The medical education systems in China and Thailand: A comparative study

Aihong Mei1 | Dingwei Gao2 | Jinxia Jiang3 | Tingting Qiao2 | Fang Wang4 | Dan Li2,5

1Teaching Department, Tenth People’s Hospital, Tongji University School of Medicine, Shanghai, China
2Department of Nuclear Medicine, Tenth People’s Hospital Affiliated to Tongji University, Shanghai, China
3Emergency Department, Tenth People’s Hospital, Tongji University School of Medicine, Shanghai, China
4Neurosurgery Department, Tenth People’s Hospital, Tongji University School of Medicine, Shanghai, China
5Department of Nuclear Medicine, Sun Yat-sen Memorial Hospital, Sun Yat-sen University, Guangzhou, China

Correspondence
Dan Li, Department of Nuclear Medicine, Sun Yat-sen Memorial Hospital, Sun Yat-sen University, 510289 Guangzhou, China; Department of Nuclear Medicine, Tenth People’s Hospital Affiliated to Tongji University, 200072 Shanghai, China. Email: plumredlinda@163.com

Fang Wang, Neurosurgery Department, Tenth People’s Hospital, Tongji University School of Medicine, 200072 Shanghai, China. Email: wangfang5234@126.com

Abstract

Background and Aims: Both China and Thailand attach great importance to education and are committed to high educational standards on an international level. Our study is to compare the medical education reforms that have occurred in China and Thailand to further improve the medical education system in China.

Methods: Through a search of official documents and prior studies, as well as consultation with Thai students studying in China, we gathered data regarding the evolution of the medical education systems in China and Thailand. The aggregate materials are incorporated into the summary and analysis.

Results: Over 200 journals and literature were analyzed retrospectively. Thailand’s medical education reforms encompass Western strategies without neglecting domestic cultural factors and priorities, and a standardized and medical education system has been established. Chinese medical education reform has yielded remarkable results, though further improvements remain necessary.

Conclusion: Reforms of Thailand’s medical education system offer important experiences and lessons for China, that the development of medical education needs to absorb the merits of others and also needs to have its own national characteristics. The key to medical education reform in China lies in the establishment of a system that is dedicated to science, while also serving its primary purpose of training high-level medical talent that can meet the needs of Chinese society.

KEYWORDS
China, education reform, educational differences, medical education, Thailand, training modes

1 INTRODUCTION

The unique cultures of different countries and nationalities are directly reflected through education. The 19th National Congress of the Communist Party of China (CPC) report emphasized the establishment of a country that plays a leading role in education. This goal is a fundamental target for the rejuvenation of China. At present, Chinese higher medical education is booming, and its continued success is fundamental to ensure the training of an adequate supply of high-level medical talent in China. Strengthening
medical student training is a top priority to maintain the continued rapid development of China's healthcare system. In gradually improving the quality of medical talent, the life and health of Chinese people will improve. Reforms to medical education in China over several years have resulted in a multilevel and multistandard framework medical education system, and the reforms have yielded remarkable results. Therefore, it is important to reflect on the concepts and innovations utilized by both China and neighboring countries to better understand the reform process and improve the training of medical students with Chinese characteristics.

The internationalization of higher education mandates the introduction and understanding of a foreign culture. However, in developing educational strategies, it is important not to forget one's own culture, and to therefore ensure that learning objectives adhere to cultural dogma. To balance these principles requires the comprehensive coordination of the "bringing in" with the "going out." In this way only can the training of top talent occur. Through comparative analysis of higher medical education between China and neighboring countries, advantageous approaches can be identified. Such a strategy is conducive to the cultivation of high-quality medical talent that can meet China's social needs, smooth implementation of China's medical education reforms, and internationalization of China's medical education system.

Since ancient history, China and Thailand have been close, with a continuous flow of goods and services between the two countries. China and Thailand are similarly closely linked in terms of history, culture, customs, and so forth, and the two countries have enjoyed close political, economic, and cultural exchanges. In the new era, the two countries also attach great importance to education and are committed to international education standards. However, from an international perspective, higher education in the two countries differs dramatically, with each country stressing their own cultural characteristics greatly. The present study, through comparative analysis of the similarities and differences between the medical education systems of the two countries, extracts the essence of these differences and discards the dross. Under the premise of retaining one's own cultural and educational sovereignty, we attempt to learn from the strategies that Thailand used to internationalize its higher education system. Such lessons we hope will further accelerate the pace of internationalization of China's own medical education system.

