



# Comparative Study of the Undergraduate Nursing Curricula Among Nursing Schools of McMaster University of Canada, Hacettepe University of Turkey, and Tehran University of Iran

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## Abstract

**Context:** Evaluation of different education systems or approaches can help improve educational quality. To implement a program successfully, it is essential to examine the curricula of leading countries from different aspects. The present study aimed at comparing the bachelor of science in nursing (BSN) programs at nursing schools of McMaster in Canada, Hacettepe of Turkey, and Tehran (Iran).

**Evidence Acquisition:** The current descriptive-comparative study was performed in 2016 using the Brody method; the BSN programs were compared among Nursing School of Tehran University of Medical Sciences in Iran, Faculty of Nursing at Hacettepe University of Turkey, and McMaster School of Nursing in Canada.

**Results:** In the BSN program curricula of Tehran and Hacettepe universities, no correlation was found between contents and educational goals (theoretical and clinical), while a significant conformity was found between the theoretical and clinical goals of courses offered in the BSN curriculum of McMaster University. The ability to transfer leadership, management, communication, critical thinking, and clinical decision-making skills were formally ignored in the BSN curriculum of University of Tehran, while the mentors act just as a role model. There were programs and workshops for practicing critical thinking in Hacettepe University, while the evidence-based nursing and research in nursing were stressed in educational goals; the points disregarded in the curriculum of the BSN program of the University of Tehran.

**Conclusions:** It seems that the School of Nursing and Midwifery of Tehran University of Medical Sciences should reconsider educational goals and content and pay more attention to issues such as problem solving, critical thinking, clinical judgment, and efficient leadership skills, as well as creativity and innovation.

**Keywords:** Comparative Study, Bachelor of Nursing, McMaster, Hacettepe, Tehran

## 1. Context

Nursing is an independent discipline and a branch of medical sciences that deals with the training of key members of the health team in various educational, research, counseling, prevention, management, support, and health care and rehabilitation areas (1). The main mission of nursing education is to train competent nurses with the knowledge, attitude, and skills required for maintaining and promoting health in the community (2). The purpose of nursing education in nursing schools is to develop critical and creative thinking, self-directed learning, professional capabilities, time management, self-esteem, communication, and prevention of inactivity in students (3). Likewise, health care organizations such as the World Health Organi-

zation have called the upgrading of existing standards for new graduates (4).

The quality of health care services depends to a large extent on the way of delivering care provided by the nursing system, and identifying the issues in nursing education and taking measures to modify them improve the achievement of educational goals and training of qualified experts, and promote the quality of health care services at nationwide level in each country (5). Hence, the BSN program curriculum should be constantly reviewed. Evaluation of the history of evolution in the education system shows that most leading countries have used comparative studies to achieve this goal (6).

The main purpose of evaluating the education system

of different countries in various fields and degrees is to understand the causes of failures and successes of curricula (7). In addition, comparative investigation of education systems among two or more countries highlights their differences and similarities, educational issues, and ways of dealing with problems (8). Comparative studies can investigate two or more education systems comprehensively or from aspects such as administrative organization, curriculum, content of a certain course, etc. (9). Therefore, evaluation of different education systems or approaches can help improve education quality. Education issues and goals are similar in all communities, but the methods and programs to teach sciences and solve related problems usually correlate with the tradition and culture of each community (10). Therefore, it is necessary to evaluate the curricula of the leading countries in order to successfully implement a program from different aspects (11).

Comparative research is a research method in education for the revision and modernization of curriculum, which deals with the analysis and understanding of the similarities and differences among educational phenomena, institutions, and systems (12). The recognition and interpretation of such findings should be embedded in the social, cultural, political, and economic context of educational events and result in an approach to solve education problems and identify effective areas for educational achievement or failure (13). Since the education system in each country can be considered as the investment of one generation to another in order to raise knowledge and develop human abilities (14), by using the experiences of other nations in different educational fields and considering the cultural, political, economic, and social context of Iran, the dilemmas of higher education can be administered and the curricula can be improved (15).

Hence, the present study aimed at comparatively comparing the BSN program curricula among nursing schools of Tehran University of Medical Sciences, Hacettepe University of Turkey, and McMaster of Canada. These three faculties were chosen since the School of Nursing and Midwifery of Tehran University of Medical Sciences frequently ranks among the top in Iran; likewise, Faculty of Nursing at Hacettepe University is also one of the most distinguished nursing schools in Turkey and some Iranian nurses apply to it for further education. Also, Turkey is a Muslim country with an Eastern culture similar to that of Iran. Nursing education in Turkey, similar to Iran, follows American nursing education system. In addition, Canada is a country where immigrants, especially Iranian nurses, are widely accepted. Also, the McMaster School of Nursing has a global attitude toward nursing and trains nurses with a cross-disciplinary approach.

