating in the cycle 2 may differ in background, learning status, or emotional investment compared to those in the first round, which could affect the enhancement of cognitive empathy. This also might explain why the Grade 2022 students gave lower score than the Grade 2022 Students on interventions rating. **External Environmental Influences**: During the implementation of cycle 2, other factors may have played a role. For example, in the first round of action research, the instructor engaged in significant interactions with the Grade 2021 students during breaks, fostering a strong teacher-student relationship. However, in cycle 2, the instructor had to leave the classroom quickly after class due to a family member's illness, which limited opportunities for sufficient private interaction with the Grade 2022 students. This may have impacted the students' emotional and cognitive development, thereby affecting the improvement in empathy.

2.Areas for Optimizing Teaching Methods:

It is necessary to have a deeper understanding of the target audience and adjust the teaching plan before class. The instructors noted that during each teaching session, the presentation of narrative medicine should not be too one-dimensional; instead, it should emphasize a diversity of teaching methods. One of the tools of narrative medicine is close reading of literary works. In the next class, other forms of literature, such as exploring the narrative elements in poetry and visual art, could be incorporated. Similarly, building a good teacher-student relationship is also a way for medical students to experience humanistic qualities. In future teaching, instructors should pay attention to fostering positive relationships with students during the course.

Phase 2 Action Research Summary

The total process of action research “How to enhance students' empathy and professional identity by combining narrative medicine and professional ideological education with curriculum” can be represented by the Figure 19.

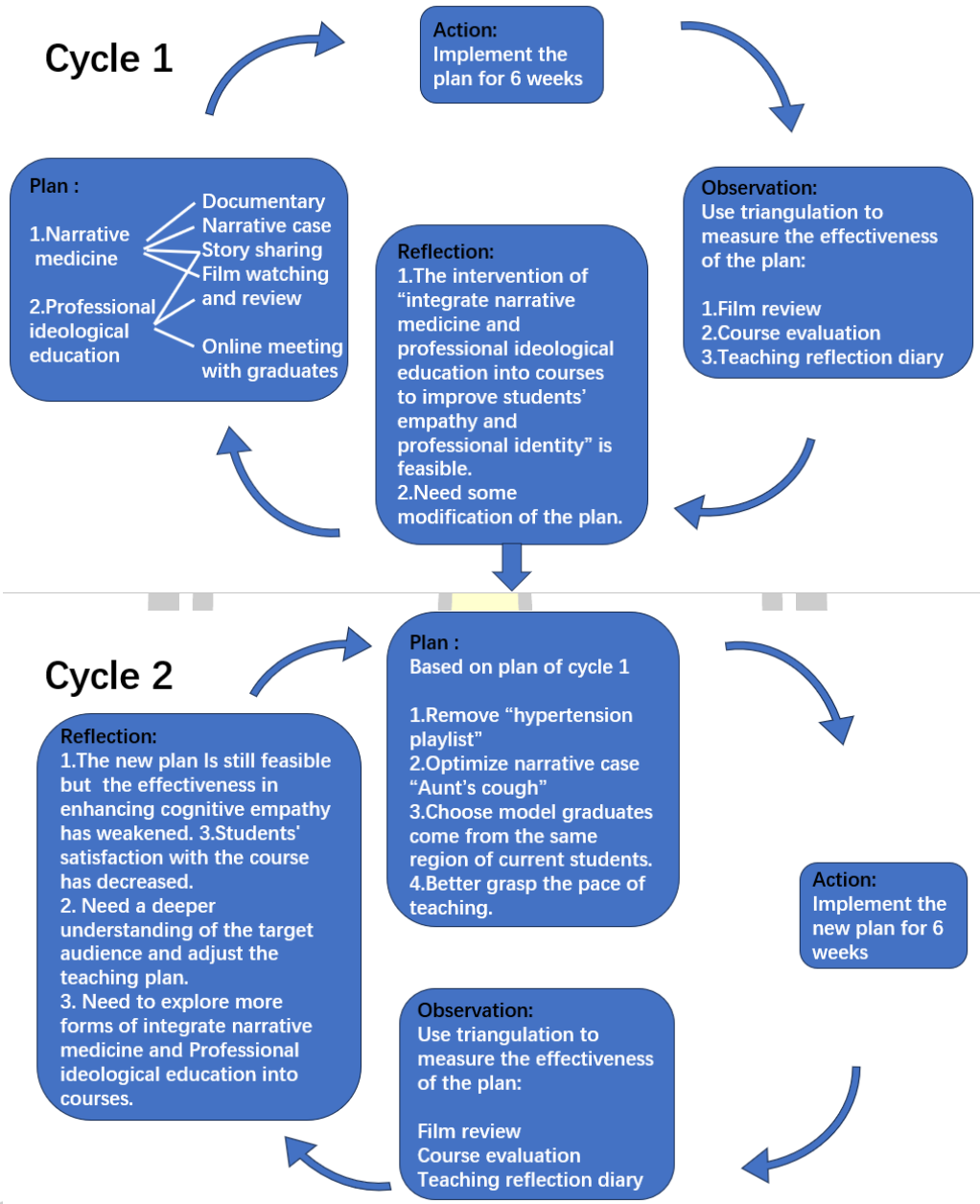


Figure 19 *The total process of action research*

Summary

1.Research Demands

Medical Needs of Rural Inhabitants

The utilization rate of primary healthcare among rural residents in Jiangsu Province reaches 86.7%. They prioritize doctors' experience and service attitude. Their demands concentrate on disease diagnosis and treatment, health education, physical examinations, and doctor-patient communication. There is an aspiration for enhancing the quality of primary healthcare services, particularly in improving medical facilities and doctors' service capabilities.

Educational Needs of Rural Grassroots Doctors

Self-evaluations reveal that research and clinical abilities require improvement, with only 41.5% having received standardized training. First aid and treatment skills are deemed crucial across all educational stages. There is an emphasis on strengthening and improving multiple courses, such as doctor-patient communication and psychology in humanities courses.

Demands of Township Hospitals

Township hospitals exhibit uneven development and a shortage of doctors. New doctors lack proficiency in clinical practice, communication skills, and initiative. There is an anticipation for optimizing medical education by emphasizing clinical practice, shortening training duration, incorporating work experience before training, strengthening on-the-job training, and diversifying teaching methods.

2.Educational Intervention

Course Design

Narrative medicine and professional ideological education are integrated into the "Introduction to General Medicine" course over a six-week period. This includes theoretical and practical components, with a focus on topics like doctor-patient communication. Multiple teaching methods are employed to foster students' empathy and professional identity.

Action Implementation

Two rounds of action research were conducted from November to December 2023 and from May to June 2024, targeting different cohorts of rural-oriented medical students. Each intervention session lasted 2 hours, totaling 12 hours.

3.Research Outcomes

Enhancement of Empathy and Professional Identity

Film review analyses indicate improvements in students' emotional and cognitive empathy, as well as professional beliefs and confidence. Course evaluations and teaching reflections also corroborate the effectiveness of the interventions. Students recognize the value of medical humanities, although cognitive empathy fluctuated and course evaluation scores slightly declined in the second round.

Optimization Directions for Teaching Methods

In hypertension management, discussions should center on environmental factors in real cases. Malignant tumor narratives need refinement. Online meetings should feature local graduates. For narrative sharing, pacing should be controlled, and diverse forms of narrative medicine integration and positive teacher-student relationships should be explored to continuously enhance teaching effectiveness and students' competencies.

Chapter V
Discussion

In this chapter, the research findings are summarized, discussed, and concluded. First, this chapter was summarized the research from both the first and second phases. Then, it will discuss the findings in sequence, covering the quantitative research conducted among rural inhabitants in Jiangsu, the quantitative research involving rural grassroots doctors, the qualitative research involving township hospital directors and rural doctors, and the action research. Finally, it will report on the limitations and conclusions.

5.1 Summary

5.1.1 Key Findings in Research on Educational Needs of Rural Grassroots Healthcare

Perspectives of Rural Inhabitants

86.7% of rural inhabitants utilize grassroots medical services and prioritize doctors' experience. Over 50% recognize doctors' partial role in health maintenance but are dissatisfied with their professionalism and treatment effectiveness. Over 60% deem service capabilities in need of improvement, with demands focusing on diagnosis and treatment, health education, physical examinations, and doctor-patient communication.

Self-evaluation of Rural Grassroots Doctors

Doctors rate their research and clinical abilities lowest in self-assessments. Only 41.5% have completed standardized clinical training. They regard diagnosis and treatment and emergency care skills as crucial and emphasize improvements in multiple courses.

Insights from Qualitative Research

All stages and methods of medical education require optimization. The importance of medical humanities is prominent, concerning doctor-patient communication, work initiative, and cultivation of responsibility and values.

5.1.2 Results of Action Research

Feasibility of Intervention

The first cycle verifies that integrating narrative medicine and professional identity education into the curriculum can enhance students' empathy and professional identity, supported by multi-channel data.

Significant Effects in Two Cycles

In the first cycle, students' emotional empathy, cognitive empathy, professional beliefs, and professional confidence increased by 16%, 33.7%, 40%, and 28% respectively compared to the non-intervention group. In the second cycle, the increments were 18.7%, 15.7%, 61.4%, and 54.7% respectively, demonstrating the continued effectiveness of the refined intervention plan.

5.2 Discussion

5.2.1 Quantitative Study on Rural Residents in Jiangsu Province

This study aimed to assess the satisfaction of inhabitants in Jiangsu Province with primary healthcare services in the context of significant efforts by national and local governments to improve basic healthcare.

5.2.1.1 Utilization of Primary Healthcare Services by Rural Inhabitants in Jiangsu Province

In this study, the rate of first visits to primary healthcare facilities among rural inhabitants in Jiangsu Province is 85.6%, which aligns with another survey in Jiangsu Province (Miao et al., 2019), where the rural primary visit rate was 82.1%. A systematic review encompassing 36 studies (Zheng et al., 2020) indicates significant regional variations in the primary visit rates across China, with Jiangsu Province (71.13% to 82.10%) being notably higher than other regions. Generally, the willingness to use primary healthcare is high, with rates in Beijing (56.80% to 83.40%), Shanghai (62.33% to 79.80%), and Guangdong (54.40% to 89.65%) exceeding those in other areas. This study's findings are consistent with the review. Since the State Council first proposed the establishment of a community-first visit system in its 2006 guidelines for developing urban community health services, 15 years have passed. However, issues such as the functional orientation of hospitals at various levels, patient healthcare-seeking habits, and health insurance payment

methods have hindered the widespread adoption of the primary visit system, as there is no mandatory requirement for patients to seek care at primary healthcare institutions in China [Zhang et al., 2021]. A cross-national study involving 14 countries (Croke et al., 2024) shows that 64.4% of inhabitants seek usual care at primary-level facilities. The primary visit rate may be related to local economic and policy factors, which helps explain why rural visit rates in Jiangsu are higher than in other regions of China.

A high rate of first visits to primary healthcare facilities does not mean the government can reduce its focus on rural healthcare. Rural inhabitants face higher health risks than their urban counterparts. The China Health Disparities Report indicates that across all age groups, rural inhabitants have a slightly higher probability of hypertension and obesity compared to urban inhabitants. Another nationwide study (Cancer Incidence and Mortality: A Cohort Study in China, 2017) found that the cancer mortality rate among rural populations is higher than that of urban populations across various age groups. In urban areas, patients have more healthcare options due to better transportation, while rural inhabitants often have limited choices and must go to the nearest township hospital for care, necessitating improvements in the quality of rural healthcare services. If healthcare quality is low, inhabitants will face poor health outcomes.

This study emphasizes primary visit rates because “increasing primary visit rates” is a key aspect of implementing the “tiered healthcare system.” The awareness rate of the tiered healthcare system among rural inhabitants in Jiangsu Province is only 50.2%, slightly higher than the 40.4% awareness found in a study conducted in a city in Shandong Province (Liu et al., 2022). This system calls for public media and primary hospitals to promote the tiered healthcare model to change inhabitants' existing healthcare-seeking concepts and habits. However, according to current data, the promotion of health policies has not achieved significant effectiveness.

5.2.1.2 What is the demand of rural inhabitants from Primary Healthcare?

This study highlights what types of primary care doctors and services inhabitants truly need. 64.5% of rural inhabitants believe that the quality of primary care doctors needs urgent improvement, which is higher than findings from a study

covering 13 provinces nationwide (Yang et al., 2008), which reported that 56.31% of inhabitants considered the technical level of township health centers to be average. This indicates a lack of trust in primary care doctors. From the perspective of rural inhabitants, the primary responsibilities of these doctors are diagnosing and treating diseases (65.5%), followed by health education (50.7%), regular health check-ups, and doctor-patient communication. These results are similar to those found in the research by Fang et al. (Fang et al., 2018), which noted that the needs for basic medical treatment and medication guidance ranked first, while medical and nutrition guidance, health consultations, physical examinations, and disease prevention were also important needs. A study titled "Research on the Competence of Rural Doctors in Jiangsu" [Liu, 2017] indicates that the indicators of rural doctors' job competence are ranked in order of importance as follows: basic medical service ability, basic public health service ability, professional spirit and qualities, humanistic practice ability, and educational learning ability.

The competence of doctors is crucial as they must serve multiple roles, making it the “primary productivity” of primary healthcare. A study in Portugal (Ferreira et al., 2020) indicated that overall patient satisfaction primarily stems from satisfaction with the services provided by general practitioners. Research on factors influencing satisfaction with basic medical and health services in China (Yang, 2023) found a significant correlation between the effectiveness of healthcare services and satisfaction with those services. A study covering 31 European countries (Detollenaere et al., 2018) indicated that an average of 93.2% of European respondents expressed satisfaction with their general practitioners. In Nigeria, a study on patient satisfaction in rural hospitals (Umoke et al., 2020) revealed that satisfaction with the reliability of doctors ranked below responsiveness and empathy, even though patients claimed to be satisfied with reliability. In China, a study in Shandong Province (Ren et al., 2022) showed that inhabitants were highly satisfied with the diagnostic and treatment effectiveness and service attitudes of primary healthcare. However, satisfaction surveys in this study indicated that inhabitants were most satisfied with “the service attitude of primary care doctors,” while satisfaction with “professional disease explanation and effective treatment” was relatively low. This suggests significant variations in satisfaction with primary care services both globally

and within China. This disparity may be due to the different assessment metrics used in various studies, as well as differences in the competencies of primary care doctors trained in different systems.

5.2.1.3 Other Findings

The research findings also indicate that nearly half of the inhabitants believe that primary hospitals lack adequate medications and medical facilities, while two-thirds of respondents think that medical facilities need improvement. These factors may hinder inhabitants from seeking care at primary hospitals. This aligns with a study conducted in Guangxi (Zhang et al., 2022), which found that the configuration of primary healthcare facilities in western Guangxi is unreasonable and underutilized, leading to low resident satisfaction (26%).

Furthermore, this study revealed that the demand for laboratory tests, CT scans, and gastrointestinal endoscopies at primary hospitals far exceeds actual supply. This highlights the need for improved health education and health policies in China: inhabitants should be educated on when and which tests are necessary. Similarly, a survey on health needs among rural inhabitants in the Qinba Mountains of Sichuan (Lu et al., 2018) emphasized the necessity of enhancing health education to address rural inhabitants' needs for health knowledge and healthcare services.

Conclusion

The rural primary visiting rate is high in Jiangsu Province, on the contrary, we should strengthen the quality of rural primary care. All the evidence points to the low quality of primary care in Jiangsu Province, the starting point should be medical education. Strengthening college education, practical education and on-the-job training are the focus of future work. The large demand of inhabitants for medical services does not mean that the investment of resources at the primary-level hospital should be increased. China's medical resources are concentrated in large hospitals. What we need to do is to unblock the referral channels and make it more convenient for inhabitants to use these resources.

5.2.2 Quantitative Study on Grassroots Doctors in Rural Areas of Jiangsu Province

This study aimed to explore the needs of grassroots doctors from medical

education. Since 2010, China has implemented the "Rural Oriented Medical Students Education Program" (The Development and Reform Commission of the Ministry of Education et al, 2015) to train rural doctors with bachelor's degree students as the main body, supplemented by college degree students. After "5 years(3 years for junior college students) of college study +3 years of clinical rotation(2 years for junior college students)", the rural medical graduates should back to work in township primary health centers.

