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## Review article

# Challenge, opportunity and development: Influencing factors and tendencies of curriculum innovation on undergraduate nursing education in the mainland of China<sup>☆</sup>

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## ABSTRACT

**Background:** As the deep influence of traditional medical education, many undergraduate nursing colleges and universities in China still keep the traditional disease-focused curriculum system. However, it became outdated as the Chinese high nursing education developed. Meanwhile, the increasing demand of nursing human resources stimulates the enrollment expansion of colleges. All of these bring more difficulties and opportunities for nurse educators who are endeavoring to reform the undergraduate curriculum.

**Methods:** The authors retrospectively reviewed the related literature, illustrated the existing challenges and opportunities during the curriculum renewal process in China. This paper also analyzed the tendencies of Chinese baccalaureate curriculum innovation.

**Results:** Chinese current undergraduate nursing curriculum has larger proportion of basic medical courses, which brings great challenge for nursing educators. In the meantime, the expansion of enrollment brings conflicts with existing nursing education resources in China. Integration, humanization, internationalization and diversification are main tendencies leading the future nursing curriculum innovation in China.

**Conclusions:** The more effective teaching innovations in the nursing education system are in great demand.

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## 1. Introduction

In the 21st century, nursing education in many countries has developed into a multilevel and multichannel education system; Chinese nursing education has also been influenced. Currently, five tiers (vocational qualification, associate degree, bachelor degree, master degree and doctoral degree) coexist in the nursing education system. The undergraduate nursing program has become the major form of nursing education. Although there are many difficulties that result from deep exposure to traditional medical education, nursing student enrollment has dramatically increased; every challenge comes opportunity. The development of nursing

education in China is increasingly supported by China's policies and regulations.<sup>1</sup> The rise of professional accreditation promotes nursing curriculum reform. The nursing discipline is now enjoying an increasingly independent status. In such circumstances, Chinese nursing educators need to consider the factors that influence undergraduate nursing curriculum reform, recognize the tendencies of education reform and find an innovative way to carry out the reform of the undergraduate nursing curriculum.

The undergraduate nursing curriculum in China is quite different from that in Western countries. The program is approximately four-years of full time study. It starts in September, and each academic year has two semesters. Each semester has 17 weeks. Unlike in the UK, undergraduate nursing programs in China do not have adult or child nursing fields. Undergraduate nursing students are required to learn numerous subjects and become “generalists” so they can work in all types of wards and areas upon graduation.

The majority of colleges and universities in China adopt the “three-stage” education model (first basic, second clinical, then

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practice). The program is commonly classified into three modules: “public basic courses”, “basic medical courses” and “clinical courses”. The categories and credits in the undergraduate nursing program are usually more numerous than those in Western countries.<sup>2</sup> Students learn the “public basic courses” (e.g., computer, language, law, etc.) and “basic medical courses” (e.g., anatomy, physiology, pharmacy, etc.) in the first two academic years. They begin to learn clinical courses (e.g., medical nursing, child nursing, surgical nursing, etc.) from the fourth or fifth semester. In the first three academic years, nursing students stay on campus and travel to the hospital or community for clinical observation classes under the supervision of clinical teachers or professional college teachers. Internship arrangements focus on the last school year. The school year is approximately 40 weeks for a baccalaureate degree program and 32 weeks for an associate degree program. Students are located almost entirely in the hospital during this period. Thus, clinical education remains a significant component and an integral part of the Chinese undergraduate nursing curriculum.

## 2. Main influencing factors of Chinese undergraduate nursing curriculum reform

### 2.1. Traditional medical education

For a long time, the nursing discipline in the mainland of China has been placed under medicine. Nursing is a subdiscipline of medicine. Nursing education must follow the same standard and requirements as those of clinical medicine, and nursing students are awarded with degrees in medicine instead of nursing. Therefore, the development of nursing education has been greatly influenced and conditioned by medicine.<sup>3</sup> According to a survey of 98 colleges and universities, the majority of nursing schools tend to focus on the “diseases” curriculum model. Course design is based on the main line of disease classification, including surgical nursing, medical nursing, gynecology obstetrics nursing, and pediatric nursing courses.<sup>4</sup> The Chinese current undergraduate nursing curriculum has a larger proportion of basic medical courses. Most colleges and universities apply the medical education model, which places too much emphasis on a single subject and ignores the systematic and integral knowledge structure.