## 2. Evidence Acquisition

The current descriptive-comparative study aimed at better understanding the current conditions, facilities, and resources of the three aforementioned nursing schools. Frank Hickler and Brady both introduced four-step comparative methods for the evaluation of education systems (16).

**Description:** The first step is to compare. The issue compared among different countries should be clearly explained in details. The best elements of descriptive data are often obtained during studying on site.

**Interpretation:** Data collected on the education system are complex and often have many implications. Therefore, in order to avoid major possible errors, the necessity of the interpretation of data is raised.

**Adjustment:** Data are written in columns or in separate tables and sheets.

**Comparison (evaluation and analysis):** It is a type of evaluation that compares and matches the resulting data. It analyzes and evaluates similarities and contradictions (16).

In order to find the BSN program curriculum and the manual of the mentioned schools, their official websites were searched and the required information was extracted. For this purpose, the keywords “nursing curriculum” and “Nursing Bachelor” were also used to search for further information about the studied faculties. Based on the model, the curricula of the three schools were first collected and translated fluently into Farsi. Then the components of the curricula were identified, evaluated, and analyzed, and the similarities and differences among their elements were determined. Finally, based on the similarities and differences, comparisons and practical suggestions were made in order to improve the elements of the Iranian curriculum.

## 3. Results

The components evaluated in the present study according to the standards of the World Federation of Medical Education 2015 revision included: A) Review of the education system and student admission in the studied countries and the history of nursing (goals, number of centers and scope of activities, faculty members, and educational calendar); B) educational structure (student admission methods, goals and mission of the studied schools curricula, the structure of the entire curricula, and length of the course); and C) the curriculum (teaching methods, media and educational materials, courses, and evaluation and appraisal).

### 3.1. The Review of the Education System and Student Admission in the Studied Countries and the History of Nursing

According to the data in [Table 1](#), the 12-year education, which begins at age of 6 - 7, was used in the studied countries. Also, the undergraduate course was four years in all three countries. Student admission in Iran and Turkey was through the university entrance exam; while in Ontario State of Canada (location of McMaster University), passing high school courses and holding diploma was the prerequisite for university entry.

#### 3.1.1. A Review of the History of the Studied Schools

School of Nursing and Midwifery of Tehran University of Medical Sciences: The Nursing College was established in 1947 to train students for a three-year bachelor's equivalent degree in nursing. A total of 100 - 120 female students were admitted to this course through a specific entrance exam. These students were trained 24-hour daily using a special education system for working and providing nursing services in hospitals affiliated to Tehran University Medical School. After the cultural revolution in 1983, the College of Nursing was renamed the College of Nursing and Midwifery and in 1987, by the merger of several colleges, the School of Nursing and Midwifery was established. Currently, the faculty has 80 members and since 2011 admits students into bachelor, masters, and PhD programs.

McMaster School of Nursing: This institute established in 1946 has an over 60 years long history in nursing education, nursing knowledge, and nursing practice. According to the McMaster School of Nursing, the major factor influencing the nursing carrier in the 20th and 21st centuries is the cooperation among faculty members, staff, students, and graduates at local, national, and international levels. Both the community and hospitals affiliated to McMaster Nursing School throughout Ontario struggle to make evidence-based clinical practice via providing learning opportunities for undergraduate and postgraduate students. It is also a world famous college, which admits many students from all over the world. Through the application of international students in clinical setting, they learn how to deliver health care services in different cultural and environmental context. The faculty members contribute to provide and support educational programs in countries such as Pakistan, United Arab Emirates, Thailand, Japan, Australia, and Sweden. McMaster School of Nursing has about 39 full-time faculty, 95 part-time faculty, and more than 100 clinical faculty members.

Faculty of Nursing at Hacettepe University: It is established in 1961 as a nursing school affiliated to the University of Ankara, and in 2007, it became a Nursing Department under the supervision of the Faculty of Health Sciences at

Hacettepe University. In 1990, the Higher Education Council considered eight specialized aspects in nursing education. Since 22 November 2012, the Department of Nursing became the School of Nursing. Since 1968, the School of Nursing admits students into postgraduate and since 1972 into PhD programs. Hacettepe University is one of the leading institutes to educate and train the future nursing workforce in Turkey. The Nursing School currently has 21 faculty members and 33 research assistants and admits students to pursue undergraduate, postgraduate, and PhD degrees. One-third of the courses in Hacettepe Faculty of Nursing are offered in English and the rest in Turkish.