5.2.2.1 Job competence

Clinical ability is low according to the job competence self-evaluation of our rural grassroots doctor respondents. The score of professional spirit, teamwork ability and doctor-patient communication were highly rated; but clinical ability, which was highlighted in primary care service, as well as scientific research ability and information management ability were low rated. This coincides with a national wide study (LIAN et al, 2023), which mentions 82.1% grassroots doctors are competent in diagnosis and treatment of common diseases and frequent diseases, and also find similarity with the results of a study across 6 provinces (Sun et al, 2021), which pointed out that the total pass rate of clinical thinking ability of grass-roots general practitioners was only 33.3%. Another study carried out in Chongqing (Wu et al, 2022) found that doctors in township health centers had higher medical professionalism and medical humanistic care ability, but were weaker in scientific research ability and independent learning, which was basically consistent with the results of this study. This study also found that the post competency of rural primary doctors in different regions of Jiangsu Province showed great differences: primary doctors in southern Jiangsu beat their peers in all dimensions of post competency. This is not difficult to understand. The economy of South Jiangsu is developed, and the salaries of primary hospitals are high, which attracts many graduates with high education or even famous schools to find jobs. Township health centers have perfect equipment and complete departments, preferential medical insurance reimbursement policies, and the realization of the first diagnosis at primary level is relatively high. Because of the large flow of primary-level patients, doctors' diagnosis and treatment skills have been fully exercised and made rapid progress. It is quite different from the middle and north of Jiangsu.

In China, the service content of township health centers can be roughly divided into: medical treatment, prevention, first aid, rehabilitation, health management, women - children -elders care several sections (The General Office of the Central Committee of the Communist Party of China and the General Office of the State Council, 2023.). Most of the respondents in this study believed they are competent for medical work, barely competent for first aid, prevention and rehabilitation work, but not competent for women-children-elders care and health management. Interestingly, when asked what should be emphasized in different stages of medical education, the overwhelming answer is first aids and medical treatment. On the one hand, it shows that this is the main service content of township health centers, on the other hand, it is possible that rural grassroots doctors themselves are still weak in first-aid and medical treatment.

5.2.2.2 Problems in clinical practice

Clinical practice is undoubtedly an important part of medical education. Although the "Rural Oriented Medical Students Education Program" clearly stipulated that 3 years resident standardization training must be finished for college students and 2 years resident standardization training must be finished for junior college students, it is showed in our results that the actual completion rate of the training program is less than half, and the training time is not up to standard. This is lower than the results of the survey of primary doctors in Jiangsu Province conducted by our research team in 2018 (the training rate is 60.2%) (Yan et al, 2022). It may be that the policy was just formulated in 2018, and it is well implemented in the short term, and over time, the implementation rate is getting lower and lower. The reason may be due to the lack of doctors, township primary health centers were reluctant to send new doctors for training, and there is also the problem of sending training for fear of brain drain after the training (Zhao et al, 2019).

Meanwhile, the existing training program might not be able to meet the actual needs of primary health care. Rural grassroots doctors in different regions of Jiangsu Province showed different needs for further clinical training in different subspecialties. With the developed economy in south Jiangsu, facilities were more perfect and department Settings were more completed in the township health centers (Editorial board of Jiangsu health Yearbook, 2020), and the grassroots doctors there

showed higher clinical practice demand for B-ultrasound, radiology, pediatrics and primary care. In addition, we asked the respondents to supplement the options not listed, and the results were frequently mentioned as emergency care, operation skills, traditional Chinese medicine, public health skills, chronic disease management, doctor-patient relationship, and so on. We attach great importance to these additional items because it is a multiple-choice questionnaire that can be easily answered by respondents, they would not have written about their choices unless they had a strong desire to express them.

5.2.2.3 Problems in theoretical learning

Vast majority of medical theoretical knowledge is learned in medical colleges, which can be described as the base of the pyramid. Clinical practice can be repeated, but the learning of theoretical knowledge is not replicable, so theoretical learning is considered as important as clinical practice. Medical colleges in other provinces of China have also made their own efforts to consolidate the learning of rural primary doctors in colleges and universities. Liu Zidan's team (Liu et al, 2020) in Xinjiang investigated the application frequency of specific contents in Diagnostics, Basic Clinical Skills Operation Manual and Basic Public Health Service Technology Training Instruction Manual and optimized the curriculum system; Guangxi Medical University (Zhao et al, 2022) added "Community Medicine", "Introduction to General Medicine", "General Medicine Skills and Skills". This study takes the curriculum as the starting point to make the medical graduates review the medical education at the university stage and give feedback. The results of the study describe the scene of rural grass-roots doctors' work: They are in contact with a large number of people (have the opportunity to use epidemiology to find health problems), their daily work mainly focuses on disease diagnosis and treatment (need to use diagnostics, internal medicine, surgery knowledge), the diagnosis and treatment of diseases needs to be based on biology (use anatomy and pathology knowledge), but their work reflects the idea of prevention (use health education to guide inhabitants). And the use of communication skills (medical relationships and communication, medical psychology). We believe that these subjects, which were most frequently used and played the most important role in clinical practice, there should be a solid foundation, but in fact, the foundation was not solid. In other words, the quality of teaching in

these courses should be enhanced.

Conclusion

The low primary service ability is caused by the disconnection between the clinical practice and the actual rural grassroots work needs, as well as the unsolid foundation of theoretical knowledge learning.

This result may provide the direction for future reforms in "Rural Oriented Medical Students Education Program": for one side, each course in medical college should be paid attention to continuous reform in order to achieve better teaching objectives, but more attention should be paid to the quality of teaching and learning of key courses which were identified in this study. The educational administration departments should pay attention to the rationality of the curriculum, lecturers should pay attention to the use of teaching methods and the evaluation of students' learning quality. For the other side, medical graduates may get into clinical practice for a period to learn basic clinical skills, then returned to work for a period, and then continue the regular training. In this way, doctors can clarify their needs, and the regular training can be more targeted.

5.2.3 Quantitative Study on the Deans of Township Hospitals and Rural Grassroots Doctors in Jiangsu Province

5.2.3.1 Medical Education Needs Improvement

1. Importance of Medical Knowledge Education

Compared to the clinical practice segment, medical theoretical knowledge education appears dull and fails to attract students' interest. However, both in interviews with hospital directors and doctors, the importance of basic medical knowledge has been put forward. There are different views on medical theoretical knowledge at different stages. As can be seen from interviews with research subjects, when doctors are in school or just start working, they feel that theoretical knowledge is not very useful. But with the accumulation of work experience, doctors generally recognize its importance. It is the underlying logic of medical thinking and crucial for clinical skills and reasoning. A study (De et al., 2005) tested the basic science and clinical knowledge as well as diagnostic performance of 59 family doctors and 184 medical students from grades two to six at Maastricht University in the Netherlands.

The results found that clinical knowledge is related to diagnostic reasoning and basic science knowledge is integrated into clinical knowledge. In the interview study by Rong Hao et al. (Rong et al., 2016), more than half of the respondents mentioned that in primary-level medical and health institutions, due to the lack of medical technical personnel, the utilization rate of medical equipment is low. Therefore, solid professional basic theoretical knowledge and skills are very important for grass-roots doctors. Moreover, the knowledge system of grass-roots doctors focuses on being "comprehensive". Only by comprehensively mastering knowledge in all aspects can grass-roots doctors fulfill the function of "health guardians". Indeed, theoretical knowledge is the foundation of practice. It ensures the accuracy of practice and provides scientific basis and guidance for clinical practice. In medical education, the teaching of basic medical knowledge should be strengthened to make students fully recognize its importance. At the same time, in clinical practice, doctors should be guided to constantly review and apply basic knowledge.

2. Improvement of Medical Practice Links

（1）Importance of medical practice

The practical training for rural grass-roots doctors mainly consists of three-year (undergraduate degree) or two-year (junior college degree) standardized practical training. Many doctors state that standardized clinical practice is the most important condition for improving clinical ability. Traditional medical education has insufficient practical teaching, with few internship opportunities and short duration, resulting in relatively weak clinical skills of newly graduated medical students. Some hospitals, due to tight human resources or incomplete training, fail to effectively improve the clinical practice ability of newly recruited doctors. The quantitative part of this study also shows that the completion rate of standardized training for doctors in township health centers in Jiangsu Province is only 41.5%. Another study in Jiangsu Province (Chang et al., 2018) shows that 88% of clinical medicine graduates from junior colleges participated in standardized training for junior college degrees, and 72% passed the training. Among these junior college medical graduates, 83% work in township health centers. This can indirectly confirm the results of this study and reflects the deficiency of the current medical education system in practical teaching. Township hospitals should also ensure providing standardized and complete

training for newly recruited doctors. In addition, another phenomenon reflected in this study is that there are few opportunities for hands-on operation in medical practice, which is consistent with the results of another study (Liang et al., 2023). That study pointed out that in the stage of standardized training for doctors, due to differences in the teaching consciousness of different instructors, there are still disharmonious factors in the doctor-patient relationship and some patients are unwilling to accept the diagnosis and treatment of resident doctors, resulting in fewer clinical operation opportunities for students. Therefore, training institutions should try to increase students' hands-on operation opportunities. For example, during clinical operations, instructors should accompany and closely monitor the operation to ensure the safety and rights of patients and eliminate their worries. Students should also pay attention to practical operations and avoid the problem of emphasizing observation over practice in the training process.

（2）Top-level design of medical practice links

From the perspective of hospital managers, medical education should emphasize clinical practice, including internships, standardized training, and post-graduation education. At present, the length of standardized medical training in China is too long for township health centers. They believe that for general practitioners in township health centers, mastering the diagnosis and treatment of common diseases is sufficient, and there is no need to rotate through each department. This is in line with the actual needs of grass-roots medical care because grass-roots doctors mainly face the diagnosis and treatment of common diseases. Another study (Zheng et al., 2019) proposed that the overall time for standardized training for grass-roots doctors is limited. The standardized training outline requires grass-roots doctors to complete multiple two-week rotations in "small departments", mainly including rehabilitation department, traditional Chinese medicine department, ophthalmology department, otolaryngology department, dermatology department, infectious disease department, etc. However, this "all-round" training mode fails to highlight the characteristics and key points of general practice training. Grass-roots doctors master fragmented knowledge and skills of various specialties. This fine specialization is not conducive to cultivating holistic thinking and is even more difficult to infiltrate and practice the concept of continuous care and full-process management of general practice

medicine. In addition, due to the short rotation time and fast pace, it is often difficult for each clinical department to reasonably arrange rotation content, and it is not easy to improve the teaching enthusiasm of instructors and the professional recognition of general practitioners. As a result, grass-roots doctors are prone to lower their requirements for rotations and adopt a perfunctory attitude, unable to achieve the expected rotation goals. A survey on the evaluation of clinical rotations by general practitioners participating in standardized training in Shenzhen (Xu et al., 2020) shows that the satisfaction rate is only 47.5%. To further optimize clinical practice education, a more targeted practical teaching plan should be formulated according to the characteristics of grass-roots medical care to ensure that medical students can proficiently master the diagnosis and treatment skills of common diseases.

The length of standardized medical training in China is too long for township health centers. Township health centers are constantly faced with the dilemma of lack of doctors and brain drain (ZHU et al., 2015). Moreover, immediately participating in training after graduation may cause students to lack focus and unable to master key learning points. Participating in training after working for a period of time can better determine learning priorities according to actual work needs and improve training effectiveness. This view has not been found in previous studies. The training duration and timing should be reasonably adjusted according to the actual situation of grass-roots medical care. For example, the training time can be appropriately shortened, or medical students can be allowed to receive targeted training after working for a certain period of time.

3. Differentiated Needs for Continuing Education

In this study, hospitals of different development scales have different understandings of the importance of continuing education. In some townships with high economic levels, hospital leaders take the lead in attaching importance to doctors' further education, and doctors themselves also hold a positive attitude towards further education. However, in some township health centers, due to backward equipment and facilities, it is difficult for doctors to apply new technologies even after learning them, resulting in low enthusiasm for continuing education. Many domestic studies also show the imbalance of continuing education for grass-roots doctors. For example, in Zhejiang Province, the "Notice on Printing and Distributing

the Three-Year Action Plan for Ten Thousand Grassroots Doctors' Further Education (2024-2026)" clearly states that starting from 2024, through three years, more than 10,000 grass-roots medical personnel in the province will be organized to participate in further education and learning (referred to as "ten thousand doctors' further education"), forming a group of learning communities that mainly rely on county-level medical consortia (urban medical alliances, medical groups), adapt to grass-roots characteristics, and are normal and highly efficient, and building a team of grass-roots health talents that cannot be taken away (Zhejiang Provincial Health Commission, 2024). A survey on the current situation and needs of continuing education for general practitioners in Sichuan Province (Wang et al., 2023) shows that at present, general practitioners have an urgent need and strong willingness for continuing education, and have a greater need for training in clinical skills, auxiliary examinations, systematic knowledge, and scientific research. However, the study by Wen Tianlin et al. (Wen et al., 2022) shows that some grass-roots doctors one-sidedly pursue clinical work, have insufficient understanding of the importance of continuing education, have weak subjective initiative to receive continuing education, and have low enthusiasm for continuing medical education. Some leaders of grass-roots hospitals neglect the improvement of the overall quality of doctors and do not fully recognize the importance of medical continuing education, resulting in the formalization of doctors' continuing medical education without achieving substantial results. A study (Wang et al., 2020) in Shaanxi reported that the further education rate of grass-roots doctors is only 20.23%. Therefore, continuing education should be differentially designed according to the actual situation of hospitals and the needs of doctors. For grass-roots hospitals with backward equipment and facilities, continuing education should pay more attention to practicality and pertinence. For example, some new technology training suitable for grass-roots medical conditions can be carried out to improve doctors' practical operation ability and enable the application of what they have learned through further education. In addition, online training using Internet technology can break geographical restrictions and provide high-quality learning resources. Township hospitals with conditions can set up scholarships and further education subsidies to encourage grass-roots doctors to participate in further education and provide support after they return.

4. Improvement of Teaching Methods

Almost all hospital directors and ordinary doctors have put forward suggestions for medical education, that is, flexibly applying various teaching methods. Multiple surveys show that the teaching effect of university classrooms in China is very unsatisfactory at present: students skip classes seriously, and there is also a phenomenon of "hidden truancy", that is, students come to class and seem to be listening carefully, but in fact, "the body is there but the mind is not". Students' learning enthusiasm is not high. (Wu et al., 2015) (Wang et al., 2019) This phenomenon is particularly obvious in the process of medical theoretical knowledge education. Teachers have a greater influence on students' learning motivation than most other factors. This is reflected in how enthusiastic teachers are, what strategies they use, and what kind of environment teachers create in the classroom (Baglio, 2022). Medicine is a complex and comprehensive discipline with a huge knowledge system that is constantly updated. Different teaching methods can effectively teach different knowledge contents. With the deepening of medical education reform, a number of new teaching methods have emerged in medical education worldwide, such as Long-distance Teaching, Flipped Classroom, Active Learning et al. (Sivarajah et al., 2019). In China, teaching methods such as problem-based learning (PBL), team-based learning (TBL), case-based learning (CBL), scene simulation teaching method, and Sandwich teaching method are widely used. (Li et al., 2022) Medical education should cultivate students' comprehensive abilities. Simulation teaching methods can improve clinical skills. Case teaching methods and problem-oriented learning methods can cultivate clinical thinking. Team-based learning can improve communication and teamwork abilities. In addition, a single teaching method is easy to make students bored. The combination of multiple teaching methods can increase interest. Multimedia teaching methods can attract students with vivid images and videos. Case teaching methods and problem-oriented learning methods can make students gain a sense of accomplishment in solving problems.

