MEDINFO 2019: Health and Wellbeing e-Networks for All
L. Ohno-Machado and B. Séroussi (Eds.)

doi:10.3233/SHTI190733

Comparison of Medical/Health Informatics Education at the Best Global Universities for Clinical Medicine in Mainland China, Japan and South Korea

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Abstract

The aim of this study is to better understand the differences between medical/health informatics education in mainland China, Japan and South Korea. We compared medical/health informatics education at the top 10 universities in these three countries. Japan and South Korea have developed modernized education systems in medical/health informatics showing core features in the education of medical/health informatics. The universities in mainland China offer very few curriculum systems for medical/health informatics.

Keywords:

Education, Health informatics, Medical informatics

Introduction

Education in medical/health informatics has been discussed from various points of view around the world. The need for education in medical/health informatics has also been well recognized [1]. Curriculum development is a core issue, and there is a medical/health informatics program designed particularly for undergraduate and graduate students in medical school [2]. Asian countries such as Japan, mainland China, and South Korea have developed medical/health informatics programs. Compared with Japan and South Korea, the development of medical/health informatics as a discipline in mainland China is relatively lagging behind [3]. This study is to provide an overview of the medical/health informatics education in these countries and compare them. The aim of this study is to better understand the differences between medical/health informatics education in mainland China, Japan, and South Korea in order to further advance the development of medical/health informatics in mainland China and other developing countries.

Methods

We chose the top 10 universities for clinical medicine in mainland China, Japan and South Korea according to the U.S. News Rankings from 2018 [4]. We gathered information directly from the websites of the selected universities. Some information was found through Google and Baidu by constructing a query composed of one or more keywords. The search terms used were combinations of "education," "medical informatics," "health informatics", "undergraduate medical education," "graduate medical education," "curriculum", "course" and "university name". All the data were collected through the websites of government agencies, universities, academic societies, associations of practitioners, and relevant organizations. These data were categorized into undergraduate medical/health education, and graduate medical/health education, and the educational system in each category was compared across the countries.

Results

According to the U.S. News Rankings 2018, the top 10 universities for clinical medicine in mainland China, Japan and South Korea rank: 1. Japan from 85 to 299 (mean rank 204.5, mean score 57.86±4.57); 2. mainland China from 125 to 336 (mean rank 227.5, mean score 56.22±5.59); 3. South Korea from 72 to 418 (mean rank 248.5, mean score 55.18±8.30) (Table 1). According to the top 10 universities for clinical medicine in Japan, medical/health informatics courses are taken by both undergraduate and graduate students. Among the top 10 universities in South Korea, nine of them provide medical/health informatics course for both undergraduate and graduate students. However, among the top 10 universities in mainland China, they have not offered medical/health informatics courses.

Table 1. The Top 10 Universities in Mainland China, Japan and South Korea (clinical medicine)

No.	Mainland China	Japan	South Korea
1	Peking Univ.	Univ. of Tokyo	Seoul Nat'l Univ.
	125/64.5	85/68.8	72/69.9
2	Fudan Univ.	Kyoto Univ.	Yonsei Univ.
	131/64.1	136/63.7	146/63.0
3	Shanghai Jiao Tong Univ.	Osaka Univ.	Sungkyunkwa Univ.
	157/62.1	187/59.6	147/62.9
4	Sun Yat-sen Univ.	Tokyo Med & Dent Univ.	Univ. of Ulsan
	184/59.8	196/58.0	167/61.0
5	Capital Med. Univ.	Tohoku Univ.	Korea Univ.
	231/55.2	198/57.9	233/55.1
6	Central South Univ.	Keio Univ.	Catholic Univ. of Korea
	272/52.4	214/56.6	257/53.4
7	Huazhong Univ. of Sci & Tech	Kyushu Univ.	Kyung Hee Univ.
	272/52.4	226/55.7	301/50.3
8	Nanjing Med Univ.	Nagoya Univ.	Pusan Natl Univ.
	279/52.1	248/54.2	363/46.7
9	4th Military Med Univ.	Hollaido Univ.	Kyungpook Natl Univ.
	288/51.3	256/53.6	381/45.7
10	Shandong Univ.	Okayama Univ.	Ewha Womans Univ.
	336/48.3	299/50.5	418/43.8

Discussion

This study selected higher education institutions in three major Asian countries to analyze, compare, and contrast their medical/health informatics education. The top 10 universities have shown strength in producing research and developing disciplines. Therefore, we examined the medical/health informatics curriculum system in the top 10 universities for clinical medicine in mainland China, Japan, and South Korea. The curriculum development is a core component in the educational process[5]. The curriculum development in medical/health informatics has an exceptionally broad scope. It is not only about the students, the teachers, and the school, but also about the development of society and the discipline. Through studying the design of medical/health informatics curriculums in these universities, we may better understand the development of medical/health informatics in the countries. There are no medical/health informatics curriculum systems in the top 10 universities in mainland China. The result may be associated with the scarcity of teaching staff and professionals with comprehensive backgrounds in medical informatics, and the unclear teaching direction of the discipline in mainland China [3]. This comparison study provided information about the further development of medical/health informatics education in mainland China and developing countries. The educational needs of health and medical informatics should be well recognized and provide various forms of educational opportunities [6,7]. The findings of this study may facilitate medical/health informatics curriculum development in mainland China and developing countries.

The data collection in this study was based on official websites. Due to funding, time, and regional limitations, there is a lack of survey data, which may have some impact on the accuracy of this research output on medical/health informatics education.

Conclusions

Medical/health informatics has been recognized as a standard curriculum in the top 10 universities in Japan and South Korea. However, there is not a standard curriculum of medical/health informatics in the top 10 universities in mainland China. The design of the medical/health educational systems in Japan and South Korea may provide useful information for the development of medical/health informatics education in mainland China and other developing countries.

Acknowledgements

This project was supported by the National Natural Science Foundation of China (Grant Number:71273182/G0308)

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