In addition, relevant information and materials from the sources of published and distributed medical education monographs, medical education institutions, medical education seminars, and information exchange were analyzed.

2.2 | Research methods

2.2.1 | Search methods

Keywords including “Chinese medical education,” “Thai medical education,” and “differences in educational systems between China and Thailand” were searched using the China National Knowledge Infrastructure (CNKI), PubMed, the Wan Fang resource databases, and the WIP journal database.

2.2.2 | Comparative approaches

We attempted to analyze the current statuses of higher medical education in China and Thailand by comparing the differences between the systems and training methodologies, determining what reference points exist for higher medical education in China and Thailand, and exploring the direction of reforms to higher medical education with Chinese characteristics.

2.2.3 | Consultation of Thai students studying in China

Two Thai students majoring in medicine at Tongji University in Shanghai, China, described their own personal experiences and feelings regarding their education. These students also provided details of the current medical education system in Thailand through direct description.

3 | DISCUSSION

3.1 | Medical education in China

3.1.1 | A need for a more humanistic approach

The breadth of humanities education at medical schools in China is currently inadequate. The College Entrance Examination is essentially the only way for students to engage in a medical career in China. At present, only students majoring in science can apply to clinical medicine programs. These programs consist of 5 years of medical undergraduate coursework. Colleges typically maintain relatively standardized requirements for medical students. Generally, students can meet the requirements of colleges by learning relevant basic theories and completing clinical coursework. However, humanities-based coursework tends to be neglected. For example, at Tongji
University, knowledge-based material accounts for more than 70% of total credits required to graduate. Therefore, medical students in China lack sufficient exposure to humanities. Recently, China's higher education administrators have realized that a broader approach to medical education is necessary, and that the study of complementary disciplines, including mathematics, physics, and other basic subjects, will enhance professional medical learning. Administrators are also gradually beginning to understand the benefits of studying humanities as a part of medical education.1–3

3.1.2 | Educational system and tuition

Medical training in China can be divided into three stages: bachelor of medicine, master of medicine, and doctor of medicine. The master and doctor of medicine stages can be further subdivided into professional degree (clinical) and scientific degree (scientific research) tracks. Students typically follow a 5 + 3 + 4-year plan, which includes a 5-year bachelor's program, a 3-year master's program, and a 4-year doctorate program.

Annual tuition for a Chinese medical student ranges from 6000 to 12,000 RMB. Annual tuition for a Chinese undergraduate student is at least 6000 RMB. This increases to approximately 8000–12,000 RMB for master's and doctoral students. Every year, the Central People's Government pays 6000 RMB in the form of national grants and scholarships to each graduate student, and some colleges refund postgraduate (master and doctorate programs) tuitions in the form of scholarships, thereby reducing the economic burden on medical students and encouraging students to continue their educations. Compared with the higher tuitions in other countries that hinder medical students from completing a medical education, the low tuitions in China give even students who come from low-income families the chance to become a physician. Additionally, students from low-income families can apply for financial aid to continue their studies and carry out research in certain medical fields.

3.1.3 | Undergraduate and postgraduate education in the medical sciences

**Undergraduate education**

China's medical undergraduate education system follows a traditional educational model, that is to say, teacher-oriented practices receive high priority, and the development of basic theory skills and knowledge is disjointed from clinical practice, which is not conducive to the enhancement of clinical skills. Undergraduate curricula are aimed at training outstanding medical talent over three stages that include 2 years of basic medical courses, 2 years of specialized clinical courses, and 1 year of clinical internship (shown in Table 1). Course content is mainly concerned with dispensing medical knowledge, though it is supplemented with medical ethics, an introduction to medicine, healthcare policy, and other subjects in the humanities. The proper combination of medical courses and humanities courses allows for the training of high-level medical talent with a solid background in theoretical knowledge and high-level humanistic qualities. The importance of a humanities education has been widely recognized in China. Medical colleges and universities have begun to emphasize the teaching of humanistic qualities, leading to an increase in both the quantity and quality of humanities courses at Chinese medical schools.4 However, medical humanities courses still only account for 7%–8% of total coursework, resulting in a serious gap between basic science training and training in the humanities.5

Clinical internship accounts for the final year of medical education. Students perform their internships at hospitals for 12 or 14 months with the practical goals of learning clinical thinking, clinical operator abilities, and doctor–patient communication. These skills are essential for the development of qualified doctors. Students also rotate through different departments depending on their majors, to obtain targeted training. During the internship, medical students consolidate their medical theory-based knowledge, in addition to applying that knowledge to clinical practice.