5.2.3.2 Strengthen Medical Humanities

1. Doctor-Patient Communication

Doctor-patient communication is the most extensive manifestation of medical

humanities in medical activities. The results of this study show that in rural grass-roots areas, popular doctors usually have excellent professional skills and good communication abilities. This is consistent with the study by Rosa et al. (Rosa et al., 2023). Rosa's research results indicate that an ideal doctor is a person who actively listens, shows understanding, uses effective verbal and non-verbal communication, has the dialectical nature of autonomy and connection, can balance the patient's desire to participate in decision-making with the need for expert guidance, understands the importance of privacy in healthcare, and takes measures to ensure that sensitive information is handled securely. It is also consistent with a study involving six provinces in China (Wang et al., 2023). That is, from the patient's perspective, a good doctor in primary care has strong clinical ability, professionalism, and humanism in the service provision process. In the study by Rong Hao et al. (Rong et al., 2016), all respondents believed that strong humanistic feelings and good communication abilities are prerequisites for being a good general practitioner. Other studies (Noble et al., 2020) also show that good communication ability is crucial for medical effects and patient satisfaction. However, in this study, directors of township hospitals reported that newly recruited rural grass-roots doctors are lacking in doctor-patient communication. Medical education often focuses on clinical skills and theoretical knowledge and pays insufficient attention to communication ability. This may be because traditional educational concepts consider medical professional skills as the core and neglect the role of communication ability as an important part of medical services. The common misconception about doctor-patient communication is that these skills are intuitive and innate and will be automatically acquired with the increase of experience（Brindley et al., 2014）. Communication skills can be learned and improved. Doctors need to invest time throughout their careers because communication skills are a lifelong learning effort. Therefore, communication skills training courses should be emphasized in medical education to improve the communication ability of medical students.

2. Initiative and Positivity in Work and Learning

According to the research results of hospital director interviews, newly recruited doctors generally lack professionalism, leave the hospital immediately after work, have poor teamwork ability, and have an unserious attitude towards learning.

Some other domestic studies have also found similar situations. The study by Yang Yongli et al. (Yang et al., 2021) shows that the overall identity recognition of targeted medical students is not high, and their career expectations are poor and their career confidence is insufficient. The study by Li Xinwei et al. (Li et al., 2022) shows that grass-roots doctors with shorter working years lack work experience and ability, encounter more difficulties at work, and have greater survival pressure, and are prone to job burnout. The reason is that doctors newly recruited to township hospitals are all targeted medical students. After graduation, targeted students need to return to rural grass-roots areas to serve for a certain number of years. They may feel that the grass-roots medical conditions are limited and the career promotion space is narrow, and feel confused about their future career prospects, thus affecting their enthusiasm for learning and working.

The study also found that senior rural grass-roots doctors also have problems of lack of initiative and enthusiasm in work. They often follow the methods of predecessors and lack active exploration of new knowledge and technologies. This is similar to the results of the study by Jing Yurong et al. (Jing et al., 2022). Jing Yurong et al. found that family doctors aged 41-50 are more prone to job burnout than family doctors aged ≤30. This may be related to the relatively closed working environment and lack of learning incentive mechanisms at the grass-roots level. On the one hand, the working environment and conditions of township hospitals are relatively poor. Medical facilities and equipment are relatively simple, and drugs and medical resources are limited. This makes doctors face many difficulties in diagnosing and treating diseases, and the sense of accomplishment at work is relatively low. On the other hand, compared with large hospitals in cities, township health centers have fewer business training opportunities and academic exchange activities. Doctors find it difficult to access cutting-edge medical knowledge and technologies, and the ways to improve their professional level are limited, which easily leads to outdated knowledge or improper application of technologies. But precisely because of this, self-development ability and autonomous learning spirit are very important for rural grass-roots doctors (Rong et al., 2016).

3. Responsibility and Values of Grass-Roots Doctors

During the interview process of this study, the keyword "responsibility" has

appeared many times, whether it is the standard for measuring a good doctor, the manifestation of medical humanities in work, or the part that medical education should improve. Luo Qingsiyuan (Luo et al., 2022) defined the responsibility of township hospital doctors as: in the process of providing basic medical services, township hospital doctors, in the spirit of being responsible for rural patients at the grass-roots level and being responsible for grass-roots medical and health undertakings, take the public welfare of services and the assumption of social responsibilities as the value orientation, and actively and responsibly undertake the responsibility of comprehensive health services integrating medical treatment, prevention, rehabilitation, health care, and health management, and generate an attitude of fulfilling their duties. A Polish study (Pawelczyk et al., 2012) found that medical students have a stronger sense of responsibility than non-medical students. However, in China, Hu Wen's study (Hu et al., 2018) found that the level of social responsibility of medical students is relatively low, especially school responsibility and social responsibility are weak links. Feng Chenlu also found in the study (Feng et al., 2018) that the sense of responsibility of medical students is weakened. These two studies are consistent with this study, that is, for Chinese doctors or medical students, responsibility education should be strengthened. Strengthening the responsibility education of medical students can be achieved through multiple channels. For example, medical education should incorporate courses on ethics and responsibility to help students imperceptibly endow medical responsibility while learning medical knowledge. Or through case discussions and simulation training, cultivate students' ability to solve complex medical problems and enhance their confidence and ability to deal with responsibilities.

Conclusion

Firstly, the whole process of medical education should be strengthened: in the school learning stage, attention should be paid to the effective transmission of medical knowledge; in the clinical practice link, the top-level design should be improved to make it suitable for the needs of rural grassroots medical care; when carrying out continuing education, attention should be paid to differentiated needs. Secondly, medical humanities education should be emphasized more than ever. At the grassroots level, medical humanities education is mainly reflected in doctor-patient

communication, the initiative and enthusiasm of doctors in their work, and the sense of responsibility and values of doctors.

5.2.4 Action research

Medical humanities and medical technology are like two wings of a doctor, both of which are indispensable. Now everyone knows the importance of medical humanities (Blease et al, 2016). However, the curriculum system of medical colleges and universities cannot be easily changed. There are already many courses in medical education (Li et al, 2018). It is not an easy task to add new courses to the existing full medical course catalogue. Trying to integrate the content of medical humanities with existing courses may be the most practical way, and this action research is such an attempt.

This action research is carried out based on the results of the first phase, that is, the empathy and professional identity of rural grassroots doctors need to be improved. It is feasible in principle to organically combine narrative medicine and professional ideological education with the course content in order to improve the empathy and professional identity of rural-oriented medical students (see Chapter 2 for details).

5.2.4.1 Empathy

The results show that from the analysis of film reviews, after two cycles of intervention, the students' emotional empathy and cognitive empathy have been improved to varying degrees. After the first cycle, the emotional empathy increased from 48% to 64%, and the cognitive empathy increased from 58.3% to 92%; after the second cycle, the emotional empathy further increased to 66.7%, and although the cognitive empathy decreased, it was still higher than that of the pre-test group of 74%. This indicates that narrative medicine education has played a positive role in cultivating students' empathy. This is consistent with the results of Chen et al.'s research (Chen et al, 2017) and Daryazadeh et al.'s research (Daryazadeh et al, 2020). By presenting clips of medical documentaries, sharing narrative cases, etc., students can better understand the background, experiences, and emotions of patients, thus enhancing their empathy. In the course evaluation, although there is no score directly for empathy, students gave higher evaluations to intervention measures involving

narrative elements, such as documentary presentations and narrative case sharing. This shows that these teaching methods have promoted students' understanding and acceptance of the empathy part of humanistic literacy to a certain extent.

The improvement in students' cognitive empathy in the second cycle of action research was not as high as in the first round, which might due to the changes in sample characteristics: The students participating in the second cycle may differ in background, learning status, or emotional investment compared to those in the first round, which could affect the enhancement of cognitive empathy; or might due to the external Environmental Influences: such as teacher-students relationship, which may have impacted the students' emotional and cognitive development, thereby affecting the improvement in empathy. After all, building a good teacher-student relationship is also a way for medical students to experience humanistic qualities (Liu, N, 2017). In future teaching, instructors should pay attention to fostering positive relationships with students during the course.

5.2.4.2 Professional identity

In terms of professional identity, from the results of film review analysis, professional beliefs and professional confidence also showed an upward trend in the two cycles. Professional beliefs increased from 20% in the pre-test to 60% in the first cycle and further to 81.4% in the second cycle; professional confidence increased from 12% in the first cycle to 40% in the second cycle and to 66.7% in the second cycle. This reflects that through professional ideological education activities such as online meetings with graduates, sharing work environments and experiences, and the presentation of actual cases in narrative medicine, students have a clearer understanding of their future career paths and enhanced their professional identity. Although there are few studies on the improvement of medical students' professional identity by professional ideological education, we often see the advocacy of "strengthening students' professional identity with professional ideological education" in the countermeasure suggestions of some studies (Deng et al, 2017) (Guo et al, 2024). Then this study can be regarded as a brave attempt of these advocacies and has seen the effect.The high evaluations of students on activities such as online meetings and narrative sharing also indirectly reflect the positive impact on professional identity. These activities let students understand the actual situation of rural grassroots

medical work and stimulate their enthusiasm and confidence for future careers.

5.2.4.3 Reform of teaching methods:

This study breaks the single teaching mode of traditional classrooms and integrates narrative medicine and professional ideological education into the course content with rich teaching links. Specifically:

1. Narrative cases

Through two cycles of action research, it has been verified that combining narrative medicine with vocational education and course content is an effective teaching model. The students' participation in the classroom has been significantly increased, and their empathy and professional confidence have also been enhanced. The study by Wu Wei et al. (Wu et al, 2023) reached the same conclusion. In their study, nurses' empathy was significantly higher than that of the control group after narrative case learning. This study shows that in the analysis of movie reviews, students can better understand and comment on the film content from a humanistic perspective, reflecting the impact of narrative medicine on students' thinking modes. However, some areas need to be optimized in the teaching process. In the comprehensive management module of malignant tumors, students reported that the narrative cases lacked attractiveness. Therefore, in the second cycle, the cases were rewritten, adding emotional descriptions and real-life examples, and the effect was improved. This This suggests that in narrative medicine teaching, we should pay attention to the selection and writing of cases, deeply explore the narrative elements, and make them more resonant with students.

2. Online meetings with graduates

The influence of the role model with online meetings as the carrier is an important way of narrative medicine education and professional ideological education in this study and is welcomed by students. In the course evaluation, the scores of online meetings are relatively high, such as 9.61 in the first cycle and 9.26 in the second cycle. Through the narration and display of the work and life of excellent graduated seniors at the grassroots level, the current students can feel the responsibility and mission of being a rural grassroots doctor, they are inspired and foresee their career paths; through the communication with graduates, students can understand the actual working environment and experience and have a clearer

understanding of their career planning. In order to further improve the effect of online meetings, it is recommended to select graduates from the same region as the current students for sharing. In the second cycle, graduates from Xuzhou were selected, and the students' reactions were more positive, and their questions were more focused. This shows that the strong relevance between the selected role models and the group (Collins, 1996) can enhance the pertinence and practicality of this form of professional ideological education. The research of Zhong Zhihong et al. (Zhong et al, 2017) advocates to "find the most beautiful rural doctors" from around or hometown, collect the stories of "Moving China" related to medicine, and make them into a series of video materials as educational materials for wide publicity, to cultivate the professional sense of achievement of order-oriented medical students and the pride of serving at the grassroots level, and to drive the whole group with the power of role models. This idea is generally consistent with this study.

3. Narrative sharing sessions

Narrative sharing sessions use one of the two tools of narrative medicine: close reading of literary works as a tool and are an important link in cultivating students' empathy and professional confidence. This coincides with another practical research on narrative medicine in China (Zhu et al, 2023). The study confirmed that medical students have higher empathy through the fine reading of medical stories and film and television works and narrative sharing in the course than the control group. It is worth noting that when using narrative sharing as a teaching link, teachers should firmly control the rhythm of the course. In the first cycle of this study, due to poor management of students' speaking time, some students failed to fully share, and the classroom order was affected. In the second cycle, the speaking time limit of students was clearly defined, the classroom rhythm was effectively controlled, and the students' performance was more excellent. This shows that in narrative sharing sessions, teachers should strengthen the management of time and rhythm to ensure that each student has the opportunity to express their views while maintaining the order and efficiency of the classroom.

4. Watching movies and writing film reviews

Movie watching is also a common method of narrative medicine education (Li et al, 2019) (Leijenaar et al, 2023). As an art form, movies have strong emotional

expression abilities. They can trigger strong emotional reactions of the audience through plot settings, character shaping, music and pictures, etc. In narrative medicine education, this emotional resonance is very important. This study wants to enhance the empathy of medical students and at the same time strengthen their professional identity. Therefore, movies about the work of rural grassroots doctors were selected. The movies everywhere reveal the humanistic care of rural grassroots doctors and play an exemplary role for medical students, subtly enhancing their professional identity. From this point of view, the content, theme, and actors' performances of the movie all play a great role, which This reminds teachers that the materials for narrative medical education are not randomly selected, but must be carefully selected to choose the most expressive and relevant materials for the theme.

Conclusion

The ultimate goal of this study is to establish a model for the improvement of medical humanities in medical education. This study provides practical cases of integrating narrative medicine and professional ideological education with courses by using diverse teaching methods, achieving the effect of improving the humanistic literacy of medical students. It has set a template for other medical colleges and universities in the province that offer "Introduction to General Medicine". Although the model of this study cannot be completely replicated by other courses, the idea is the same, that is, the elements of medical humanities (such as doctor-patient communication ability, sense of responsibility, ethics and morality, etc.) should be integrated with the course content, so that students are subtly endowed with medical humanities literacy while learning medical knowledge. The improvement of medical humanities literacy cannot be completed by one course alone. Only by infiltrating the concept of medical humanities in the whole process of medical education is it possible to improve the humanistic literacy of doctors, which requires the efforts of every course.

1. The survey for quantitative research on rural inhabitants asked the medical students to be the surveyor, which might also leaded to selection bias, because the family that can cultivate medical college students may have different values from ordinary families, if the surveyors only collected their family data, selection bias might exsited. To avoid of selection bias, the researcher encouraged the students to

select the data from their neighborhood, but, unfortunately, as shown in the results, the characteristics of the sample in this study were relatively young and highly educated. According to Andersen's Healthcare Utilization Model (Andersen, 1995), this may lead to an underestimation of primary care utilization. However, the aim of this paper is to explore inhabitants' needs, as low satisfaction can reveal more issues and provide further suggestions on how to establish a "satisfactory primary healthcare system."

2. In the survey of rural doctors, the respondents were highly educated, with 79% holding a bachelor's degree or higher, which may introduce selection bias. This study distributed questionnaires through contacts within the physician group, and non-response bias cannot be ruled out; younger doctors who recently graduated tend to be more active and have a higher response rate. On the other hand, this study can better reflect the issues faced by young doctors or the quality of the "rural medical student education program." Additionally, this study required respondents to self-evaluate their work capabilities, which may lead to reporting bias, as they might rate themselves higher. Nonetheless, the scores for clinical service capabilities remained low, which can somewhat reflect the actual situation. Moreover, due to the sample size, some significant factors may not be identified, or some insignificant factors may be incorrectly highlighted. These biases could be addressed through further research with a larger sample size.

3. The qualitative research portion utilized content analysis as the analytical method. This approach allows for an in-depth understanding of the issues but also has the drawback that the analyst's subjective interpretation may affect the objectivity and reliability of the results, and due to typically small sample sizes, the results may be difficult to generalize to a wider population. To address this, this study combined quantitative and qualitative research methods, using mutual verification of results to compensate for each other's shortcomings.

4. In the qualitative research portion, this study primarily focused on the opinions of township hospital directors and grassroots doctors, without involving other important stakeholders such as rural residents and local government health department managers. As recipients of medical services, rural residents' needs and healthcare-seeking behaviors are crucial for the development of township hospitals.

Local government health departments play a key role in healthcare resource allocation and policy formulation. The lack of these perspectives may make the research results less comprehensive. This limitation will be addressed in future research by expanding the range of research subjects.

5. The action research component primarily sampled rural medical students from Xuzhou Medical University, with a relatively limited sample size and narrow geographic scope. This may affect the generalizability and representativeness of the research findings, making it difficult to fully cover all aspects of medical training programs aimed at rural areas. This study employed various intervention measures, including narrative medicine case sharing, online meetings, film screenings, and reviews. While these measures complemented each other, they also increased the complexity of the study, making it challenging to accurately differentiate the specific impact of each measure on students. For instance, the pre-test data for this study involved analyzing film reviews from students in the 2020 order-oriented program; however, watching films and writing reviews were not only used as measurement indicators but were also one of the intervention measures in this study. Therefore, when comparing pre-test and post-test data, the actual effectiveness of this study is inevitably underestimated.