Nursing and medicine are two sciences that are based on different theoretical construction and are interdependent. The traditional medical curriculum obviously no longer meets the needs of the development of modern nursing. However, the pace of reform seems very difficult. All of the clinical nursing courses are established in terms of medical departments in clinical settings. Every chapter of a specific body function is taught in a logical sequence from a general introduction to different diseases with the nursing process integrated into the courses. The course teaching contents are illness-and-client centered, with a large emphasis on treatment and nursing care of the disease.<sup>5</sup> Many academic institutions establish teaching departments according to the medical education model. The academic branches are divided into a surgical nursing department, medical nursing department, pediatric nursing department, and so on. Nursing textbooks are also prepared by the traditional model of medical education. Assignments and examinations in nursing curriculum are often “heavy disease, light care”. All of these issues greatly hinder undergraduate nursing curriculum reform.

In 2011, the nursing discipline was awarded first-class subject status by the state council,<sup>6</sup> which provides a great space for undergraduate nursing curriculum reform. Either using the life cycle nursing curriculum model or taking the model in accordance with functional and basic human needs, Chinese nursing educators need to perform more curriculum integration, optimization and

reconstruction. This is both an opportunity and challenge for most nursing colleges and universities.

### 2.2. Mass nursing education

At the end of 2012, the total number of registered nurses in China reached 2.497 million.<sup>7</sup> The number of nurses per thousand of the population increased from 1.25 in 2008 to 1.83.<sup>7</sup> With the continuous expansion of nursing resources, the enrolment of the total number of students working towards diplomas, including both associate degree and bachelor degree nursing programs, shows an increasing trend from 164,300 in 2010 to 692,695 in 2013.<sup>8</sup> This dramatic expansion of enrollment leads to an inevitable future Chinese nursing education background, i.e., “mass education supplemented by elite education”. This trend conflicts with the existing nursing education resources in China. For some local universities, it is challenging to enable so many nursing students to enter clinical practice while learning theories. Learning in a clinical environment presents nursing students with challenges that are different from those encountered in university settings; such challenges are often unpredictable and even stressful for students.<sup>9</sup>

A mass education background challenges the existing Chinese nursing education system. Reasonable quality and quantity levels of nursing faculty are also difficult to obtain within a short time. Some clinical nursing courses still rely on doctors because of the lack of nursing teachers in some colleges. Nursing has struggled to fully integrate into the Chinese university sector largely because there is an insufficient pool of nursing teachers with adequate qualifications to conduct teaching and research, particularly at the post-graduate level.<sup>10,11</sup> Chinese nursing teachers who work full-time reported the lowest level of sense of coherence and professional identification.<sup>12</sup>

Mass education also leads to difficulties regarding the innovation of teaching strategies. Nursing teachers in the mainland of China believe that the selection of teaching methods is limited by factors such as too-large class sizes, class time constraints, examination format, and restricted teaching facilities. Therefore, nursing teachers in the mainland of China primarily use lecture and direct demonstration methods because they are easily implemented and less frequently use teaching methods that encourage high interactivity and help cultivate students' abilities.<sup>13</sup>

Although the background of mass nursing education led to many unfavorable effects on undergraduate nursing curriculum reform, it has also led to more opportunities. In recent years, the Chinese government has put millions of dollars into funding nursing schools to improve the teaching environment. Nursing teachers have a wider and higher platform both in classroom teaching and scientific research. All aspects of nursing education, including course development and design, online teaching resources, curriculum evaluation systems, curriculum examination reform, and so on, have yet to be explored by Chinese nursing teachers.

## 3. Trends of nursing undergraduate curriculum reform

In healthcare today, there is an ongoing shift from patient-centered to person-centered care. Preparing nursing students for person-centered care is a key concern for educators at nursing facilities around the world.<sup>14</sup> Meeting the global demand for quality healthcare, Chinese undergraduate nursing curriculum reform is gradually showing the following trends.