#### 3.1.2. Undergraduate Admissions in the Studied Faculties

Admission for BSN degree in Iran and Turkey, like other higher education disciplines, is among high school graduates through a nationwide exam, but admission for BSN degree at McMaster University is through holding six courses of 12th grade in Ontario including biology, chemistry, one of the courses in mathematics (statistics and mathematics), and information management, as well as holding a CPR (cardiopulmonary resuscitation) certificate, experience in working with an electroconvulsive device, having no criminal record, holding international certificate of vaccination, having no infectious diseases, and passing courses of 12th grade, IELTS (International English Language Testing System) score 7, or one of the biology, chemistry, or physics courses.

#### 3.1.3. Objectives and Mission of the Studied Curricula

Based on the study objectives, perspective, and mission, all the three schools intended to train competent nursing workforce in order to render care services as a team member to maintain and promote community health through acquiring the knowledge, attitude, and required skills and applying professional ethics. Promoting personal, mental, social, and professional nursing skills, lifelong learning, contribution and interactive communication with health team members and patients, responsibility, improving community health, encouraging students to conduct research and apply obtained results, and adherence to the principles of professional commitment were of the most important principles considered by nursing schools. Of course these programs had differences; for example, in training nursing leaders and cross-cultural attentions. Providing decision-making grounds for change and helping to create change and evaluating the effects of the change were the highlights of McMaster's goals. Also, McMaster University had stated more realistic goals in detail. Innovation and revenue generation were also the goals addressed by McMaster University, so that admission

**Table 1.** The Procedure of Student Admission in the Studied Countries

Country	Education System and Student Admission Criteria
<b>Iran</b>	Elementary education covers pupils within the age range of 6 - 11 years and after 6 years of secondary education, it is divided into two 3-year periods of first and second secondary education. Overall, the formal education lasts 12 years. The Iran's higher education system is governed by the trustees of universities and institutes of higher education and higher education mainly leads to associate degrees, bachelors, masters, and PhD. student admission is through the national university entrance exam in the fields of experimental sciences, mathematics and physics, humanities, art and foreign languages (17).
<b>Canada</b>	Unlike most countries, Canada has no ministry or a nationwide education institution, and the State Education Department is responsible for the management of education in each state. Since McMaster is located in Ontario, the Ontario state's education system was investigated in the study. Pre-university course in the state of Ontario lasts 10 years and covers students within the age range of 6 - 16 years. The elementary education is the first educational level in Ontario, which is divided into two levels of preschool course and elementary education, lasting 8 years and covering pupils within the age range of 6 - 14 years. The secondary education is the second educational level in Ontario that lasts 4 years and covers students within the age range of 14 - 18 years. One year of postsecondary education is required to take the Ontario universities entrance exams. The most prominent higher education institutions of Ontario include educational centers, Ontario State University, Ontario State College, informal mentors, and Ontario College of Applied Arts. Most university courses in Ontario lead to a bachelor's degree or honours degree, often lasting four years. Undergraduate courses in Ontario are offered through both continuous and non-continuous programs (18).
<b>Turkey</b>	Elementary education (İLKÖğretim) starts at the age of 7 and lasts for 8 years and then is followed by high school education (Lise). Overall, the formal education lasts 11 - 12 years. After completion of the elementary school, high school education can also be continued in disciplines such as religious sciences and industrial conservatories, which almost lasts 12 years. Students are awarded a Lise diploma at the end of high school. To enter universities and higher education centers, high school diploma is required and the applicant should also take the national university entrance exam. Students' admission is relied on their scores in the exam. The national university entrance exam has two stages and held annually by the Student Selection and Placement Center under the surveillance of the Higher Education Council (17).

of foreign students is indicated one of the revenue generation activities (Table 2).

Focusing on teamwork and global reputation were among the most important goals of the McMaster School of Nursing. The goals of the McMaster School of Nursing were changing rapidly with speed of science, and its current focus was on evidence-based clinical practice during the study. Paying attention to moral values and distinguished graduates were also among the goals of McMaster University. Although the Hacettepe Faculty of Nursing had written the goals in general, it was considered more goals compared to those of School of Nursing and Midwifery, Tehran University of Medical Sciences.

### 3.2. Educational Structure

The overall structure, as well as the length of BSN program and educational content of the teaching strategy was teacher-centered in Tehran and Turkey and student-centered at McMaster University. The length of the BSN program was in accordance with the educational regulations adopted by the Supreme Council for the Planning of Medical Sciences and the courses were offered theoretical, practical, theoretical-practical, internship, and apprenticeship in field. The curriculum of the Faculty of Nursing and Midwifery, Tehran University of Medical Sciences, was discipline-based and the total number of units required for BSN program was 130; i.e., 20 units in general courses, 16 in basic courses, 12 in main courses, 46 in specialized courses, 12 in internship, and 24 units in apprenticeship in field, based on the syllabus. Internships and apprenticeship sessions were held at internal medicine, surgery, orthopedics, intensive cardiac care, dialysis, and pediatric departments.