6. This study aims to develop a model that can be adopted by other courses. However, the results of this action research are based on a specific course and student group, and may not be directly applicable to other medical courses or students in different regions. There may be differences in teaching objectives, content, and students' background knowledge across different courses, which could impact the effectiveness of the intervention measures. Some recommendations and improvements proposed in the study, such as enhancing certain course teachings and adopting specific teaching methods, may need to be adjusted according to the educational resources and actual circumstances of different regions to be applicable on a broader scale. Overall, it is challenging to fully replicate the interventions from this study, which affects the generalizability of the results.

5.3 Limitation and strength

Limitation

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specific teaching methods, may need to be adjusted according to the educational resources and actual circumstances of different regions to be applicable on a broader scale. Overall, it is challenging to fully replicate the interventions from this study, which affects the generalizability of the results.

Strength

1. The study comprehensively employs quantitative and qualitative research methods to thoroughly analyze the needs for primary healthcare and medical education in rural Jiangsu. Quantitative research accurately quantifies the current situation and demands, while qualitative research deeply explores individual experiences and perspectives. The combination of the two provides a comprehensive understanding of the rural primary healthcare system and the root causes of problems, laying a solid foundation for precise improvements.

2. The research explores healthcare needs and educational expectations from multiple perspectives, including rural residents, grassroots doctors, and township hospital directors. Residents' needs focus on improving service quality and expanding functions; doctors emphasize their own ability deficiencies and directions for educational improvement; directors concentrate on talent cultivation, teaching optimization, and resource allocation. This all-round demand analysis constructs a solid framework for optimizing rural medical education and enhancing service quality.

3. Based on the precise identification of key issues in rural doctor training in the preliminary research, two rounds of action research are carefully designed to enhance students' empathy and professional identity. The intervention measures are meticulously planned, integrating narrative medicine and professional ideological education into the curriculum. Multiple teaching methods work in concert to strengthen students' humanistic qualities and professional spirit, improving clinical abilities and service quality and opening up new avenues for cultivating rural medical talents.

4. The study adopts multiple evaluation indicators, including film review analysis, course evaluation, and teaching reflection journals, to assess the intervention effects from multiple dimensions, such as students' emotional cognition, course experience, and teacher observations. The film review criteria closely adhere to the

core elements of empathy and professional identity; the course evaluation encompasses various aspects of feedback; and the teaching reflection provides practical insights. These comprehensive and accurate evaluation methods fully measure the effectiveness of interventions, strongly supporting the research conclusions.

5. Rooted in practical problems in medical education, the research integrates multiple disciplinary theories, such as Andersen's model and stakeholder theory, providing a solid theoretical foundation. The research results are directly applied to optimize rural grassroots doctor training courses and teaching models, enhancing practical guidance. This effectively improves rural medical education levels and promotes the development of primary healthcare undertakings.

5.4 Suggestion

5.4.1 Suggestions based on problems reflected in the document results

1. For improving rural primary healthcare services

（1）Improve the service quality of rural grassroots doctors

Enhance training relevance: Design targeted training based on self-evaluation and resident feedback, focusing on weak areas like clinical competence and doctor-patient communication. For instance, increase clinical skills training time in regions with lower capabilities and offer specialized communication skills courses with simulated practice.

Optimize standardized training: Adjust the content and duration of standardized training to align with the actual work and career needs of primary care physicians, focusing on common disease diagnosis and treatment, practical skills, and clinical thinking.

Establish continuous education: Create a mechanism for ongoing education, encouraging participation in academic exchanges, online courses, and refresher training to keep physicians updated on medical advancements and clinical guidelines.

(2) Improve primary healthcare facilities and resource allocation

Allocate resources based on needs: Use survey data to allocate healthcare resources effectively, such as ultrasound and endoscopy equipment.

2. For improving medical education for rural grassroots doctors

(1) Optimize the curriculum

Strengthen humanistic education: Integrate humanistic education with curriculum content, subtly imparting students with medical humanistic qualities while mastering medical knowledge and skills.

Highlight key courses: Focus on essential clinical and humanistic courses to ensure students acquire solid medical knowledge and effective communication skills.

(2) Improve teaching methods

Use various teaching methods. Use various teaching models and methods to enrich the classroom experience, enhancing the effectiveness and appeal of the course.

5.4.2 Suggestions for future research directions

1. Long-term effect research on primary healthcare service quality improvement

(1) Track training effects: Conduct long-term tracking of rural grassroots doctors who received rural oriented training to evaluate its impact on their clinical competence, service quality, and career development. Use regular surveys and assessments to understand the stability of the training effects and optimize the training program.

(2) Assess facility improvements: Analyze changes in inhabitants' medical-seeking behavior, health status, and medical expenses after optimizing primary healthcare facilities. Determine if improvements have increased facility utilization, positively impacted residents' health, and alleviated uneven medical resource distribution.

2. In-depth research on medical education reform

(1) Generalizability of this research model: Explore whether the narrative medicine approach for enhancing empathy and the professional ethics education for improving professional identity can be applied to other courses in medical education and whether it can be suitable for medical students beyond those in directed enrollment programs.

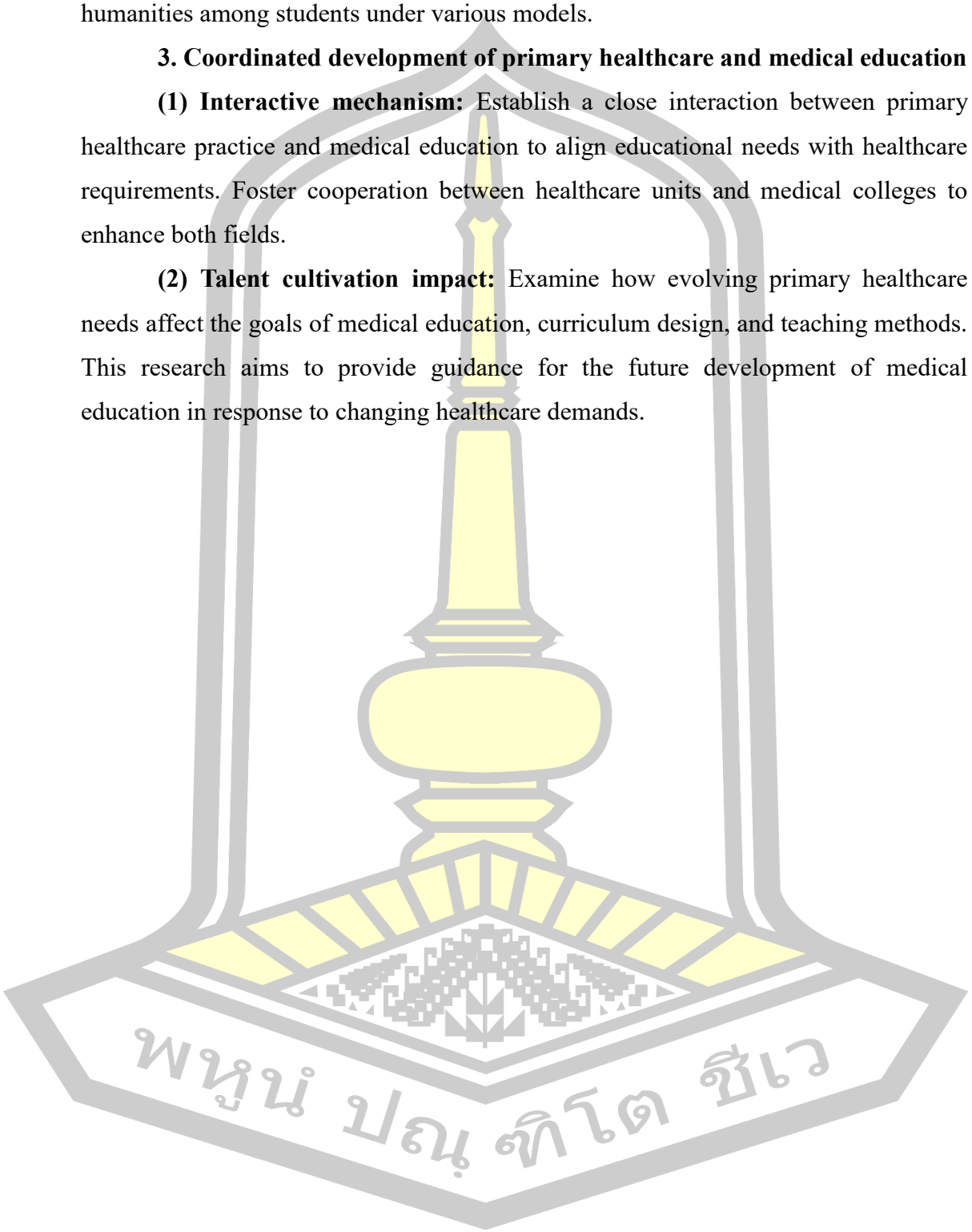
(2) New model for integrating medical humanities with medical curriculum: Explore how to integrate medical humanities with medical curricula

using different models. Compare the learning outcomes and improvements in medical humanities among students under various models.

3. Coordinated development of primary healthcare and medical education

(1) Interactive mechanism: Establish a close interaction between primary healthcare practice and medical education to align educational needs with healthcare requirements. Foster cooperation between healthcare units and medical colleges to enhance both fields.

(2) Talent cultivation impact: Examine how evolving primary healthcare needs affect the goals of medical education, curriculum design, and teaching methods. This research aims to provide guidance for the future development of medical education in response to changing healthcare demands.



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APPENDIX

Questionnaire for inhabitants

1. **Demographic characteristics**

1.1 Gender: A. male B. female

1.2 Are you live in rural area or urban area?

A. rural area B. urban area

1.3 birthday: _____(dd/mm/yyyy)

1.4 Education level

A. primary school and below B. junior school

C. senior school and secondary specialized school D. junior college

E. undergraduate and above

1.5 Annual income of your family:

A. less than 10000yuan B.10000-30000yuan C.30000-80000yuan

D.80000-150000yuan E.150000-300000yuan F.300000-1000000yuan

G. over 1000000yuan

1.6 Your average annual medical expenditure is:

A.0~1000 B.1000-5000 C.5000-10000 D. more than10000

1.7 Your health status in the past year:

A. Very good B. good C. moderate D. poor E. very poor

2. Opinions on rural primary care

2.1 The duration of your visit to the nearest community health service center is:

A. Less than 15 minutes B. 15-30 minutes C.30 minutes - 1 hour

D. more than 1 hour

2.2 If you have cold and fever, you will:

A. Go to nearby community hospital

B. Go to a big hospital

C. Buy medicine by yourself

D. regardless

E. other choice_____

2.3 If your family member suffered from cold and fever, they will:

A. Go to nearby community hospital

B. Go to a big hospital

C. Buy medicine by yourself

D. regardless

E. other choice_____

2.4 Do you understand the system of tiered medical services

A. I know very well. B. I've heard it. C. I don't know. D.I haven't heard it

2.5 Do you support the completion of the first visit in the community hospital?

A. Support B. Not support C. I don't know much about it

2.6 What kind of services do you need most from the community hospital (multiple choices, limited to 3 items)

A. Diagnosis and treatment of common diseases B. health education

C. psychological consultation D. chronic disease management

E. door-to-door service F. health examination G. cancer screening

H. family planning guidance I. maternal and infant health care

J. oral clinic K. traditional Chinese medicine treatment

2.7 What do you think of community hospitals

A. It's very good and convenient.

B. It can play a certain role, but its role is limited.

C. It's totally useless

2.8 What areas do you think community hospitals should improve (multiple choices)

A. Doctors' level B. medical equipment C. service attitude

D. hospital scale E. prevention and health care publicity

F. health concern of community residents G others

3. opinions on rural grassroots doctors

3.1 In your opinion, primary doctors:

		Very good	**good**	**moderate**	**poor**	**Very poor**
attitude	Good attitude in treatment					
	The language is easy-going during interrogation					
	Focus during treatment					

		Very good	**good**	**moderate**	**poor**	**Very poor**
	Communicate with you patiently					
	mutual respect					
	Your privacy protection					
	Sufficient treatment time					
technical and skill level	Detailed consultation during treatment					
	The explanation of the condition is professional					
	The explanation of the condition is clear and easy to understand					
	Clear condition judgment					
	The diagnosis and treatment process is neat and smooth					
	The treatment is effective					
Meet demand	Timely reception					
	Answer questions in time					
	Meet your prescription requirements					
	Meet your inspection requirements					
	Meet your health education requirements					
	Choose the appropriate treatment plan according to the economic situation					
	The treatment plan					

		Very good	**good**	**moderate**	**poor**	**Very poor**
	respects the choice of patients and their families					

3.2 What do you think are the responsibilities of a general practitioner: (multiple choices)

A. Deal with disease B. Publicize health knowledge to residents

C. communicate more with patients D. provide door-to-door services

E. Regular physical examination for residents F. the other_____

3.3 What do you think about the doctor-patient relationship in community hospital?

A. very harmonious B. fairly harmonious C. fairly tense D. very tense

3.4 What do you think of community doctors

A. Very good. It's very useful to me. B. It's OK. It plays a certain role for me

C. I don't trust them very much. their medical skills are not high enough.

D. they basically don't have the talent to be doctor

Questionnaire for rural grassroots doctors

Hospital name: _____Graduation school_____

1.Demographic characteristics

1.1 birthday: _____year_____month

1.2 gender: A male B female

1.3 education level:

A technical secondary school or below B college or above

C bachelor's degree D master's degree or above

1.4 Work Department:

A General Department B Internal Medicine C Surgery D Internal Medicine E Prevention and Protection Department F Traditional Chinese Medicine Department G Stomatology Department H Others_____

1.5 Years of service:_____ year

1.6 your monthly salary: _____yuan

2. Opinions on resident standardization training

2.1 Have you participated in "Resident Standardization Training"? A Yes B No

2.2 Training hospital level:

A Provincial Hospital B Municipal Hospital C County/District Hospital

2.3 Training time: Year_____ Month _____ to Year_____ Month_____

2.4 The departments in which you've trained are (multiple choice)

A Internal Medicine B Surgery C Gynecology D Pediatrics E Emergency F Electrocardiogram Room G B Ultrasound Room H Radiology Department I Community Rotation J Others_____

2.5 Based on your current work experience and tasks, do you think it is necessary to extend the training time limit for some departments?

