The Research on the Development of Higher Medical Education in China

Jinyu Zhang and Hongman Wang

***Abstract*—The research reviews the historical change of China's higher medical education, focusing on the definition, initial time, and development stage. Some research limitations exist: 1) The definition of higher medical education needs to be studied further; 2) There are different opinions about initial onset and name of china's medical education; 3) The different theories of development stage should to be unified. Based on that, data should be reconciled to form a standard paradigm.**

***Index Terms*—Development, historical change, medical education.**

I. Introduction

The medical education in this study refers only to Western medical education. China's medical education has existed for more than 100 years [1]-[3]. It has undergone many stages of the origin, development, reform. In spite of making great contributions to China and the world, it has not yet been included on China's subject list [4]. Studies show there is more empirical research in China's medical education than theoretical research; more realistic than historical [5]. Through reviewing the scholars' research on the history and development, this paper analyzes the history of higher medical education and its characteristics to provide guidance for its healthy development in the future.

II. Methodology

The article discusses the historical change of China's higher medical education based on research obtained from the China national knowledge infrastructure (CNKI) database and relative books. The author selected the literature pertinent to the definition, initial time and development stages of China's medical education.

III. Findings

A. The Definition of Higher Medical Education Needs to Be Studied Further

All the concept should have its own extension and connotation [6]. Medical education is an important part of higher education [7]. Can we define higher medical education according to the concept of higher education? "Higher education means education for senior professionals [6]". Based on that, higher medical education is "to cultivate education for senior medical personnel". The premise of this definition is higher medical education is defined as a subordinate concept of higher education. But higher medical education should involve two major disciplines, medicine and pedagogy. Obviously, the discipline extension does not cover the field of higher medical education completely. Some studies also interpret higher medical education from the perspective of medical education. "The so-called medical education refers to education activities that train health professionals in a planned and organized manner according to the needs of society. Higher medical education, on the other hand, is a college-level medical college education [8]. " I agree with it. But what is the narrow definition? This should be explored further.

B. There Are Different Opinions about Initial Onset and Name of China's Medical Education

Four theories exit regarding the onset of China's higher medical education. 1) It started in the early 19th century [9]; 2) modern higher medical education began in the early 19th century [3]; 3) late Qing period (1840-1911 Year) is the initial stage of modern higher medical education [10]; 4) modern medical education has been established in our country since 1881 [11]. Seen from the above, the different theories show that all originated during the 19th century, but the exact time is not specific in the literature. Furthermore, terminology varies, such as "higher medical education", "modern higher medical education "," modern medical education ". Why are there different terms? It is not only related to the lack of a clear definition of the concept, but also to scholars' different opinion.

From the scholars' study, it is found the words "modern", "recent", and "contemporary" [12]-[15] appear. In order to understand the development of higher medical education in different historical periods, this study consulted the "China Time Table" [16], which clearly marked "Modern China (1840-1949) The People's Republic of China (1949-) ". But there is no definite period for the word modern. It can be seen that there are different definitions of different research categories for scholars with different definitions of the term "modern" [17]. Therefore, this study argues that it is necessary to further study and discuss the origin of higher medical education in China only by using date as the different interpretations of period.

C. Research on the Development Stage and Characteristics of China's Higher Medical Education

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The research retrospectively reviews the history of the development of China's higher medical education. This study analyzes the following six studies reported by domestic scholars on the stages of development (Fig. 1) [10], [18]-[22].

NO.	ISSING YEAR	PERIOD													
		BEFORE 1840	1840-1911	1911-1927	1927-1949	…	1977-1981	1982-1985	1986-1991	1992-1998	1999-2004	2005 2006	…2008	2009	…2012
① [10]	2014		The initial stage - the late Qing period	Development Stage - BeiYang Government Period	Improvement Stage - Nanjing National Government Period										
② [18]	2012	Outstanding Traditional Chinese Medicine	During the Opium War to the founding of New China: The shift - Western medicine is getting closer.			After the Founding of New China: Development of Single Subjects - Training Specialist Medical Professionals.				21st century trend of higher medical education and prospect: diverse and integrated development.					
③ [19]	2009		The Opium War of 1840 to the establishment of the People's Republic of China in 1949: Difficult to Development-Experienced with the Westernization Movement, the Republic of China, and the Jiefang War Period Medical Education Curriculum			Curriculum Setting of Higher Medical Education after the Founding of New China: From the Founding of New China to the Pre-Cultural Revolution-the Soviet model; during the Cultural Revolution - Deviation from Science; Since the Reform and Opening up - Regression and Reconstruction									
④ [20]	2008	Apprentice medical professional training mode (less developed early medical education)	"Practical scale-based" medical professional training mode: Drawing on the Soviet model, it has the characteristics of systematisms, stability and emphasis on theoretical teaching.					Comprehensive medical professional training mode (from the 1980s to 2008): the integration of disciplinary system, the combination of theory and clinical. Focus on individual characteristics, and improve the health care system and related education, and make full use of various educational resources international to cultivate innovative medical personnel.							
⑤ [21]	2006						Adjusted recovery period	Priority development period	Exploring period of reform	Function expansion period	High-speed expansion period	Stable development period			
⑥ [22]	2004				1949-1988: The majority of medical colleges held the short and medium-term system including the five-year undergraduate system, three-year system for the associate degree.				After 1988: clinical medicine long school system began to develop.						