Throughout the internship, medical students mostly shadow their attendings working in clinical departments. However, in China, as the number of patients is large, there is an inevitable effect on the training of medical students. With endless outpatient services and surgeries, teachers rarely have sufficient time to discuss cases with students. Although this problem is not easily solvable, it is a pressing need to improve the efficacy of clinical training.

**Postgraduate education**

In 2010, the National Health and Family Planning Commission of the People's Republic of China instituted a standardized training system, with the goal that such a system would play a pivotal role in the training of medical students following their graduation. The legislation stipulated that undergraduate and master's degree research graduates would require at least 3 years of practical clinical training before beginning independent clinical work. The newly instituted training systems improved practitioners' professional skills, enhanced their clinical skills, and boosted their experience in many aspects. However, long-term tedious medical training may discourage medical students. In addition, the system for the training of medical residents lacks unity and authoritative institutions and thus, still needs to be improved further.

3.2 | Medical education in Thailand

3.2.1 | Medical colleges in Thailand

Thailand is a middle-income country with 63 million people and 12 medical colleges, four of which are in rural areas. The remaining medical schools are in Bangkok or its suburbs. Each college annually enrolls 60–250 students. The educational system is divided into 5- and 6-year tracks, where the 6-year track students begin medical school following graduation from high school, while the 5-year track students already hold a bachelor's degree before enrollment.6–8
Modern higher medical education in Thailand is not a direct copy of Western medical education systems, but rather a unique medical education system that pays homage to national economic and cultural priorities. However, Western elements have not been completely discarded. In the process of developing their system of higher education, the Thais have adopted certain elements of Western culture that meet the needs of the Thai people. As such, the Thais have extracted certain relevant aspects from the medical education systems of the United Kingdom and the United States.9

After years of healthcare reform, Thailand has made remarkable achievements in medical education, and its system now has a large influence on the Asian region. Chulalongkorn University in Bangkok, for example, is a university with an outstanding record in terms of medical education reform. The university is recognized as the pioneer

| TABLE 1 | Medical courses and credits in China and Thailand |
|---|---|
| **Tongji University, China** | **Chulalongkorn University, Thailand** |
| **Courses** | **Courses** |
| **Credits** | **Credits** |
| **The First Year** | Medical English, Chemistry, Medical Physics, Laboratory Chemistry, Basic Biology, Life Processes and Other Subjects (Sociology, Humanities, Mathematics, Science, the Art of Communication) |
| Form and Policy (1), Medical Mathematics (I), CET-4, Ideological and Moral Cultivation and Legal Basis, University Computer, Basic Chemistry, Basic Chemistry Laboratory, Medical Physics, Medical Physics Laboratory, Introduction to Psychology and Behavioral Science, Sports, Military Theory | 36.5 |
| **The Second Year** | **Clinical Thinking, Ethics and Law, Tissue** |
| Form and Policy (2), Outline of Modern Chinese History, VB.NET Programming A, College English Level 5, Medical Mathematics (2), Organic Chemistry Laboratory, Organic Chemistry (Medicine), Systematic Anatomy, Histoembryology, Introduction to Medicine, Early Clinical Practice (1), Physical Education (2), Military Training | 33.5 |
| **The Third Year** | Preventive Medicine, Immunity and Infection, Medical Microbiology and Parasitology, Pharmacology, Clinical Hematology and Infection, Skin and Related Connective Tissue, Skeletal Muscle and Related Connective Tissue, Cardiovascular Disease, Nutrition, Urinary, Respiratory, Reproductive, Clinical Neuroscience, Endocrinology, Healthy Development, Elective Courses |
| Epidemiology, Dermatology and Venereology, Medical Statistics, Traditional Chinese Medicine, Pharmacology, Medical Ethics, Advanced Courses in Pathology, Pharmacology Laboratory, Preventive Medicine, Neurobiology, Comprehensive Diagnostics 1, Pathogenic Biology and Infectious Disease, Surgery, Nuclear Medicine, Literature Search | 29 |
| **The Fourth Year** | Clinical Pharmacology, Basic Clinical Skills, Radiology, Nuclear Medicine, Family and Community Medicine, Forensic Medicine, Medicine, Pediatrics, Surgery, Obstetrics and Gynecology |
| Obstetrics and Gynecology, Otolaryngology, Ophthalmology, Comprehensive Diagnostics 2, Respiratory, Digestive, Pediatrics, Neurology, Emergency Medicine, Evidence-based Medicine, Comprehensive Diagnostics 3, Sports Osteoarthropathy, Endocrinology | 30 |
| **The Fifth Year** | Medicine, Pediatrics, Obstetrics and Gynecology, Surgery, Psychiatry, Ophthalmology, Otolaryngology, Emergency Medicine, Chronic Palliative Care, Psychiatry and Mental Health, Anesthesiology and Critical Care, Plastic Surgery, Forensic Medicine, Rehabilitation Medicine, Family and Community Medicine |
| Preventive Medicine Practice. Undergraduate Examination. Pediatric Practice. Practice in Obstetrics and Gynecology, Medical Imaging Practice. Neurology Practice. Psychiatry Practice. Emergency Department Practice. Internship in Infectious Medicine. Community Practice. Electrocardiogram Practice. Practice in Internal Medicine. Surgical Practice. Take the Internship (Including Admission Education). | 26 |
| **The Sixth Year** | Clinical Practice Rotation: Medicine, Surgery, Pediatrics, Plastic Surgery, Obstetrics and Gynecology, Prevention and Society, General Hospital, Elective Courses (affiliated suburban hospital) |
| | 40 |
of higher education in Thailand, as it has trained a large number of prominent medical professionals in the nation, and its professional and teaching standards are in line with international standards.