A Internal Medicine B Surgery C Gynecology D Pediatrics E Emergency F Electrocardiogram Room G B Ultrasound Room H Radiology Department I Community Rotation J Others_____

2.6What other aspects of training do you think should be added_____

3. job satisfaction of rural grassroots doctors

	Very dissatisfy	dissatisfy	moderate	satisfy	Very satisfy
basic clinical ability					
professional spirit and quality					
ability to learn and use what you have learned					
ability of doctor-patient communication and language expression					
performance in teamwork					
ability to provide basic public health services					
ability to manage your information technology					
academic research ability					

4. services can be offered

A Prevention B Medical Treatment C First Aid D Rehabilitation

E Maternal- Child-Elderly Care F Health Management

4.1 Variables include services you can offer_____, (Multiple choices are allowed)

4.2 services you are reluctant to offer_____, (Multiple choices are allowed)

4.3 services you can't offer. _____ (Multiple choices are allowed)

5. Opinion on skills to be mastered in medical education

A Prevention B Medical Treatment C First Aid D Rehabilitation

E Maternal- Child-Elderly Care F Health Management

5.1 What do you think is necessary to learn and master their knowledge and skills during the medical college stage_____ (Multiple choices are allowed)

5.2 What do you think should be specifically offered new courses to meet the needs of their work_____ (Multiple choices are allowed)

5.3 What knowledge and skills do you think can be learned during the standardized training phase for residents_____ (Multiple choices are allowed)

6. Opinions on courses to be strengthened in medical education

6.1 The courses that need to be strengthened in the humanities, social sciences, and natural sciences include_____ (Multiple choices are allowed)

A Medical Ethics B Health Law C Medical Psychology D Medical Sociology E Health Management F Mathematics G Physics H Chemistry I Others

6.2 The courses that need to be strengthened in biomedical courses include_____ (Multiple choices are allowed)

A Human Anatomy B Histology and Embryology C Pathology D Pathogen Biology E Cell Biology F Medical Genetics G Biochemistry I Physiology J Medical Immunology K Pharmacology L Pathophysiology M Molecular Biology N Neurobiology O Others

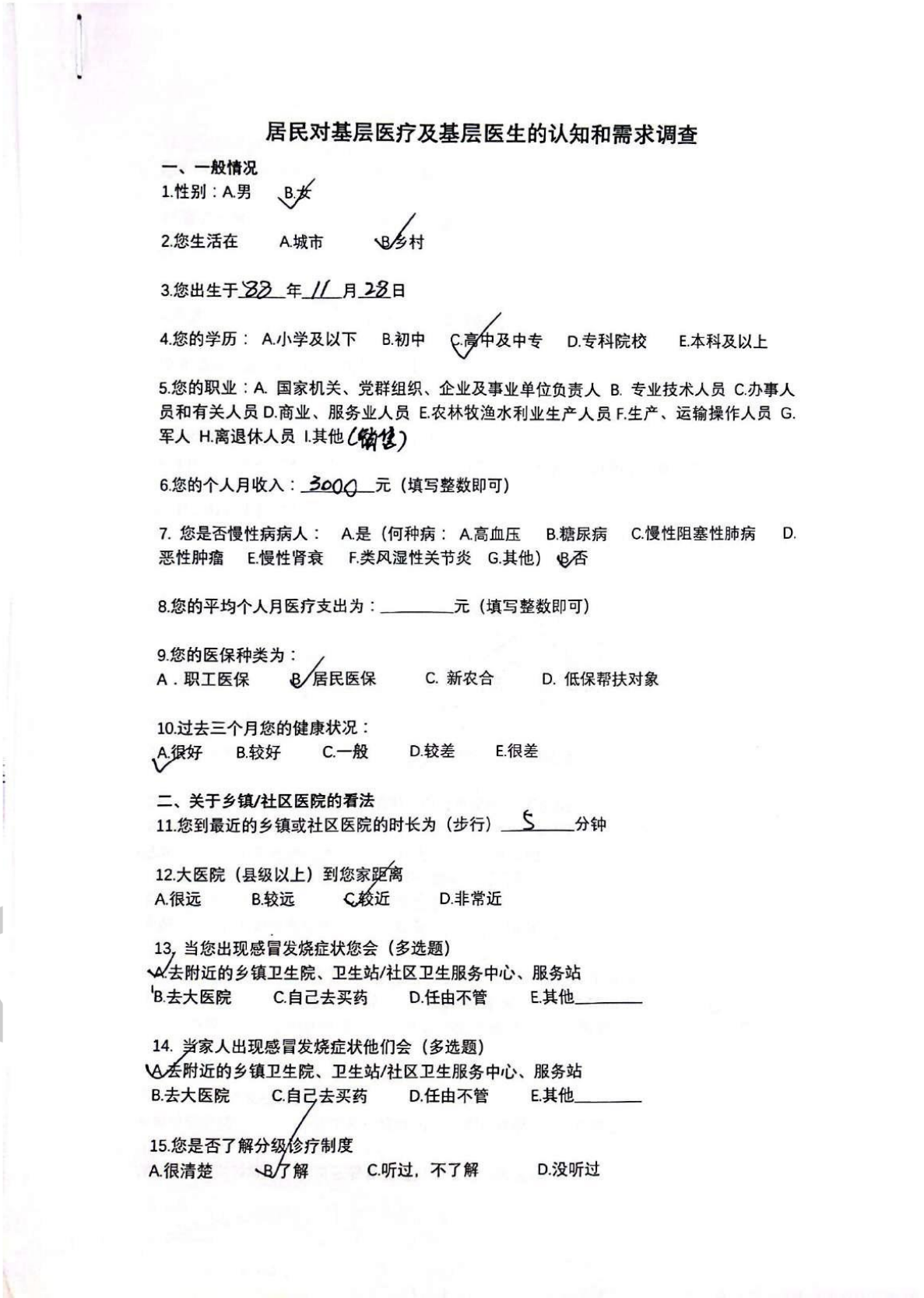
6.3 The courses that need to be strengthened in public health courses include _____ (Multiple choices are allowed)

A Medical Statistics B Epidemiology C Global Health D Health Education and Health Promotion E Maternal and Child Health F Social Medicine G Environmental Health H Nutrition and Food Hygiene I Labor Health and Occupational Diseases J Others

6.4 What needs to be strengthened in clinical medicine courses are_____ (Multiple choices are allowed)

A Diagnostics B Internal Medicine C Surgery D Gynecology and Obstetrics E Pediatrics F Psychiatry G Ophthalmology H Otolaryngology and Head and Neck Surgery I Dermatology and Venereology J Infectious Diseases K Anesthesiology L Stomatology M Traditional Chinese Medicine or Other Ethnic Medicine N General Medicine O Emergency Medicine P Rehabilitation Medicine Q Geriatry R Oncology S Soothing Medicine T Imaging U Physical Therapy V Radiation Therapeutics W Clinical Pharmacy

Sample Paper Questionnaire for inhabitants



居民对基层医疗及基层医生的认知和需求调查

一、一般情况

1.性别：A.男 B.女

2.您生活在 A.城市 B.乡村

3.您出生于 88 年 11 月 28 日

4.您的学历： A.小学及以下 B.初中 C.高中及中专 D.专科院校 E.本科及以上

5.您的职业：A. 国家机关、党群组织、企业及事业单位负责人 B. 专业技术人员 C.办事人员和有关人员 D.商业、服务业人员 E.农林牧渔水利业生产人员 F.生产、运输操作人员 G.军人 H.离退休人员 I.其他（学生）

6.您的个人月收入：3000 元（填写整数即可）

7. 您是否慢性病病人： A.是（何种病： A.高血压 B.糖尿病 C.慢性阻塞性肺病 D.恶性肿瘤 E.慢性肾衰 F.类风湿性关节炎 G.其他） B.否

8.您的平均个人月医疗支出为：_____元（填写整数即可）

9.您的医保种类为：

A．职工医保 B.居民医保 C. 新农合 D. 低保帮扶对象

10.过去三个月您的健康状况：

A.很好 B.较好 C.一般 D.较差 E.很差

二、关于乡镇/社区医院的看法

11.您到最近的乡镇或社区医院的时长为（步行）__5__分钟

12.大医院（县级以上）到您家距离

A.很远 B.较远 C.较近 D.非常近

13. 当您出现感冒发烧症状您会（多选题）

A.去附近的乡镇卫生院、卫生站/社区卫生服务中心、服务站

B.去大医院 C.自己去买药 D.任由不管 E.其他_____

14. 当家人出现感冒发烧症状他们会（多选题）

A.去附近的乡镇卫生院、卫生站/社区卫生服务中心、服务站

B.去大医院 C.自己去买药 D.任由不管 E.其他_____

15.您是否了解分级诊疗制度

A.很清楚 B.了解 C.听过，不了解 D.没听过

16.您支持首诊在乡镇或医院完成吗？
A.支持　　B.不支持　　C.不太了解

17.您去乡镇或社区医院就诊过吗？（回答是的请完成 18-26 题）
A.是　　B.否

18.您觉得乡镇或社区医院的收费
A.很贵　　B.还可以　　C.较便宜　　D.很便宜

19.乡镇或社区医院药品种类齐全程度？
A．很不齐全　　B. 不太齐全　　C. 较齐全　　D. 齐全

20. 乡镇或社区医院医疗器械的齐全程度：
A.没有　　B.不太齐全（1-2 台）　　C.较齐全（3-4 台）　　D.齐全（超过 5 台）

21.社区就诊人数多么？
A.几乎没人（0-5 人）　　B.有一些人（6-10 人）　　C.人数较多（11-15 人）　　D.很多（16 人以上）

22.您等候就医的平均时间为 12 分钟

23.您认为就医流程的便捷程度
A. 很不方便　　B. 较不方便　　C. 较方便　　D.很方便

24.您认为就医环境
A. 很不舒适　　B.较不舒适　　C.较舒适　　D.很舒适

25.（1）您到乡镇或社区医院看病时，做过哪些检查（可多选）
A.各种实验室检查　　B. X 光检查　　C. CT　　D. 心电图　　E. B 超　　F.胃肠镜检查　　G.无　　H.其他_____
（2）您还希望乡镇或社区医院能做哪些检查？（可多选）
A.各种实验室检查　　B. X 光检查　　C. CT　　D. 心电图　　E. B 超　　F.胃肠镜检查　　G.无　　H.其他_____

26.在过去三个月中，您最需要乡镇或社区医院为您提供哪些服务（多选，限 3 项）
A.常见病诊疗　　B.健康教育　　C.心理咨询　　D.慢病管理　　E.上门服务
F.健康体检　　G.癌症筛查　　H.计划生育指导　　I.母婴保健　　J.中医治疗
K.口腔门诊　　M.其他_____

27.您觉得乡镇或社区医院
A.很好很方便　　B.能发挥一定作用，但作用有限　　C.完全没用

28. 您觉得乡镇或社区医院还要在哪些方面改进（多选）

A.医生水平　　B.医疗设备　　C.服务态度　　D.医院规模　　E.预防保健宣传
F.对社区居民的健康关注　　G 其他_____

三、关于基层医生的看法

29.您认为乡镇或社区医生：

		很好	较好	一般	较差	很差
态度	治疗时态度和善			✓		
	问诊时语言随和			✓		
	治疗时专注			✓		
	耐心与您沟通			✓		
	相互尊重			✓		
	保护您的隐私			✓		
	就诊时间充分			✓		
技术水平	治疗时问诊详细			✓		
	病情讲解专业			✓		
	病情讲解清晰易懂			✓		
	病情判断明确			✓		
	诊治流程利落顺畅			✓		
	治疗有效果			✓		
需求满足	接诊及时		✓			
	解答问题及时		✓			
	满足您的处方要求		✓			
	满足您的检查要求	✓				
	满足您的健康教育的需求	✓				
	根据经济情况选择合适您的治疗方案		✓			
	治疗方案尊重患者及家属的选择	✓				

30.您觉得乡镇或社区医生的职责是：(多选) (全)
A.治疗疾病　　B.宣传健康知识　　C.多与病人交流　　D.上门服务　　E.定期对居民进行健康检查　　F.其他_____

31.您对乡镇或社区的医患关系评价是：
A.十分融洽　　B.较融洽　　C.较紧张　　D.非常紧张

32. 您如何看待乡镇或社区医生
A.很不错，对我很有用　　B.还可以，对我起到一定作用
C.不太信任，医术不够高　　D.不好，基本不干实事

33.您更看重乡镇或社区医生的
A.受教育程度　　B.看病经验　　C.服务态度　　D.其他_____

34.您是一名医学生吗？　　A.是　　B.否

Director Interview Coding Manual
Research Background

This study aims to analyze the perceptions of township hospital directors or other leaders regarding the professional competence of township hospital doctors and to propose suggestions for reforms in medical education.

Coding Purpose

The purpose of coding is to systematically categorize and analyze interview content to extract key insights and generate recommendations for improving the training of township doctors in medical education.

Coding Units

The unit of analysis for this research is a single theme, rather than physical language units (such as words, sentences, or paragraphs). Themes can be expressed through a single word, a phrase, a sentence, a paragraph, or an entire document.

Main Categories, Subcategories, Definitions, Coding Rules, and Examples

1. Problems Faced by Township Hospitals

Hospital Development Trends

Definition: Evaluations and information regarding the future development trends, expansion plans, growth potential, and overall direction of township hospitals, using terms like “shrinkage,” “number of patients,” “full funding,” and “hospital characteristics.”

Coding Rules: Themes related to the development trends of township hospitals are included in interview records discussing problems faced by township hospitals.

Example: “Grassroots hospitals are shrinking; on one hand, due to the public’s awareness of seeking medical care, whether in surgery or obstetrics and gynecology, people prefer large hospitals.” (0102 2023.10.21)

Impact of Health Insurance Policies

Definition: Specific impacts of health insurance policies or restrictions on healthcare service provision, patient treatment choices, hospital operations, and medical cost management, such as “insurance restrictions.”

Coding Rules: Themes related to the impact of health insurance policies on hospital development are included in interview records discussing problems faced by township hospitals.

Example: “On the other hand, due to health insurance issues, township hospitals rely on insurance funding; outpatient income must reach 2 million to sustain doctors, but expenditures cannot exceed this.” (0102 2023.10.21)

Human Resource Issues in Hospitals

Definition: Issues related to human resources in township hospitals, including staff shortages, turnover, lack of professional skills, and recruitment difficulties, using terms like “talent loss,” “shortage of personnel,” and “insufficient number of doctors.”

Coding Rules: Themes related to human resource issues in township hospitals are included in interview records discussing problems faced by township hospitals.

Example: “Our hospital lacks staff, primarily nursing and clinical doctors. Nurses are recruited with an associate degree, while clinical doctors need a bachelor’s degree.” (0102 2023.10.21)

2. Characteristics of Newly Employed Doctors

Clinical Practice Ability

Definition: Characteristics observed in newly employed young doctors regarding their clinical work, including their performance in clinical operations, diagnosis, treatment, and patient management compared to expected standards, such as “poor diagnostic thinking” or “lack of practical skills.”

Coding Rules: Themes related to clinical practice ability in newly employed doctors are included in interview records discussing characteristics of newly employed doctors.

Example: “However, newly graduated students have poor clinical diagnostic thinking and need long-term training.” (0101 2023.10.20)

Communication Skills

Definition: Negative evaluations or feedback regarding the communication skills of newly employed doctors, especially difficulties or deficiencies in communicating with patients, colleagues, or other healthcare team members, such as “unclear communication” or “insufficient communication skills.”

Coding Rules: Themes related to communication skills in newly employed doctors are included in interview records discussing characteristics of newly employed doctors.

Example: “Current students also lack good communication skills.” (0101 2023.10.20)

Proactivity

Definition: Situations demonstrating low proactivity and initiative at work, including a lack of willingness to take on tasks, solve problems, and a passive attitude toward work and responsibilities, such as “unprofessional attitude” or “unwillingness to contribute.”

Coding Rules: Themes related to proactivity in newly employed doctors are included in interview records discussing characteristics of newly employed doctors.

Example: “In recent years, students’ proactivity is low. For example, they just write case reports and complete assigned tasks but never observe how senior doctors treat patients. If they do come, we teach them enthusiastically.” (0104 2023.10.25)

3. Characteristics of Popular Doctors

Professional Competence

Definition: Traits or behaviors that make doctors popular and highly regarded among patients or colleagues, including personal qualities and professional skills, such as “responsibility” or “strong medical skills.”

Coding Rules: Themes related to professional competence in popular doctors are included in interview records discussing characteristics of popular doctors.

Example: “Successful doctors are first and foremost strong in medical skills, and secondly, they have strong doctor-patient communication skills.” (0106 2023.10.23)

Communication Skills

Definition: Traits or behaviors that contribute to a doctor’s popularity and high regard among patients or colleagues, including personal qualities and communication style, such as “strong communication skills.”

Coding Rules: Themes related to communication skills in popular doctors are included in interview records discussing characteristics of popular doctors.

Example: “Their common traits are being responsible, meticulous, caring for patients, having strong communication skills, and being proactive at work.” (0102 2023.10.21)

4. Views on Standardized Medical Training Programs

Importance

Definition: The importance of clinical practice in the medical education process, with

related terms or descriptions of importance.

Coding Rules: Themes related to the importance of clinical practice in standardized medical training programs are included in interview records discussing views on standardized medical training programs.

Example: “For medical student training, the most important aspects are internships, standardized training, and post-graduation education.” (0104 2023.10.25)

Focus of Training Content

Definition: Descriptions of key content in health training or educational activities, including terms related to “training focus” or similar content.

Coding Rules: Themes related to the focus of training content in standardized medical training programs are included in interview records discussing views on standardized medical training programs.

Example: “Doctors in township hospitals do not need to be standardized in every specialty; it’s enough to understand common diseases thoroughly from prevention to diagnosis to treatment.” (0101 2023.10.20)

Training Duration

Definition: Views on the scheduling of standardized medical training programs, particularly regarding training duration, including terms related to “training time.”

Coding Rules: Themes related to the duration of training in standardized medical training programs are included in interview records discussing views on standardized medical training programs.

Example: “The current problem is that the training period is too long. Since everyone has a one-year internship before standardized training, strict management during that year should be sufficient.” (0103 2023.10.19)

Timing of Training

Definition: Opinions on the timing of standardized medical training, including whether doctors should have some work experience before undergoing standardized training.

Coding Rules: Themes related to the timing of training in standardized medical training programs are included in interview records discussing views on standardized medical training programs.