Note: The years in shaded parts are not reported in the literature.

Fig. 1. Research on the development stage of higher medical education in China.

As seen from Fig. 1, study 2 and 4 report the changes in the development from the Opium War of 1840 to the publication of the studies. However, the timelines are quite different. Scholars hold different views. From the other studies in Table 1, we also find most researches divide the stages based on major historical events such as the Opium War, New China's founding and the Cultural Revolution. The research content covered historical changes, the development model, curriculum, training, academic evolution and reform. But the timelines are not unified. The comprehensive and integrated historical staging method requires further study by scholars.

Research in Fig 1 Article 6 divides the academic development of medical education in China into two stages: the period of short and middle semester from 1949 to 1988 and the period of middle school and long semester after 1988 [22], [23]. According to the discussion of domestic experts, it also can be roughly divided into three stages [24]: 1) short-term practice and controversy: in 1979-1988, there are three to six years of different academic system of higher medical education in China. Although the three-year junior college short-term education system has exposed its drawbacks, in order to meet the needs of health care workers in the vast rural areas, associate degree education has not been canceled and has been continuing until now. 2) Implementation and Adjustment of Seven-school System: With the development of medical education and the demand of multi-level medical training after the reform and opening in China, since the fall of 1988, 15 schools including Beijing Medical University have been approved to run a 7-year advanced program in medical education. 52 schools hold seven-year medical education by 2002 [2]. Since 2015, the Ministry of Education has adjusted the enrollment of seven-year clinical medicine students to "5 + 3" integrated clinical personnel training mode [25]. 3) Appeal to the eight-year system: the eight-year medical education aims to cultivate students with generous humanities and social sciences that meet the needs of our country's social and economic development in the 21st century and Basic knowledge of natural science, a solid theoretical foundation of medical theory, strong clinical ability, great potential for development, and a high comprehensive quality of clinical medicine high-level personnel [7]. Up to now, a total of 14 schools, including Peking University, Tsinghua University and Fudan University, have set up eight-year medical education in our country.

With the change of people's demand for health professionals, the professional setting of medical education in our country has undergone a process from less to more and more to less. From the beginning of establishment of China, there were only medical, oral, health and pharmacy four undergraduate majors. Adding to seven types of undergraduate in 1954 (pediatrics, Chinese medicine, traditional Chinese medicine), and then gradually expanding to 1987 nine categories of 57 professional. After adjustment, it was reduced to nine categories of 37 majors in 1993 [15], and revised to 11 categories in 2011 and 36 majors [1]. Professional adjustment and setting have played a positive role in promoting medical education personnel training in different periods, but some scholars also point out that the current specialty catalog does not reflect the characteristics of modern medical personnel training, and does not include medical interdisciplinary and new disciplines, lack of knowledge of medical humanities and social sciences [26], while there is an excessive degree of specialization [1], which

is the same point of this study.

D. Paradigm in the Study of Higher Medical Education

Foreign scholars have studied more and more, and have made some researches on the progress of science and technology [27], [28], the selection of educational theory [29] and the paradigm shift [30]-[34]. Domestic research is rare. Yang Cailing proposes the paradigm of higher medical education [35]. Some scholars have studied such issues as the higher medical humanities education paradigm [36], the teaching paradigm [37]-[39] and the qualitative research paradigm in the medical education research [40]. Because higher medical education involves two disciplines of medicine and education, its research area is so wide that scholars pay much attention to the perspective of research. As an interdisciplinary field of study, higher medical education is lack of the paradigm of the community of beliefs, values and techniques common.

IV. Results

Throughout history, the origins and development of higher medical education in China are closely related to health and education policies in the era countries. It is not only affected by major events. Therefore, from the historical development and changes of higher medical education, this study argues that we consider all the factors synthetically and explore the process of development and changes of higher medical education in China by using the paradigm concept. In order to meet the challenge of higher medical education in the new situation and the shortcomings of the urgent need to be improved [1], [41]-[44], higher medical education will be studied further from the paradigms view.

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