In Thailand, a doctor is considered a respectable occupation by the public, and it is generally felt that doctors are satisfactorily compensated. Medical students can earn a high salary following graduation if they decide to work in a private hospital. However, if they prefer to work in a public hospital, their family members will enjoy preferential medical costs, making public medical work highly popular in Thailand. In addition, due to the small number of students enrolled in Thai medical colleges every year, admission to medical colleges is very competitive, with only the most outstanding students gaining admission. Before admission, students must pass the National College Entrance Examination (NCEE).

3.2.2 | The medical training system, academic credits, and medical curricula in Thailand

In Thailand, medical students must complete 250 credits over the course of a 6-year medical education, which includes numerous courses and a heavy workload. The first year includes premedical education courses (40 credits). The second and third years are for preclinical education courses (80 credits). The fourth and fifth years are for clinical education courses (90 credits), and the sixth year includes clinical rotations (40 credits).6

Courses concerning medical ethics, benevolence, and the responsibilities of medical students have been the product of medical education reforms in Thailand.6 Throughout the learning process, the content of medical courses is reasonable, the class order is fluid, and basic science courses and humanities courses complement each other. Medical colleges emphasize scientific achievement and clinical experience to enhance students’ scientific thinking, logical reasoning, and ability to work independently. Meanwhile, colleges foster students’ nonmedical humanistic qualities through courses on medical ethics and regulations (Table 1).

Thailand is devoted to continuous reform of its medical curricula, with most updated every 6–7 years. Such reforms are devised by the Thai medical college league, the ministry of public health, the ministry of education, and other stakeholders and experts. During the reform process, the current status of the system is reviewed, and the factors that affect the curricular reforms are analyzed. The key factors that influence curricular reforms include changes in national and social demands, changes in students’ statuses, the evolution of learning and teaching processes, the rapid advancement of supporting medical practices and technologies, explosive growth in medical knowledge, and improvements in the healthcare system.5–8 Through comprehensive analysis of these factors, medical courses are adjusted appropriately and in such a way as to adapt to the overall development of the students in a timely fashion. The reformed new curricula are therefore student-centered, focusing on students’ practical needs in the clinical realm, and with an overall goal of enhancing clinical skills and training expert physicians.

3.2.3 | Training programs for rural medical students in Thailand

The number of doctors in Thailand is insufficient and unevenly distributed across urban and rural areas. On average, there is only one doctor per 2000 people, and doctors principally work in developed cities, such as Bangkok. Due to a lack of basic health facilities and poor conditions in rural areas, the majority of doctors prefer to work in urban areas. Thus people in rural areas generally lack access to medical care. To ensure more equitable access to medical services across Thailand, improve the quality of life of people with physical disabilities, extend the life span of people in general, and ameliorate the health plight in rural areas, the government of Thailand has set two goals related to medical education, namely to increase the overall number of doctors in the country and to increase the number of doctors in rural areas. To meet these goals, the government of Thailand has increased the enrollment of medical students, encouraging rural students to apply to medical school; reformed medical enrollment methods; and revised teaching plans.10,11