### 3.1. Integration of undergraduate nursing curriculum

The knowledge system in the standard nursing curriculum is quite complete in China. The primary challenge with the “subject-

centered” curriculum model is that it duplicates knowledge points between various disciplines. Integration can solve this problem effectively and reduce the student's heavy burden, strengthen the links between inherent logic and the structure of discipline and achieve overall optimization of the curriculum.

For example, the “Adult Nursing” course has been adopted by many universities. This course restructured and optimized surgical nursing, medical nursing and ear, nose and throat (ENT) nursing knowledge. It enables students to deeply understand that the nursing object is a holistic person who is in different stages of development.<sup>15</sup> Not only does this course break the traditional nursing education model, it also converges with international nursing courses. Other examples include “Gynecology Nursing” and “Pediatric Nursing”, these courses were integrated into a new course titled “Maternal and Perinatal Nursing”.<sup>5</sup>

However, the integration of courses needs to optimize the combination of nursing teachers and teaching resources in the short term. As a result of the traditional education model, the integration of courses in China has been limited to clinical courses and has lacked overall planning of the curriculum design. Exerting the largest advantage after the reorganization of courses and avoiding the mere formality of nursing curriculum reform requires more attention.

### 3.2. Humanities in undergraduate nursing curriculum

A reasonable set of humanities courses can promote the improvement of the humanities quality of nursing students. Compared with 2005, more than 50% of colleges and universities in China have made significant changes in their undergraduate nursing curriculum.<sup>4</sup> A significant increase in humanities and social sciences courses has been shown. Most schools offer many humanities courses, such as nursing ethics, nursing etiquette and aesthetics, sociology care, interpersonal communication, nursing career development, and so on. However, the added humanities courses are fragmented and arbitrary without overall curriculum optimization.<sup>16</sup> Other issues include the fact that the humanistic core curriculum is uncertain and lacks a logical connection between humanities courses and professional courses.<sup>17</sup>

Humanities courses should focus on two aspects of rationalization and specialization. Not only should the courses be rationally structured and interrelated, but they should also have distinctive features and meet the needs of China's culture and professional direction. The “integrated field” curriculum model proposed by Li Jie is worth learning. This model established three modules of humanities and social courses in the undergraduate nursing program: “care and people”, “care and society”, and “reflections on nursing practice”. The first two modules are core mandatory courses. The “nursing practice reflection” module is presented in the form of lectures, discussions, presentations, social practice courses and other activities.<sup>18</sup> The introduction of traditional Chinese culture and thought into nursing humanities courses are also a method that is worthy of exploration. Penetrating the essence of Confucianism humanity as a core value of nursing education in the humanities will give new meaning to this outstanding cultural heritage.

### 3.3. Diversification of the undergraduate nursing curriculum

An appropriate increase in the proportion of elective courses can meet students' personal development and help students combine their interests and social needs with their personal self-development. While each college and university in China continues to add different nursing courses, the proportion of elective courses is relatively small and the diversity of the curriculum is not

sufficient. A survey of 54 undergraduate nursing programs showed that there were six courses (including nursing occupational protection, nursing informatics, nursing economics, social medicine, behavioral medicine and Chinese traditional culture introduction) that were unopened.<sup>19</sup>

Nursing science is a marginal, cross-discipline that requires students to have a wealth of humanities and social science knowledge. American nursing programs involve a broad range of courses, focusing on students' learning needs, such as various home nursing courses, bioterrorism courses, cross-cultural nursing courses and nurses' mobility courses. In addition, a number of organizations and other institutions in the US believe in the incorporation of nursing informatics into nursing education.<sup>20</sup> Chinese nursing educators could try to add a number of additional elective courses according to their distinct regions, education resources and training features to expand students' horizons and improve their overall quality.

### 3.4. Internationalization of the undergraduate nursing curriculum

With the process of economic globalization, international exchange has become more frequent. The development of international nursing education and establishment of international collaborations greatly promoted the pace of nursing educational curriculum reform. Some universities have tried to open a joint-degree nursing programs. Some colleges have restructured nursing clinical courses according to health problems and needs at different developmental life stages. An increasing number of schools have begun to open courses on multicultural care, cross-cultural care, and regional health and disease. All of these examples indicate that undergraduate nursing curriculum reform is beginning to move towards internationalization. The following are a few good examples of collaboration.