Example: “Don’t rush into standardized training; stay on the job for a while after

graduation, see various diseases, and then go for training with specific questions. The training will be more targeted." (0101 2023.10.20)

5. Views on Continuing Education

Impact on Doctors' Improvement

Definition: Evaluation of the role of continuing education in doctors' professional development, particularly how it helps improve their professional skills, knowledge level, and career quality, with terms like "growth" or "progress."

Coding Rules: Themes related to the impact of continuing education on doctors' improvement are included in interview records discussing views on continuing education.

Example: "I was once a poor student, but after a year of continuing education at Xuzhou Medical University Affiliated Hospital, I grew significantly." (0101 2023.10.20)

Importance of Continuing Education

Definition: Comparative descriptions of the importance of the three stages of medical education (school education, clinical training, and continuing education), focusing on the importance of continuing education.

Coding Rules: Themes related to the importance of continuing education are included in interview records discussing views on continuing education.

Example: "School education, standardized training, and post-graduation education are all important, but I think continuing education is more important and targeted." (0108 2023.10.23)

Continuing Education System

Definition: Specific descriptions of the continuing education system in the hospital, including its management and implementation.

Coding Rules: Themes related to the continuing education system are included in interview records discussing views on continuing education.

Example: "Of course, continuing education should be provided. Based on the hospital's development and layout, key departments should undergo continuing education. During the training period, the hospital pays salaries and performance, but the primary responsibility is the department's performance and salary distribution. Our hospital implements secondary management." (0102 2023.10.21)

6. Recommendations for Training Township Doctors

Assessing Students' Career Intentions

Definition: Evaluating medical students' or candidates' career intentions to understand their interest in working in township hospitals and their career goals, with terms related to "intentional assessment."

Coding Rules: Themes related to assessing medical students' career intentions are included in interview records discussing recommendations for training township doctors.

Example: "As a school, evaluations should be done before graduation or during standardized training. Sometimes students do not personally wish to pursue medicine, but if after five years they still do not like the field, it's better to suggest a related medical career." (0102 2023.10.21)

Key Teaching Courses

Definition: Opinions on various courses, including specific course names and their importance, within health training or educational activities.

Coding Rules: Themes related to key teaching courses are included in interview records discussing recommendations for training township doctors.

Example: "School education should strengthen the teaching of 'Diagnosis,' 'Internal Medicine,' 'Surgery,' 'Obstetrics and Gynecology,' 'Pediatrics,' and 'Infectious Diseases,' with more emphasis on clinical subjects and less on basic subjects." (0104 2023.10.25)

Use of Teaching Methods

Definition: References to teaching methods used in classroom reform, such as "case-based teaching" or "role-playing."

Coding Rules: Themes related to teaching methods are included in interview records discussing recommendations for training township doctors.

Example: "Classroom instruction should enhance case explanations rather than just following textbooks." (0104 2023.10.25)

Values Education

Definition: References to strengthening medical students' awareness and responsibility regarding their professional duties and obligations, with terms like "sense of responsibility," "values," and "attitude."

Coding Rules: Themes related to values education are included in interview records discussing recommendations for training township doctors.

Example: “Values education should emphasize responsibility, treating patients as family.” (0104 2023.10.25)

Communication Skills Education

Definition: References to improving medical students' communication abilities in patient interactions, team collaboration, and professional communication, including terms like “communication skills” and “humanistic communication.”

Coding Rules: Themes related to communication skills education are included in interview records discussing recommendations for training township doctors.

Example: “Students should master communication skills with patients based on their characteristics, not only with patients but also actively engage with colleagues and integrate into the team.” (0105 2023.10.24)

7. Advice to Medical Students

Basic Knowledge and Skills

Definition: Advice on the acquisition of fundamental knowledge and skills for medical students, with terms like “basic skills,” “knowledge,” and “operations.”

Coding Rules: Themes related to basic knowledge and skills are included in interview records providing advice to medical students.

Example: “In grassroots hospitals, medical equipment is simple, and many tests cannot be performed, so doctors need to have solid basic skills! Physical examination must be standardized! Learn differential diagnosis!” (0104 2023.10.25)

Humanistic Qualities

Definition: Advice on humanistic qualities, including terms related to “communication,” “attitude,” and “kindness.”

Coding Rules: Themes related to humanistic qualities are included in interview records providing advice to medical students.

Example: “In clinical practice, communication skills are often crucial. For example, if you have a good relationship with patients and ask ‘Have you eaten?’ even if a medical accident occurs, patients will hesitate to make trouble. If you are not friendly, patients will certainly not let it go.” (0101 2023.10.20)

Personal Effort

Definition: Advice related to students' study attitudes, including terms like “hard work,” “personal effort,” and “self-improvement.”

Coding Rules: Themes related to personal effort are included in interview records providing advice to medical students.

Example: “Since you chose the path of medicine, do not seek a comfortable life. Be prepared to endure hardships. Medical students need to engage in lifelong learning. Have a clear understanding, constantly predict situations, and ask yourself: What can I do? Will my personal ability help the department or hospital’s development?” (0102 2023.10.21)

Comprehensive Development

Definition: Advice on the comprehensive development of abilities, including terms like “versatility” or similar concepts.

Coding Rules: Themes related to comprehensive development are included in interview records providing advice to medical students.

Example: “Family doctor teams are led by grassroots doctors. As a grassroots doctor, you need to be familiar with all aspects of grassroots work.” (0106 2023.10.23)

Doctor Interview Coding Manual
Research Background

This study aims to analyze rural healthcare practitioners' perceptions of their own professional competence and to propose recommendations for medical education reform.

Coding Purpose

The purpose of coding is to systematically categorize and analyze interview content to extract key insights and generate recommendations for improving medical education for rural healthcare practitioners.

Coding Unit

The unit of analysis for this research is individual themes rather than physical language units (such as words, sentences, or paragraphs). Themes can be expressed through a single word, phrase, sentence, paragraph, or entire document.

Main Categories, Subcategories, Definitions, Coding Rules, and Examples

1. Highlights in Career

Patient Recognition

Definition: Specific instances where doctors receive recognition from patients, such as positive feedback or thank-you letters.

Coding: Comments related to patient recognition when discussing highlights in the interviewees' careers are included, such as fields with keywords like “satisfaction” or “recognition.”

Example: “Having more patients makes me feel accomplished. Now, many patients come to see me.” (0201 2023.10.25)

Technical Competitiveness

Definition: Successfully diagnosing or treating diseases or cases that others find difficult to manage.

Coding: Comments involving technical competitiveness when discussing career highlights are included, such as segments related to technical expertise or examples provided.

Example: “The patient was in severe pain and had seen many doctors without success, but you were able to treat them. Such cases are rare, but even one makes you happy for a year.” (0203 2023.10.25)

2. Views on Rural Healthcare Work

Lack of Public Trust

Definition: Public skepticism and lack of trust regarding the capabilities, service quality, professional standards, and management of rural healthcare institutions.

Coding: Comments addressing public attitudes toward rural healthcare institutions and practitioners are included, such as fields with keywords like “public perception” or “media.”

Example: “The overall environment is poor, and the social atmosphere is corrupt. People’s worldviews are all wrong.” (0203 2023.10.25)

Good Career Choice

Definition: Opinions and suggestions about rural healthcare institutions as a career choice.

Coding: Comments evaluating rural healthcare positions are included, such as fields with keywords like “value for money” or “job benefits.”

Example: “I work in child health care, which is relatively relaxed with no night shifts. This position suits me well.” (0209 2023.10.23)

Functions of Rural Healthcare

Definition: Describes the main functions and services provided by rural healthcare institutions.

Coding: Comments evaluating the functions of rural healthcare institutions are included, with relevant semantic fields.

Example: “Since our hospital lacks public health doctors, we do both clinical and public health work. For example, in obstetrics, I also handle maternal health.” (0213 2023.10.23)

Limitations of Rural Healthcare

Definition: Limitations and challenges faced in rural healthcare services.

Coding: Comments discussing the weaknesses of rural healthcare institutions are included, with keywords like “institutional limitations” or related semantics.

Example: “There is severe factionalism in rural areas, with old power structures dominating and capable people having no opportunity.” (0216 2023.10.20)

3. Problems Facing Rural Healthcare Practitioners

Learning Attitude

Definition: The enthusiasm and initiative of rural healthcare practitioners in learning knowledge and skills.

Coding: Comments addressing the learning attitude of rural healthcare practitioners are included, with keywords like “lack of effort” or “poor motivation.”

Example: “Young people cannot endure hardship. They leave work on time and ignore patients for days, only managing to print a discharge report when they leave.” (0204 2023.10.25)

Quality of Medical Services

Definition: Issues related to the quality of medical services provided by rural healthcare institutions, mainly negative aspects.

Coding: Comments discussing the quality of medical services provided by rural healthcare practitioners are included, with keywords like “poor service quality” or related examples.

Example: “Last time, I reviewed a medical record and found an ECG indicating a heart attack, but the attending doctor missed it and treated it as normal. I quickly informed the doctor and corrected it.” (0216 2023.10.20)

4. Importance of Medical Fundamentals

Not Important

Definition: Belief that basic medical knowledge is not very important in actual work.

Coding: Comments suggesting that fundamental knowledge is not widely applied in clinical practice are included, with keywords like “not useful” or “minimal impact.”

Example: “What we learned in school is useful, but not to a large extent. Books focus on common diseases, but we encounter more complex situations.” (0214 2023.10.23)

Important

Definition: Belief that basic medical knowledge is very important in actual work.

Coding: Comments suggesting that fundamental knowledge is crucial in clinical practice are included, with keywords like “very important” or “applicable.”

Example: “You need to master the basic knowledge; it is useful for exams.” (0201 2023.10.25)

5. Views on Clinical Practice Learning

Importance of Clinical Practice

Definition: The significance of applying medical theory and research results to actual patient care and treatment in medical training.

Coding: Comments about the importance of clinical practice in medical education stages are included, with keywords like “more important” or “more useful.”

Example: “Compared to school education and further training, standardized residency training is the most important.” (0204 2023.10.25)

Rationality of Clinical Practice

Definition: The appropriateness of the timing, rotation, and content arrangement of clinical practice for medical students.

Coding: Comments on the timing, rotation, and content of clinical practice are included, with keywords like “too early” or “disconnected.”

Example: “Placing internships in the third year is a bit early because some knowledge has not yet been fully mastered.” (0206 2023.10.24)

Record-Keeping Issues

Definition: Refers to the systematic documentation or tracking of specific activities or resources, including issues related to record-keeping by teaching supervisors.

Coding: Comments about record-keeping and related documentation issues during clinical practice are included, with keywords like “too much” or “superficial.”

Example: “Standardized training often involves a lot of paperwork for the supervising teachers, which tends to be superficial. Students mainly observe in the community with few hands-on opportunities.” (0210 2023.10.23)

Hands-On Experience

Definition: Emphasizing the importance of medical students actively performing clinical procedures under supervision, rather than just observing.

Coding: Comments about students performing hands-on procedures during clinical practice are included, with keywords like “delegation” or related semantics.

Example: “Doctors are made through practice, not just learning. It’s better to study for one or two years in school and spend the rest of the time learning in the hospital.” (0210 2023.10.23)

6. Views on Postgraduate Training

Importance of Postgraduate Training

Definition: The significance of postgraduate training in the three stages of medical education.

Coding: Comments on the importance of postgraduate training in medical education are included, with keywords like “most important” or “beneficial.”

Example: “After starting work, it is crucial to undergo at least six months of emergency training. The community often faces the weakest emergency care but frequently encounters emergency patients.” (0206 2023.10.24)

Postgraduate Training is Not That Important

Definition: The limited value of postgraduate training based on the interviewee’s actual work experience.

Coding: Comments on the limited importance of postgraduate training in medical education are included, with keywords like “not very important” or “useless.”

Example: “Postgraduate training is not necessarily important; new business initiatives may not succeed if hospital facilities are inadequate.” (0202 2023.10.25)

7. Manifestation of Medical Humanities in Work

Responsibility

Definition: The sense of duty, conscientiousness, and responsibility exhibited by doctors in fulfilling their roles and obligations.

Coding: Comments about responsibility in daily work are included, with keywords like “responsibility” or related semantics.

Example: “For young people, it’s essential to excel professionally, but having a sense of responsibility is even more important.” (0204 2023.10.25)

Doctor-Patient Communication

Definition: The relationship formed through interactions between doctors and patients during medical activities.

Coding: Comments about doctor-patient relationships are included, with keywords like “doctor-patient communication” or related semantics.

Example: “Doctor-patient relationships and communication rely on the doctor’s experience in clinical practice, as there are many unpredictable human factors.” (0207 2023.10.24)

Professional Pride

Definition: The feeling of satisfaction, pride, and self-affirmation experienced after completing a task or achieving a goal.

Coding: Comments about feelings of achievement and pride in daily work are included, with keywords like “great” or “sense of accomplishment.”

Example: “After working and experiencing life, I realized that a sense of achievement doesn’t have to be grand. Experts have their own sense of accomplishment, and ordinary workers have theirs.” (0211 2023.10.23)

8. Advice to Younger Students

Regarding Basic Knowledge

Definition: Attitudes that medical students should have towards fundamental knowledge during their academic phase.

Coding: Comments on the importance of mastering basic knowledge for medical students are included, with keywords like “build a strong foundation” or “accumulate knowledge.”

Example: “Master basic knowledge well; it will be useful for exams.” (0201 2023.10.25)

Regarding Practical Learning

Definition: Attitudes and methods for medical students to approach practical learning during clinical practice.

Coding: Comments on practical learning approaches for medical students are included, with keywords like “more practice” or related semantics.

Example: “Practical experience accumulates over time. Initially, I did not grasp everything, but now I have a clear understanding of disease progression and medication.” (0201 2023.10.25)

Correct Attitude Towards the Profession

Definition: The mindset medical students should adopt towards their future profession.

Coding: Comments on the correct attitude towards the medical profession are included, with keywords like “long-term effects” or “perseverance.”

Example: “As a doctor, you need to stay focused and not be distracted by fame and fortune.” (0203 2023.10.25)

Limitations of Rural Environment

Definition: How the rural work environment can limit personal development.

Coding: Comments on the disadvantages of working in rural hospitals are included, with keywords like “limited opportunities” or “further education.”

Example: “Regarding educational background, you should still aim to improve it if possible.” (0201 2023.10.25)

9. Suggestions for Improvement in Medical School Education

Key Subjects to Master

Definition: Key subjects and courses that students should focus on and that teachers should improve for better teaching outcomes.

Coding: Comments on essential subjects for medical students are included, with fields related to various course subjects.

Example: “Especially focus on ‘Anatomy,’ ‘Diagnosis,’ and ‘Pathology,’ and emphasize differential diagnosis.” (0203 2023.10.25)

Medical Humanities Education

Definition: The process of focusing on and cultivating medical personnel's humanities qualities and ethical awareness.

Coding: Comments on medical humanities education are included, with keywords like “doctor-patient communication” or “empathy.”