To motivate more doctors to migrate to rural areas, the government of Thailand has instituted certain policies. In 1974, the government nominated a pilot medical college to recruit doctors from rural areas. The college recruited medical students from across the country, and the students signed an agreement, in which they promised to work in rural communities for 12 years after graduation in exchange for receiving free tuition. This program has increased the numbers of both healthcare workers and expert physicians in rural areas. Moreover, the government increased the remuneration of rural doctors to improve their living standards.10,11 In addition, in the first year following graduation, medical students undergo internship at a university hospital to further increase their clinical skills. In the second and third years, they are required to work in nonuniversity hospitals in rural areas to alleviate the rural physician shortage. Thailand has been developing its rural health system and rural human resources for over 40 years, and the country has successful experience in funding these initiatives and persuading doctors to migrate to rural areas.11,12

3.2.4 | Continuing education system for medical graduates in Thailand

Medical graduates spend 1-year training at a university hospital and 2 years working in rural hospitals. After completion of rural services, a physician may decide to become a general practitioner or continue specialized medical training.6 The length of training for different specialties differs. After becoming a specialist doctor, subspecialty training for 2 years at home or abroad is then required. If the physician is simultaneously able to complete certain scientific research requirements, he/she is awarded a doctoral degree. The Thai educational system is dedicated to improving the clinical skills of students with a humanistic bent, and with an ultimate goal of training
high-quality clinical specialists. Relevant medical authorities monitor the quality of medical education throughout the entire process and make continuous adjustments and updates based upon perceived shortcomings, which further ensures the high-quality and high-level development of medical education in Thailand.

3.2.5 Advantages of higher medical education in Thailand

Bilingual teaching focuses on improving clinical skills and international communication

While English is not the official language of Thailand, the government prioritizes the teaching of English and arranges for certain courses to be taught in English. An example of this is the bilingual instruction that students of Chulalongkorn University receive; the 6-year medical courses are all taught in English. Furthermore, at Chulalongkorn University, several courses are taught in English by senior professors with significant overseas experience, while other professors maintain a bilingual classroom. Before beginning class, professors share their PPTs, teaching materials, and relevant references through Canvas, a Web-based learning management system, for students to preview. In addition, professors instruct in English, ask questions in English, and communicate with students in English. During clinical practice, professors also use English when they communicate with students, either doing so entirely in English or teaching bilingually. Clinical application forms, reports, and medical records are written or typed in English, while patients’ remarks are permitted to be partly recorded in Thai. Medical students trained bilingually have excellent English listening, speaking, reading, and writing abilities and can communicate academically in English. In addition, to improve the English language levels of professors, colleges annually send nominated professors to study in Europe and North America for more than 1 year.

Chulalongkorn University also emphasizes the development of clinical skills. Most notable are the multidisciplinary collaborative multimedia lectures. During these lectures, professors select difficult or atypical cases to be presented. Relevant clinical departments are responsible for introducing the pathogenesis, clinical manifestations, treatment, and prognosis of the disease. Imaging departments analyze the imaging characteristics involved. Medical interns participate throughout the whole process, and professors of all levels remain engaged, providing any supplementary details as needed. This type of lecture arouses the enthusiasm of students, giving them an intuitive understanding of all of the details of a particular disease, ranging from basic science to clinical manifestations. Such a style also avoids the monotony associated with traditional teaching methods and permits the integration of multiple disciplines.

In recent years, due to the long-term emphasis on bilingual teaching and professors’ subsequent abilities to communicate freely through international academic exchanges, the influence of international academia has entered Thailand, and the Thais themselves have familiarized themselves with the structure of international education.

Chulalongkorn University engages in frequent exchanges with European and American universities through various means, including inviting famous experts from Europe and North America to teach in Thailand, offering remote lectures by well-known foreign professors, and sending excellent Thai professors to Europe and North America for further study. Awareness of international educational norms has unique advantages

Thailand has incorporated aspects of the European and American systems of medical education and carried out bold educational innovations, all while maintaining parts of medical education that are unique to its own culture. This allows for the flexibility to understand Western medicine, while still being able to serve the Thai population in a culturally sensitive manner. In Europe and North America, agencies focusing on international development benefit from foreign educational loans and certain technologies related to education to reduce the expenses of international and domestic students studying abroad. At present, universities and colleges in Thailand meet the needs of the population. At the same time, they admit a large number of foreign students from neighboring countries. The cost of studying in Thailand is lower than in European and American countries. Further, several colleges and universities in Thailand have cooperative relationships with European and American universities. After studying in Thailand, students can directly transfer to those partner European and American colleges and universities. Therefore, Thailand may act as a springboard for students from neighboring countries who wish to study in Europe and North America. For example, Medhi University, which is strong in the study of advanced medical technologies, has established a short-term medical master's program to train high-quality students. Through the process of internationalization of higher education, Thailand has highlighted its favorable characteristics and gradually formed a unique brand.