Example 1: Nursing Schools of Peking Union Medical College (PUMC) and Johns Hopkins University (JHU) worked together to build a full-time doctoral program for nurses in China at PUMC in Beijing. There are five nurses were already graduated in 2008.<sup>21</sup> This kind of collaboration can offer great help for the immature Chinese graduate nursing education.

Example 2: The partnership between Hope School of Nursing of Wuhan University and the Frances Payne Bolton School of Nursing (FPBSN) began in 2005.<sup>22</sup> In 2012, Wuhan University School of Nursing celebrated the opening of the Simulation Laboratory that is supported by the American Schools and Hospitals Abroad (ASHA) program, a department within the U.S. Agency for International Development (USAID). The program provided \$2.7 million to fund the lab.<sup>23</sup>

Example 3: In 2011, the CMB created the China Nursing Network (CINN). The network is a channel for nursing programs at CMB-supported universities in China to cooperate in strengthening nursing education, particularly at the PhD level. Network members include Central South University, China Medical University, Fudan University, Peking Union Medical College, Peking University Health Sciences Center, Sichuan University, Sun Yat-sen University, and Xi'an Jiaotong University.<sup>24</sup>

International collaboration supports Chinese nursing educational capacity building through curriculum consultation and faculty development. However, it is difficult to copy foreign nursing curriculum models because of significant differences in Chinese undergraduate nursing education systems and Western countries. However, the curriculum belief and model are worth learning. The core values of the American League for Nursing (NLN) are diversity, integrity, caring and excellence.<sup>25</sup> British nursing education places a special emphasis on students' learning ability. The teaching model for education is self-learning and teachers' main role is that of a

guide. The curriculum arrangements are based on belief.<sup>26</sup> Chinese nursing curriculum system reform should also conform to the trend of international nursing education and develop an undergraduate nursing curriculum system with Chinese characteristics.

Globalization of nursing education also promotes the emergence of international classes. By the end of 2010, 120 colleges started international classes.<sup>27</sup> However, most of the classes were limited to the level of associate degree students. This type of class started late and its development time is short. The training objectives, curriculum mode, and so on are at the exploratory stage. The background for the rise of international classes is complicated. As a result of the lack of job opportunities, low salary, and low job satisfaction, many talented Chinese nurses intend to switch occupations or work outside of China.<sup>28</sup>

International classes seem to open a path for nursing students to work overseas. However, this requires the establishment of international standards of nursing courses to achieve credit exchange and mutual recognition of academic degrees. Thus, nursing personnel in China will more easily enter the international market. Determining how to adjust to a foreign nursing curriculum, add more professional humanities courses, and open reasonable bilingual education are issues to be solved during undergraduate nursing curriculum reform.

#### 4. Conclusions

Curriculum reform challenges to the existing nursing philosophy and practice. Reformers need to consider a variety of factors. Nursing curriculum includes not only academic knowledge and skills but also covers competences for their future care.<sup>29</sup> Chinese nursing education started late. The quality of undergraduate nursing education does not match the current social need or the development of nursing. The increase of enrollment undoubtedly challenges nursing education in China. Nevertheless, Chinese nursing educators are exploring opportunities to integrate courses, increase humanities courses, and add more new occupation-related courses. All of these changes require an overall and systemic design with a lack of Chinese characteristics. The curriculum remains a “disease-focus” model. Radical changes are needed to decrease the deep influence of the traditional medical education model. More courses related to professional value, health care, safeguarding, leadership, and evidence-based practice nursing should be introduced into the curriculum. The proportion of basic medical courses should be lowered and integrated into clinical nursing courses. Communication and professional effective courses could try to start from the first year and continue through the whole academic year. Therefore, nursing educators in China should carefully study the experience of foreign nursing curriculum reform, transform the curriculum view from “knowledge-centered” to “student-centered, competency-based”, actively determine a suitable undergraduate curriculum system, and use great courage and determination to implement undergraduate nursing curriculum reform.

#### Conflicts of interest

All contributing authors declare no conflicts of interest.

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