Example: “Schools should strengthen ideological and hardship education. One cannot succeed without experiencing hardship. Schools should also tailor education to individual needs and teach students to have compassion.” (0203 2023.10.25)

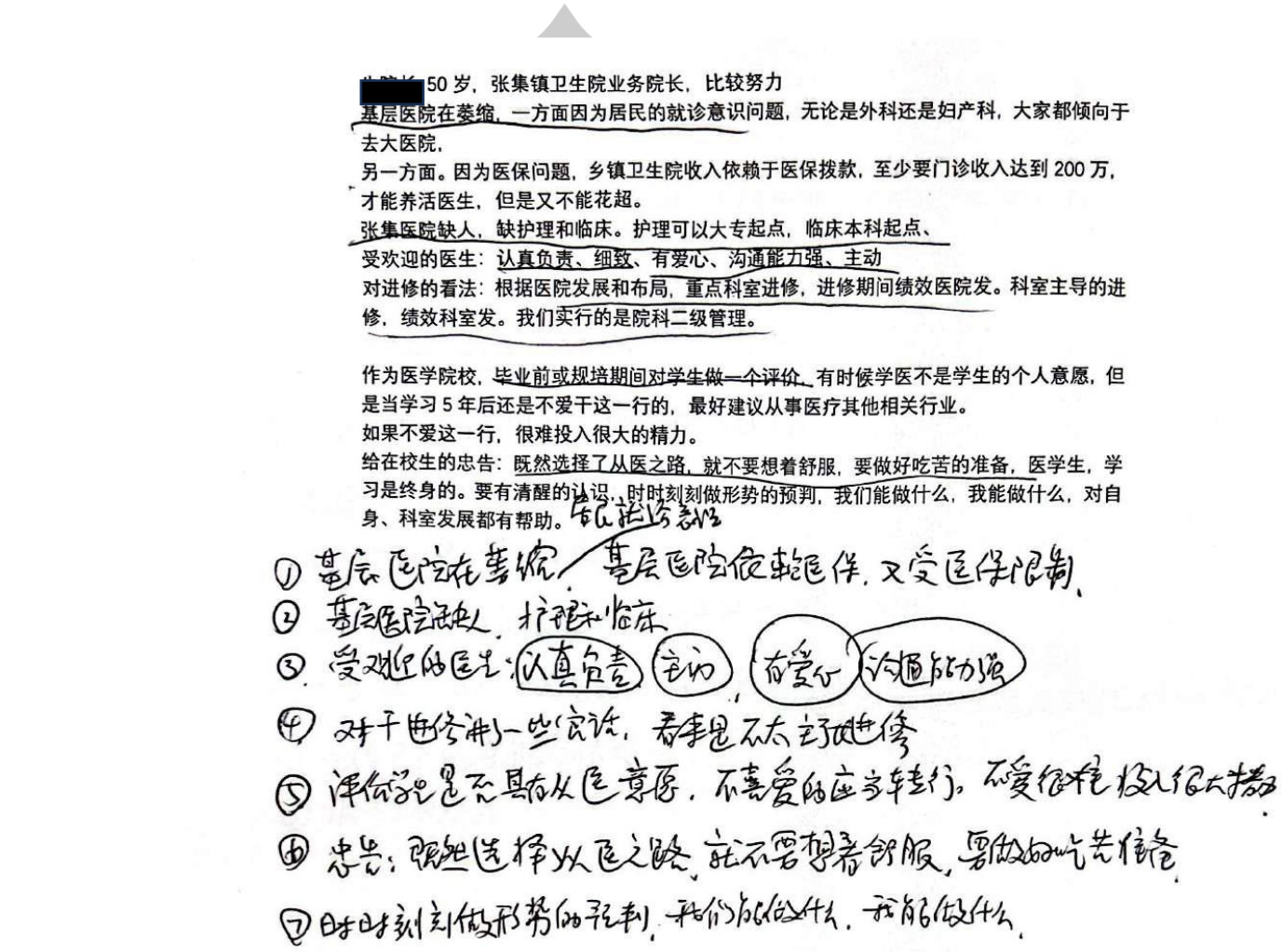
Teaching Methods

Definition: Effective methods that teachers should use to promote students' understanding and acquisition of knowledge.

Coding: Comments on teaching methods are included, with keywords like “multimedia” or “guidance.”

Example: “I prefer teachers to deliver lectures in a structured manner. Schools should help students gain more observation and internship opportunities and interact with more patients.” (0207 2023.10.24)

Coding Process of Interview Data with Town院长 Directors



[redacted]50岁，张集镇卫生院业务院长，比较努力
基层医院在萎缩，一方面因为居民的就诊意识问题，无论是外科还是妇产科，大家都倾向于去大医院，
另一方面。因为医保问题，乡镇卫生院收入依赖于医保拨款，至少要门诊收入达到200万，才能养活医生，但是又不能花超。
张集医院缺人，缺护理和临床。护理可以大专起点，临床本科起点、
受欢迎的医生：认真负责、细致、有爱心、沟通能力强、主动
对进修的看法：根据医院发展和布局，重点科室进修，进修期间绩效医院发。科室主导的进修，绩效科室发。我们实行的是院科二级管理。

作为医学院校，毕业前或规培期间对学生做一个评价，有时候学医不是学生的个人意愿，但是当学习5年后还是不爱干这一行的，最好建议从事医疗其他相关行业。
如果不爱这一行，很难投入很大的精力。
给在校生的忠告：既然选择了从医之路，就不要想着舒服，要做好吃苦的准备，医学生，学习是终身的。要有清醒的认识，时时刻刻做形势的预判，我们能做什么，我能做什么，对自身、科室发展都有帮助。

① 基层医院在萎缩，基层医院依赖医保，又受医保限制。
② 基层医院缺人，护理和临床
③ 受欢迎的医生：认真负责，主动，有爱心，沟通能力强
④ 对于进修，一些意见，看来是不太支持进修
⑤ 评价学医是不是本人意愿，不喜爱的应当转行，不爱很难投入很大精力
⑥ 忠告：既然选择从医之路，就不要想着舒服，要做好吃苦准备
⑦ 时时刻刻做形势的预判，我们能做什么，我能做什么

自爆原来也是学渣，在二院进修一年，成长很大	基层医院在萎缩，居民就诊意识问题，基层医院依赖医保，只受医保限制	规培过的学生能力很强，很多都已经提拔干部了	毕业生积极性不高	毕业生业务能力不高，沟通能力不强，不易融入集体	基层医生不仅要懂临床，还要会公卫	现在的学生与之前的比有差距，尤其是实践能力	平台固然重要，个人努力更重要	缺临床医生和公卫医生
本科生在基层有点浪费，中专大专就够了	基层医院缺人，护理和临床	规培时间太长了，实习只要严格就行了，定科室培训一次，升完主治发展亚专科培训一次就行了	院校可以加强《诊断学》《内外妇儿》《传染病》的教学	不愿意奉献	家庭医生团队是全科医生牵头，得熟悉个方面工作	学习态度不端正，不来实习	基层对医生的要求更高，要有善良的心，要懂心理	无锡每家医院都在创特色，我们医院搞了很多特色
刚毕业的学生理论基础好。但是临床诊疗思维和沟通能力不好	受欢迎的医生：认真负责、主动、有爱心、沟通能力强	大专足够，尤其是影像专业	临床课程多一些，基础课程少一些	社会价值导向不正确，功利心太强	公卫和全科医生很缺	服务意识服务态度很重要	价值感体现在和病人的接触中并被认可	家庭医生制度在无锡受欢迎，因为有额外收入
沟通能力特别重要（举例）	医院主导的进修，医院发工资，科室主要的进修，科室发工资	医保对基层医疗限制很大，4个月没发奖金	重点在于实习，规培和毕业后进修	医院进人不易	本院注重梯队建设	院校所学的科目都很重要，包括《英语》、《生理》《生化》	学校引导加强学习态度	在校阶段两个重点：基础知识，沟通能力（社会适应能力）
新手医生还是要手写大病历，至少5年，有助于建立诊疗思维	雪西年后，评估一下学生党医生的医院，不愿意的不要勉强当医生，不爱恨南收入很大精力	流失了不少人才	课堂上不要照本宣科，要多用案例	规培时间太长，一年半就够	基层属于公益事业，收支两条线，待遇不错	规培时扎实基本技能	进修比院校教育、规培都更重要，更有针对性	年轻医生要勤奋、要有切实可行的途径达到目标，要及时反思改进
先别规培，毕业之后现在临床，在去规培	忠告：既然选择了从医，就不要想着舒服，要做好吃苦准备		基层医疗设备简单，医生基本功要扎实，鉴别诊断，体格检查	在校期间要好好培养价值观以及沟通能力	院校应注重人文沟通人文关怀	基层医生技术比大医院医生牛	规培的三年，可以中途回医院工作一段时间，在规培，	
全科医生不用每一科都规培，常见病摸透就够	时时刻刻做形式的预判，我们科室能做什么，我能作为什么，是否具有不可替代性		加强责任心教育，对病人负责，"视病人如亲人"		院校可来基层开展培训	在校期间，思想态度要端正，沟通能力，人文素养抓上来	对基层医生来说，临床科目都很重要，包括《眼科》《五官》《皮肤》	

Coding Process of Interview Data with rural grassroots doctors

有了孩子，顾忌家庭多一点。

觉得规培和真正的临床存在脱节（学了用不上），因为集中采购药片，很多药没有，检查也做不了，工作没法开展。

利国的日常工作很繁琐，得创建，得临床，得医保查房，得给病人退费。

大学时，学习以考试突击为主，规培时自学的东西更有用，

内外妇儿、全科医学概论，精神病，诊断这几门学科更重要。

对高数的格林老师，寄生虫的郑葵阳，伦理学的田芳印象最深，
中医、儿科、影像只划了重点

给老师提意见：

虽然理论性强，但也可以讲得生动一些。

医生们不愿意主动进修，耽误拿钱。

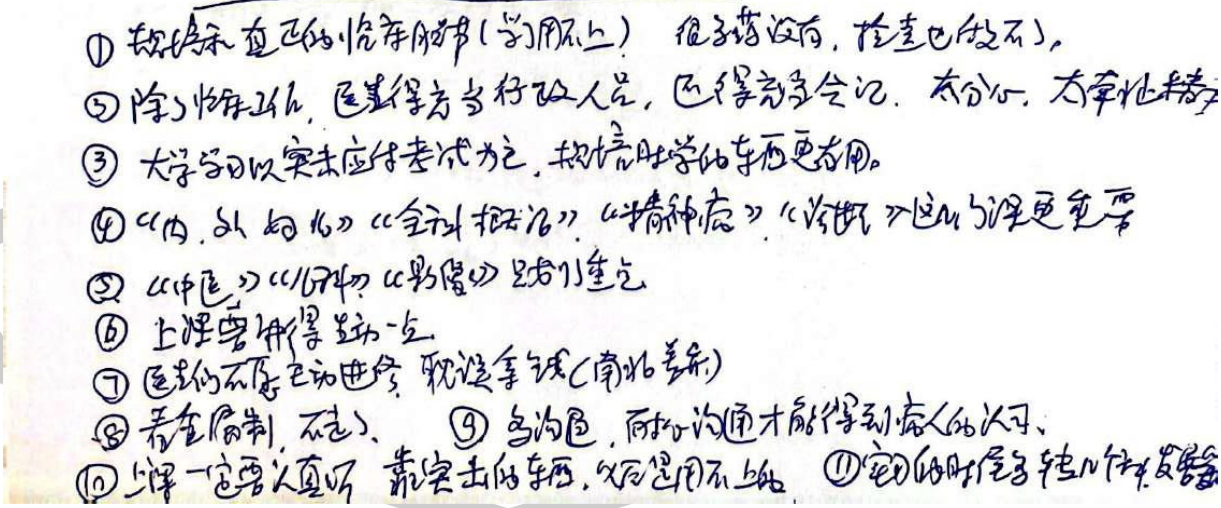
朱秀不走了，现在基层编制都满了，再来就是同工同酬，是编制留住了她们。但下几届呢？
什么能留住她们？徐州人还是很看重编制啊，和山东一样。

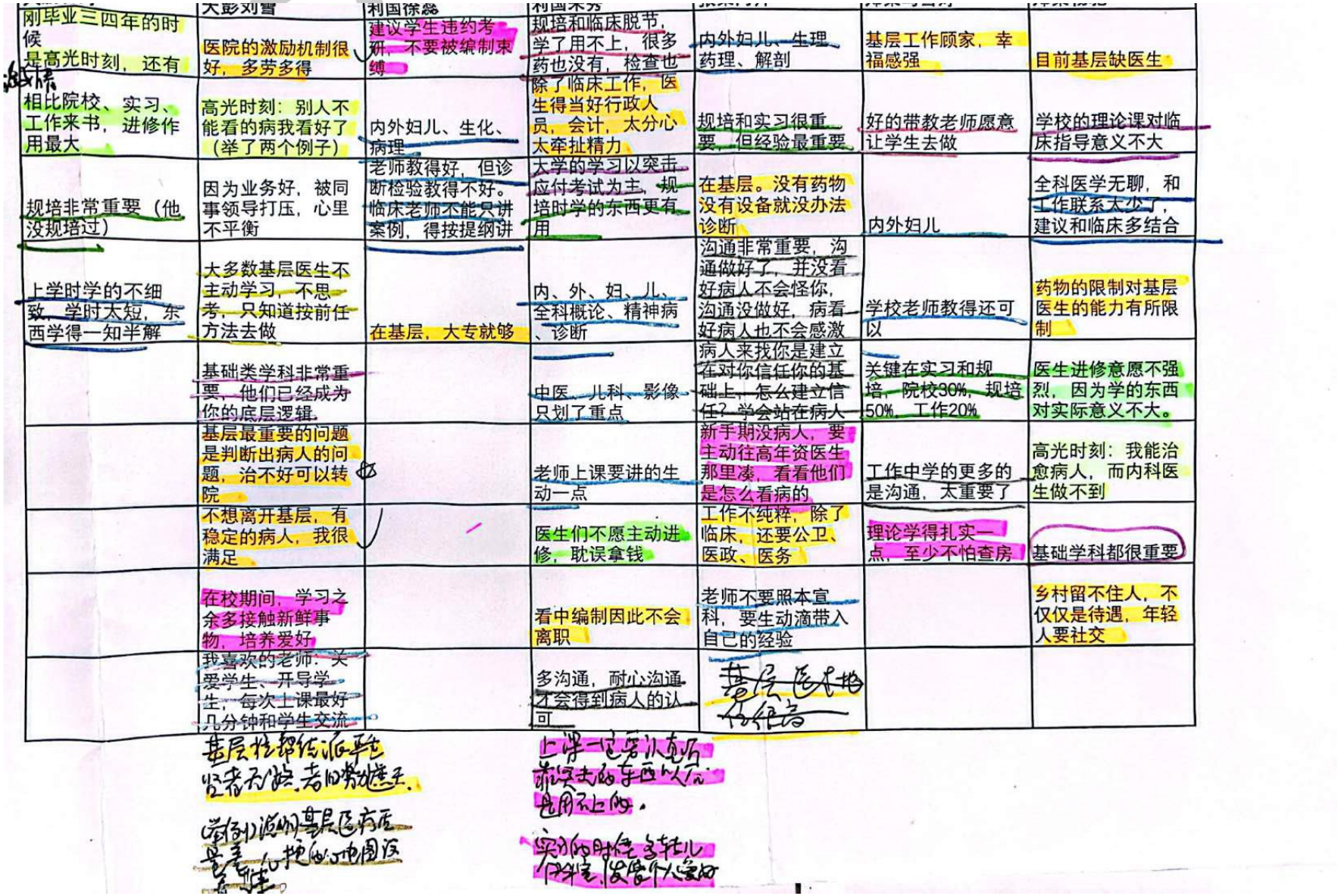
给学弟学妹的建议：多沟通，耐心沟通才能得到病人的认可。
有时看着病人可怜，想主动减免他们费用。

平时能积累的东西，上课一定要认真听。靠突击的东西，以后是用不上的。

当时觉得大学生活枯燥，现在觉得大学生活美好。

实习的时候好好学，多转几个科，发展一下自己的兴趣爱好。





大彭刘曹	利国徐燕	利国宋芳				
刚毕业三四年的时候是高光时刻，还有	医院的激励机制很好，多劳多得	建议学生违约考研，不要被编制束缚	规培和临床脱节，学了用不上，很多药也没有，检查也	内外妇儿、生理、药理、解剖	基层工作顾家，幸福感强	目前基层缺医生
相比院校、实习、工作来书，进修作用最大	高光时刻：别人不能看的病我看好了（举了两个例子）	内外妇儿、生化、病理	除了临床工作，医生得当好行政人员，会计，太分心太牵扯精力	规培和实习很重要，但经验最重要	好的带教老师愿意让学生去做	学校的理论课对临床指导意义不大
规培非常重要（他没规培过）	因为业务好，被同事领导打压，心里不平衡	老师教得好，但诊断检验教得不好。临床老师不能只讲案例，得按提纲讲	大学的学习以突击应付考试为主，规培时学的东西更有用	在基层。没有药物没有设备就没办法诊断	内外妇儿	全科医学无聊，和工作联系太少了，建议和临床多结合
上学时学的不细致，学时太短，东西学得一知半解	大多数基层医生不主动学习，不思考，只知道按前任方法去做	在基层，大专就够	内、外、妇、儿、全科概论、精神病、诊断	沟通非常重要，沟通做好了，并没看好病人不会怪你，沟通没做好，病看好病人也不会感激	学校老师教得还可以	药物的限制对基层医生的能力有所限制
	基础类学科非常重要，他们已经成为你的底层逻辑		中医、儿科、影像只划了重点	病人来找你是建立在对你信任你的基础上，怎么建立信任？学会站在病人	关键在实习和规培，院校30%，规培50%，工作20%	医生进修意愿不强烈，因为学的东西对实际意义不大。
	基层最重要的问题是判断出病人的问题，治不好可以转院		老师上课要讲的生动一点	新手期没病人，要主动往高年资医生那里凑，看看他们是怎么看病的	工作中学的更多的是沟通，太重要了	高光时刻：我能治愈病人，而内科医生做不到
	不想离开基层，有稳定的病人，我很满足		医生们不愿主动进修，耽误拿钱	工作不纯粹，除了临床，还要公卫、医政、医务	理论学得扎实一点，至少不怕查房	基础学科都很重要
	在校期间，学习之余多接触新鲜事物，培养爱好		看中编制因此不会离职	老师不要照本宣科，要生动滴带入自己的经验		乡村留不住人，不仅仅是待遇，年轻人要社交
	我喜欢的老师：关爱学生、开导学生，每次上课最好几分钟和学生交流		多沟通，耐心沟通才会得到病人的认可	基层医生培养		