3.3 Comparison of the Thai medical education system to the Chinese system

3.3.1 International cooperation in higher education

Following China’s economic reforms, the nation has actively promoted international cooperation in higher education. A number of top Chinese scholars and students have studied internationally. In addition, cooperative projects with foreign governments, colleges, and universities have been undertaken. Many achievements were accomplished during this process of internationalization. The number of foreign students who study in China continues to increase. In particular, in recent years, the number of students from “One Belt One Road” countries has noticeably increased. Western medicine programs host the largest number of international students, followed by engineering, economics, and management. However, cultural differences can cloud educational cooperation efforts between
countries. From the beginning, Thailand recognized the importance of sharing its own culture with partners from abroad. In such a way, a higher education brand that is compatible with its own culture was created, and this brand has attracted ever-increasing numbers of students from neighboring countries to study in Thailand. Such prescient thinking and practice is worthy of our own study in China.

Some features of the Chinese system likely hinder the recruitment of students from developed regions. China can refer to measures taken by Thailand, in applying the brand concept to international cooperation in higher education. China can also be more innovative in its approach to the internationalization of higher education, establish promotional platforms, and enhance its own international credibility. It is important for China to focus on what it does best, and therefore the selection of coursework should be based on the regional resources and inclinations of a certain area. According to regional economic development needs, China should establish long-term cooperative relationships with foreign colleges and universities, introduce foreign educational systems, and drive the rapid development of regional economies based on the premise of fully developing its own expertise. In this way, educational methodologies allow for two-way cultural interaction with the maintenance of cultural sovereignty.

3.3.2 Innovative teaching methods

Thai education emphasizes communication between teachers and students, values the humanistic development of students, and encourages students to think critically. These teaching styles are worthy of study. Medical colleges in China use passive teaching methods to bestow theoretical knowledge upon students. Chinese teachers should adopt flexible teaching methods, including “heuristics” and “discussion,” throughout the teaching process, encouraging students to state their views, discuss problems out loud, think deeply, and comprehend the entire problem at hand. Such methodologies stimulate students’ enthusiasm for learning, engender positive learning attitudes, and contribute to the formation of a virtuous cycle between teaching and learning.

The bilingual teaching style used in Thailand emphasizes the vocational training of professors by encouraging their English abilities, fosters students’ English abilities, employs the teaching concepts used in Western developed countries, and promotes the internationalization of higher medical education. In recent years, several universities in China have begun offering medical English classes, where coursework is fully taught in English. China can learn from Thailand’s measures to connect with the international community by sending professors abroad for further study and academic exchanges and comprehensively improving the English language levels of professors and students alike. We should invite foreign scholars to teach students and lecture. However, focusing on English only and ignoring learning in Chinese is unreasonable. Studying medicine using the Chinese language remains essential to the development of culturally competent physicians in China.

3.3.3 Training primary doctors

China is a vast territory with a large population. The supply of primary care doctors is currently inadequate, and the quality of doctors can vary considerably. The quality of some of these physicians must be improved. Other problems exist as well.20 Thailand’s rural physician training program and rural service requirements, to some extent, have solved the shortage of general practitioners in rural areas. Some of the policies employed to solve the shortage in Thailand may also be efficacious in China. Pilot medical universities that enroll medical students from rural or remote mountainous areas could be useful in China. To increase medical student numbers in China, the number of spots could be increased, entrance thresholds could be reduced, tuition could be eliminated, and subsidies for poor students to prepare for the NCEE could be provided. As in Thailand, in exchange, students could be asked to commit to working in rural areas following graduation. To ensure adequate quality, medical students should be required to meet specific academic requirements to graduate.