Photos of interviews

Photos of Action research (narrative sharing)

Photos of online meeting with graduates

Photos of watch film and film review

Sample paper of film review

Pre-test

作业 20220318

答题人：郑天悦　　提交时间：2022-03-23 11:31:19　　作业得分：0 分

1.这个电影拍的好不好？为什么？

学生答案：好。

电影的主人公皮埃尔是一个乡村医生，每天都在出诊和坐诊，为村民们看病，这样的生活，他过了 20 年。作为一个医生，他真正做到了为病人提供可及性服务这一准则。

在他就诊时，他对每一位患者的情况都很了解，交流过程中，他也没有因为自己的医生身份而有高高在上，有不耐烦的感觉流露，反而耐心倾听，真诚相待，设身处地的为病人着想，从女病患毫不犹豫的脱了衣服检查这一细节就可以看出，所有病患和家属都很信任他，“非他不可”。

当他身患疾病，女主人公娜塔莉出现了，也许她一开始没有获得皮埃尔和村民的全心信任，但从她帮助皮埃尔做的件件事情中可以看出，她不仅希望自己被认可，她更热爱自己的职业，更希望帮助病人解除痛苦，她拥有很好的人文关怀精神。例如，面对疑似智障的孩子，她没有嫌弃不耐，而是主动与他交流，参与他的爱好，了解他，温暖他，最后发现，这个孩子其实是自闭症患者。娜塔莉用自己的陪伴了解，为这个孩子和他的家人解答了疑惑，也指明了未来如何与他相处的路。

无论作为全科医生还是普通医生，我们都要牢记为人民服务的使命，想起现在有些大医院医生的态度冷漠，不由唏嘘。我认为，一个优秀的医生并不仅仅在于他的专业知识技术，而更在于他的医德修养，他对病患的感同身受，他的人文关怀精神。如同皮埃尔和娜塔莉那样，对工作热情敬业，对病患和蔼真诚，这样，会不会少一些讳疾忌医的患者，会不会少一些医患纠纷的发生，会不会让疾病变得少一些黑暗和恐惧呢。

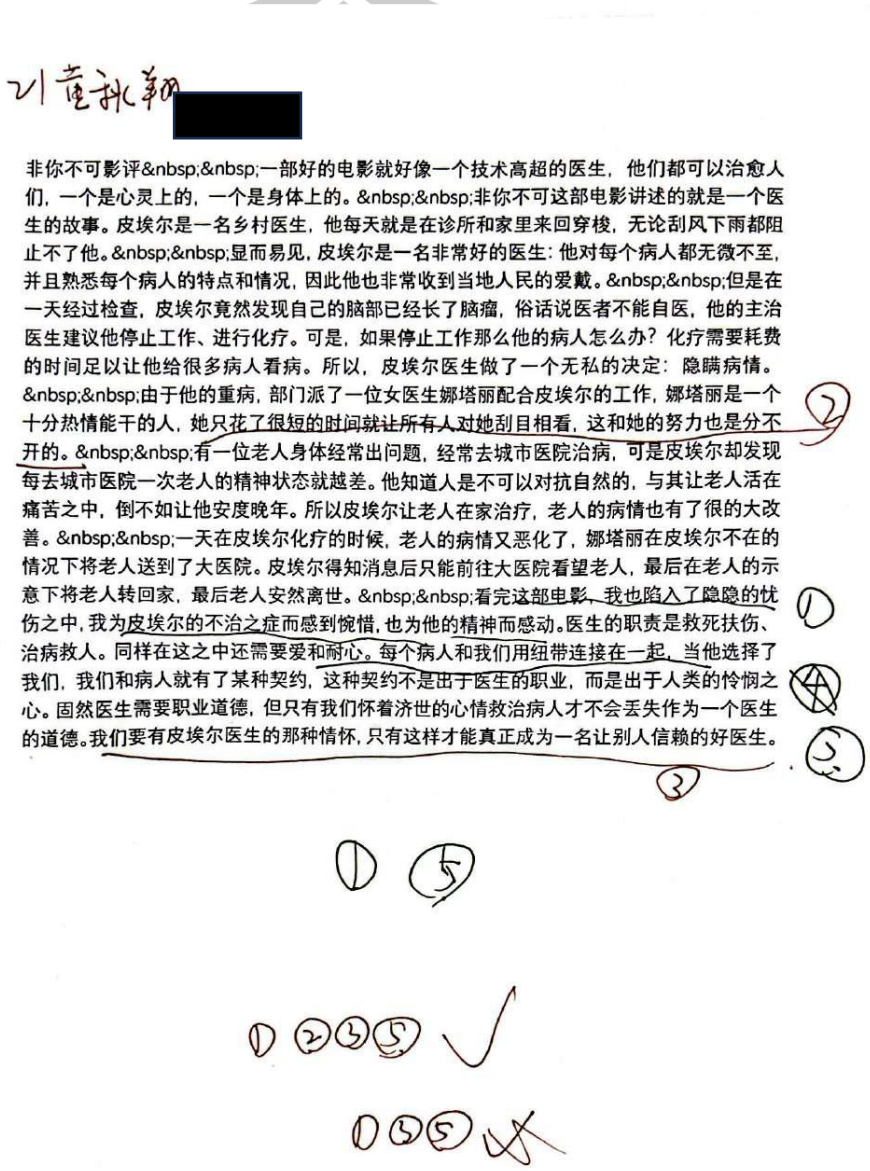
正确答案：

教师批语：写得好！棒

作业批语：

Sample paper of film review

Cycle 1



非你不可影评 一部好的电影就好像一个技术高超的医生，他们都可以治愈人们，一个是心灵上的，一个是身体上的。 非你不可这部电影讲述的就是一个医生的故事。皮埃尔是一名乡村医生，他每天就是在诊所和家里来回穿梭，无论刮风下雨都阻止不了他。 显而易见，皮埃尔是一名非常好的医生：他对每个病人都无微不至，并且熟悉每个病人的特点和情况，因此他也非常收到当地人民的爱戴。 但是在一天经过检查，皮埃尔竟然发现自己的脑部已经长了脑瘤，俗话说医者不能自医，他的主治医生建议他停止工作、进行化疗。可是，如果停止工作那么他的病人怎么办？化疗需要耗费的时间足以让他给很多病人看病。所以，皮埃尔医生做了一个无私的决定：隐瞒病情。 由于他的重病，部门派了一位女医生娜塔丽配合皮埃尔的工作，娜塔丽是一个十分热情能干的人，她只花了很短的时间就让所有人对她刮目相看，这和她的努力也是分不开的。 有一位老人身体经常出问题，经常去城市医院治病，可是皮埃尔却发现每去城市医院一次老人的精神状态就越差。他知道人是不可以对抗自然的，与其让老人活在痛苦之中，倒不如让他安度晚年。所以皮埃尔让老人在家治疗，老人的病情也有了很的大改善。 一天在皮埃尔化疗的时候，老人的病情又恶化了，娜塔丽在皮埃尔不在的情况下将老人送到了大医院。皮埃尔得知消息后只能前往大医院看望老人，最后在老人的示意下将老人转回家，最后老人安然离世。 看完这部电影，我也陷入了隐隐的忧伤之中，我为皮埃尔的不治之症而感到惋惜，也为他的精神而感动。医生的职责是救死扶伤、治病救人。同样在这之中还需要爱和耐心。每个病人和我们用纽带连接在一起，当他选择了我们，我们和病人就有了某种契约，这种契约不是出于医生的职业，而是出于人类的怜悯之心。固然医生需要职业道德，但只有我们怀着济世的心情救治病人才不会丢失作为一个医生的道德。我们要有皮埃尔医生的那种情怀，只有这样才能真正成为一名让别人信赖的好医生。

Sample paper of film review

Cycle 2

22 王村 [redacted]

《非你不可》这部电影拍的很真实，很形象，很具体。它展现了我们全科医生与病人之间独一无二的纽带关系。

《非你不可》这部电影有我很多印象深刻的细节，皮埃尔医生自己脑部长了恶性肿瘤，皮埃尔的主治医生让他停止工作，同时进行放疗和化疗。但皮埃尔医生的选择是，暂不放疗，一边化疗，一边工作，而且隐瞒自己的病情，不告诉任何人，包括他在巴黎的妻子和儿子。这可以看出皮埃尔医生割舍不了自己的病人，对自己的工作极其负责。

有位老人 92 岁了，身体经常出毛病，一旦发病，多项指标都达到急救的标准，按照医疗规范，应该立即转入城市医院住院治疗。皮埃尔医生观察到，每住院一次，老人的身体状况就下降一次，精神状态也相应衰减，根本达不到维持现状的效果。为此，皮埃尔采取在家中治疗的方法，在病人熟悉的环境里休养，这样以病人为中心的治疗方法，有效地减轻了患者的症状，尽量让老人恢复到病前的状况。 有一次，皮埃尔在接受化疗时，老人又犯病了，娜塔莉出诊，在病情危急的情况下叫了急救车，将老人送到城市医院。皮埃尔听说后，也无话可说，只是自己几次去医院探视，发现老人生不如死，在老人的示意下，他偷偷地将老人转移回家，最后在家中安然离世。看以皮埃尔医生对自己的病人进行了非常充分的人文关怀。

后来皮埃尔医生认可了娜塔莉护士，娜塔莉告诉皮埃尔医生要利用信息技术好查阅病人基本资料，但皮埃尔医生跟塔娜莉证明不借助信息系统也可以很快找到。于是皮埃尔在塔娜莉每次提名字，都可以迅速精准找到病人资料。两个人都心照不宣的笑了。可以看出皮埃尔医生对于病人的细心。

看完这部电影后我想成为像皮埃尔医生一样优秀的医生。首先我们必须要在学习阶段培养夯实的知识技能，这是作为医生最基本要完成的东西。

其次我们要具有全心全意为病人服务的思想。作为一名合格的医生要有高度的同情心、责任感。当你面对每一个病人时，不论贫富贵贱，你要用百分百的责任心去面对他，因为你面对的是病人最宝贵的生命。

团队合作是完成良好治疗的保证。我们无论生活、工作、娱乐都离不开人与人之间的配合与合作，当医生更是如此。一个医术再高明的医生，也必须要有其他医护人员的配合才能完成各项医疗任务。所以，一个人如果缺乏与他人合作的精神和能力，他不仅在事业上不会有所建树，甚至连适应社会都会感到困难。艺术的服务。作为医生不光会处理临床问题，更要面对更多其他问题；来自不同地区的病人情况可能都不同，只有与病人及家属多沟通，进行深层次的讨论，才能正确把握病情。沟通体现在两方面：首先是"听"，聆听病人及家属的声音；同时交流还可以减少临床上非常多的误会。不容易沟通的病人你得给他时间，耐心、耐心、再耐心。

对职业的热爱是做好医生的基础。做医生面对生命，责任重大，除了职业本身的要求，我还得对它热爱，只有这样，我才能成为好医生。

最后的最后，我想说医生之路，道阻且长我会尽自己的最大努力走好这一路！为了我们的祖国和人民！

Course evaluation

Cycle 1

2| 临走

回忆一下《全科医学概论》这门课，给各个模块打个分。

给高血压患者开歌单，0 分最低，10 分最高。

1	2	3	4	5	6	7	8	9	10
									✓

和毕业学长的云端见面会

1	2	3	4	5	6	7	8	9	10
									✓

法国电影《非你不可》和影评

1	2	3	4	5	6	7	8	9	10
									✓

聊聊你和全科医学的故事

1	2	3	4	5	6	7	8	9	10
									✓

如果把医疗服务比作一杯奶茶，医学人文精神比作奶茶里的糖分，那么请你制作四杯奶茶。

第一杯：你觉得现实的医疗服务这杯奶茶中，医学人文的糖分有多少？

第二杯：你理想中，医疗服务这杯奶茶中医学人文应该是几分糖才会让这杯奶茶更好喝？

第三杯：从成为一名医学生以来，你所接触的所有医学课程，平均下来，医学人文的糖分有多少？

第四杯：不吹不黑，你觉得《全科医学概论》这杯奶茶中，医学人文的含糖量多少？

Course evaluation

Cycle 2

回忆一下《全科医学概论》这门课，给各个模块打个分。

和毕业学长的云端见面会

1	2	3	4	5	6	7	8	9	10
									✓

法国电影《非你不可》和影评

1	2	3	4	5	6	7	8	9	10
								✓	

聊聊你和全科医学的故事

1	2	3	4	5	6	7	8	9	10
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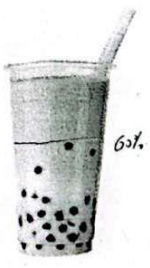

22 临定

CERTIFICATE OF APPROVAL

MAHASARAKHAM UNIVERSITY ETHICS COMMITTEE FOR RESEARCH INVOLVING HUMAN SUBJECTS

Certificate of Approval

Approval number: 409-363/2023

Title : Demand oriented improvement of rural grassroots doctors training system in Jiangsu Province.

Principal Investigator : Miss. Yan Wenjun
Responsible Department : Faculty of Public Health
Research site : Xuzhou medical University, Jiangsu Province, China

Review Method : Expedited Review

Date of Manufacture : 5 October 2023 **expire :** 4 October 2024

This research application has been reviewed and approved by the Ethics Committee for Research Involving Human Subjects, Mahasarakham University, Thailand. Approval is dependent on local ethical approval having been received. Any subsequent changes to the consent form must be re-submitted to the Committee.

.....

(Associate Professor Vorapoj Promasatayaprot)
Vice Chairman

Approval is granted subject to the following conditions: (see back of this Certificate)

BIOGRAPHY

NAME	Ms.Wenjun Yan
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EDUCATION	2006 The bachelor degree of medicine Nantong University, Nantong, Jiangsu Province. 2011 The master degree of epidemiology Xuzhou Medical University, Xuzhou, Jiangsu Province. 2024 The Doctor degree of Public Health, Faculty of Public Health, Mahasarakham University, Thailand.
Research grants & awards	1. In 2021, key project of the "Fourteenth Five-Year Plan" of Jiangsu Province's educational science: "Exploration of a demand-oriented rural grass-roots health talent training system from the perspective of strengthening the grass-roots level", project approval number: B/2021/01/29 2. In 2018, Jiangsu University Philosophy and Social Sciences Research Project: "Research on the Work Status of Rural Order-oriented Medical Graduates", with the approval number of 2018SJA0975 3. In 2016, the special teaching reform project of clinical medicine specialty of Xuzhou Medical University, "Teaching Exploration Integrating Course Learning and Professional Education". Project No: Xjyppzx201613
Research output	1.Yan W, Gao X, Wang W, et al. Job satisfaction of graduates of rural oriented medical students training project in Jiangsu Province, China: a cross-sectional study[J]. BMC Medical Education,2022,22(1). 2. Yan W, Sun G. Income, workload, and any other factors associated with anticipated retention of rural doctors? Prim Health Care Res Dev. 2022 Mar 2;23:e12. doi: 10.1017/S1463423621000839. PMID: 35232522; PMCID: PMC8919182. 3. Yan Wenjun, Lu Zhaojun, Gao Xiuyin. The current situation and exploration of "3+2" rural order-oriented specialized medical personnel training in Xuzhou Medical College [J]. Journal of Community Medicine, 2016,14

(15): 23-26
4. Yan Wenjun, Gao Xiuyin, Lu Zhaojun. Investigation on the current situation of cognition and career choice intention of clinical medicine undergraduates [J]. Health Vocational Education, 2018, 036 (001): 107-109