3.3.4 Training improvement

For a long period of time, scientific research and clinical practice in China have been mutually exclusive. Research postgraduates attach great importance to science, ignoring clinical practice and therefore suffering from a lack of clinical abilities. Meanwhile, clinical postgraduates are skilled in clinical practice but suffer from a lack of systematic scientific training and research thinking ability. This hinders their career advancement and often leads to these physicians leaving medicine altogether and therefore a waste of social resources. Therefore, how to adequately balance scientific research and clinical practice is an important topic. Thai medical education emphasizes the enhancement of medical thinking and clinical skills but also requires students to complete scientific research projects during training. China should similarly create policies to encourage clinical postgraduates to carry out more scientific research projects, think critically about research topics, detect problems during clinical work, explore research principles, and seek solutions. In doing so, China will train physicians who are not only adept at clinical medicine but also possess strong critical thinking capabilities.

3.3.5 Medical student well-being

The scholarship program for medical students in Thailand is well-concocted. Doctoral students who major in biomedicine are not only exempt from payment of tuition but are also provided with support to cover their living expenses. Following graduation, their salaries are high as well.

In China, although graduate students enjoy provincial subsidies and scholarships, it is generally felt that the subsidies are low and not enough to allow a student to be self-sufficient. As such, students require support from their families. Moreover, when medical doctoral students graduate from medical universities at approximately 30 years old, their incomes are insufficient.
It is essential to foster medical talent through the generation of an adequate supply of physicians, the establishment of a harmonious medical environment, government investment in medical education, the establishment of diversified funding systems, and ensuring the well-being of medical students.

3.4 | Several challenges in Chinese contemporary medical education

3.4.1 | Promoting the development of contemporary Chinese medicine education

Traditional Chinese medicine (TCM) has a long history of 5000 years, and its theories such as the theory of vital energy, "yin and yang" and the theory of the five elements are hardly understood in explaining human health and disease, undeniably, it has a significant role in the development of Chinese medicine. TCM was still widely sought after by the general public. With the rapid expansion of Western medicine in China, and the emergence of mysterious mechanisms and organ damage, TCM seems to have faded from "the spotlight." Nevertheless, deepening the diagnosis and treatment of diseases, TCM has been identified as a promising cure for chronic diseases, emotional or dysfunctional diseases, and especially for preventive and prognostic management of the COVID-19. To meet the requirements of contemporary Chinese medical development, TCM medical education could be improved in the following areas.

- Incorporating basic TCM knowledge as a compulsory course for medical students. Medical students of various medical orientations should master basic TCM knowledge (theory, methods, and thinking) and appropriately integrate TCM knowledge into the process of diagnosing and treating diseases individually.
- Expansion and recruitment of TCM students in medical schools and opening of TCM departments in hospitals promote the joint development of TCM and Western medicine.
- Appropriate allocation of resources between TCM medical education and Western medical education in students.
- Develop specialties in TCM, such as endocrine diseases, cardiovascular diseases, and chronic diseases of the lung, and so forth.
- For the TCM students: (1) In terms of theoretical learning: besides learning the basic knowledge, the students should also be guided to consider how to pass on TCM with high quality.

For example, (1) clarify the mechanism of action of TCM with the assistance of modern philosophy, scientific and technological means, and modern medicine, to demonstrate their effectiveness and safety scientifically by experimental verification, making physicians and patients better able to accept them under controlled conditions; (2) analyze and clarify its drug components, and the main components of the drugs that act are analyzed clearly, with clear contraindications and clear adverse reactions and relief, (3) extraction of the main components to reduce adverse reactions, (4) optimization of processing methods, (5) in-depth clinical, evaluating of the results of treatment with the clinical objective efficacy indicators, (6) the combination of Chinese and Western medicine, despite the two systems are independent, their essence is the same, there must be a link between Chinese and Western medicine.

- In theory, learning and practice should be the best possible. Continue to inherit the teaching style of traditional Chinese medicine, with 1–3 students following the master to participate in the process of treating patients.
- Last, increase the reasonable percentage of practical assessment.

3.4.2 | Unequal distribution of medical students in medical-related majors or subspecialties

The distribution of contemporary Chinese medical students is uneven, for one, the proportion of highly sophisticated talents is small, medical study content is many, the study years are long, the lack of relevant professional talents is serious, and few reserved to the end. Second, the distribution of secondary disciplines/subdisciplines is also not specialized, according to the relevant statistics in 2020, most students choose mostly internal medicine and surgery or other specialties with relatively abundant resources when they are divided into departments, while the number of medical students choosing clinical medical and technical departments, or specialties such as obstetrics and gynecology, pediatrics, emergency medicine, psychiatry, and so forth is obviously reduced, and the management of these departments’ diseases is relatively limited and difficult, and some resources are scarce and the work intensity and more time, for this uneven distribution is recommended.

(1) Less cutting-edge ratio, high school to open relevant elective courses to expand basic knowledge, or in the mandatory courses to increase the content of general medical knowledge, to promote a certain foundation of medical students at the university level, and then appropriately shorten the study years during the study of college; improve the way of medical education.

(2) Uneven distribution of subspecialties:

- allocate a certain amount of time to specialties during internship rotations, so that medical students know their favorite departments as much as possible before choosing a subspecialty;
- try to rotate in similar departments, and the scope of practice can be expanded appropriately, such as pediatrics and obstetrics and gynecology, and strengthen the chaotic transfer link between urology and reproductive medicine, obstetrics, and gynecology;
- allocate certain resources to some shortage;
- strengthen exchanges between different medical and university departments of the same level to learn and promote each other, including domestic and foreign cooperation;
- appropriately increase and allocate recruitment quotas to shortage departments, of course, provided that the department has strong faculty and strong training programs;
• divide the ratio of medical students according to the type and number of diseases admitted, and also take into account the current situation of the local area and adjust appropriately.

3.4.3 | Facing doctor–patient relationship

In the Information Age, coupled with the diversification of concepts and ways of diagnosing and treating, doctor–patient tensions are frequent, and recent reports showed that the incidence of doctor–patient events was increasing from 2016 to 2021.27,28

Facing this situation, some suggestions are in the following.

(1) Improve the relevant laws and regulations for handling the correction of doctor–patient disputes, create a harmonious environment for medical treatment, eliminate improper medical practice, also strictly punish medical disturbances and injuries, strengthen patients’ legal awareness, jointly protect the personal safety of both medical staff and patients attending medical treatment, and regulate the process of medical treatment.29

(2) For medical students: ① strengthen the learning of doctor–patient handling-related knowledge, including doctor–patient communication skills and methods, principles of handling doctor–patient disputes, diagnosis and treatment norms and related legal knowledge, the internship training assessment process, but also focus on the proportion of doctor–patient communication skills; ② medical education process, strengthen the case analysis of doctor–patient disputes, the correct way to handle doctor–patient disputes in the process, medical psychology, and so forth; ③ improve medical ethics and medical education, focus on improving the responsibility of medical students; and strive to improve medical technology.

(3) Social improvement of medical insurance, social welfare, and other issues to solve the economic difficulties of patients; also call for strengthening the construction of a communication platform between doctors and patients and joint response from multiple parties.

(4) More personalized services in private hospitals, with different diets, treatments, and accompanying plans for different patients.

(5) Strengthen the relevant norms of medical behavior propaganda, provide patients with a correct understanding of the disease, and have reasonable expectations.

4 | CONCLUSIONS

Although basic medical knowledge does not differ substantially across countries, the specific content within medical curricula is inevitably influenced by a country’s culture and environment. There exist multiple effective teaching methods employed in medical education curricula worldwide, rather than a single standard optimal method. Therefore, the advantages and disadvantages of certain methods exist. Learning from these advantages and analyzing the disadvantages by studying the methods used in other countries may aid in reforming medical education in China.

China has established the largest medical education system in the world, though it is still relatively weak in terms of academic methodologies, financial strength, teaching quality, and social benefits. Continued reform and improvement of the medical education and health system in China is a top priority. In addition, contemporary Chinese medical education has some challenges to face.

AUTHOR CONTRIBUTIONS

Aihong Mei and Dan Li: Conceptualization. Jinxia Jiang, Aihong Mei, and Dingwei Gao: Formal analysis. Dan Li: Funding acquisition. Dingwei Gao, Dan Li, and Tingting Qiao: Writing–review and editing. Dingwei Gao, Tingting Qiao, and Fang Wang: Writing–original draft.

CONFLICT OF INTEREST

The authors declare no conflict of interest.

DATA AVAILABILITY STATEMENT

The data that support the findings of this study are available from the corresponding author upon reasonable request.

TRANSPARENCY STATEMENT

The lead authors, F. Wang and D. Li, affirm that this manuscript is an honest, accurate, and transparent account of the study being reported; that no important aspects of the study have been omitted; and that any discrepancies from the study as planned (and, if relevant, registered) have been explained.

ORCID

Dingwei Gao http://orcid.org/0000-0002-1782-1628

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