Clinical education was simulated for freshmen using a practice room. The Practice Hall of School of Nursing and Midwifery, Tehran University of Medical Sciences consisted of two audiovisual and one control room. The audiovisual unit was prepared with educational aids and a set of educational videos and posters, and training models and manikins. Also, practical procedures of the practice unit were provided in contents. In terms of clinical education, students attend clinical departments for training with guidance of mentor from the third semester. Theoretical classes were mainly utilized the teacher-centered method. For evaluation, formative and summative techniques were used. It should be noted that feedback system was less considered by Iranian nursing education system.

### 3.3. The Curriculum

BSN program in McMaster University was implemented using student-centered teaching method, relying on a problem-solving approach using small groups, educational classes, and self-directed learning. The BSN curriculum at this school is relied on goal-oriented comparative approach. The BSN program curriculum in McMaster University in addition to nursing was focused on physiology, psychology, social sciences, and humanities courses. Nursing education is defined in four main levels. The number of specialized (theoretical and practical) nursing courses is gradually increasing from level 1 to 2.

At levels 1 and 2, students achieve complete information in the social sciences and health and can choose from a variety of optional courses. They learn about themselves and their clients as human beings, while focusing on health, health assessment, and health promotion. They concentrate on basic nursing skills including communi-

**Table 2.** Comparison of Goals, Perspective, and Mission Among the Nursing Schools of Tehran, Hacettepe, and McMaster Universities

	Goals	Perspective	Mission
<b>Nursing School of Tehran University (16)</b>	Education of individuals who are capable of providing healthcare, educational, research, counseling, management, support, and rehabilitation services as part of the health team to provide, maintain, and enhance the health at the individual, family, and community levels.	According to this curriculum, during the next ten years, students are trained in accordance with regional and global standards along with the changing world. Graduates determine and consolidate their situation in different areas of service delivery at all levels of prevention. At the national level, they will hold management positions and provide effective and cost-effective services to promote health in community and improve the quality of life of clients and are prominent at the regional and international levels.	To train informed, committed, knowledgeable, and efficient human resources that can provide the required health care and rehabilitation services cost-effectively at the highest standard via acquiring professional abilities and knowledge of the day in order to provide, maintain, and promote health in community. This is possible through the education, research, and development of nursing knowledge.
<b>Hacettepe Faculty of Nursing (19)</b>	Applying knowledge and skills in health promotion and maintenance, recognizing nursing carrier, responsibility and accountability in nursing practice, acquiring knowledge in nursing education, implementation, problem solving, and research process, and development of professional independence	Introducing the Hacettepe Faculty of Nursing as a national and international nursing school and a model for students and faculty members in educational/research programs	Preparation of professional and effective nurses in both clinical and research domains using scientific and technological methods. Training therapeutic nurses as mentor, researcher, manager, counselors, and health care practitioners by taking multiple roles to protect, develop, and improve the health of individuals, families, and communities. In addition, the mission is to encourage alumni to collaborate in the multidisciplinary departments of the university, and promotion and development of nursing education and services.
<b>McMaster School of Nursing</b>	Correlation between faculty members to move from ego to us, participation of students in perspective design, acting as a role model to show special qualities of mind and thinking, and continuation of admirable personality traits, The university graduates should be leaders in their disciplines and be known for achieving excellence. We should be the global leader in the way of innovation in nursing education, clinical practice, and research and conduction of research tailored to community priorities. McMaster School of Nursing is well known for research and intervention and such strengths should also be recognized internationally. The school should move towards evidence-based clinical practice. After achieving evidence-based clinical practice in health care systems, the school seeks to improve health in the community, quality of care, efficacy, and patient experience; Having a sustainable financial outlook; Strengthening innovative educational programs; Paying attention to technology and using it to maximize opportunities in education, research, and service delivery	Working together and making something different	Strengthen collaboration and participation of nurses in health for everyone at the international level through leadership in education, research, clinics, policy, and services

cation, hand washing, vital signs, and physical examination in the lab for four hours a week. Moving from level 2, they start to pay more attention to the family and society as clients. In small groups, one mentor trains eight students eight hours a week. All students pass internal medicine

and surgery courses to learn how to deal with critical and complicated situations. At level 3, students spend 12 hours a week in acute and varied departments such as pediatrics, mental health, and mothers and infants. At level 4, students spend 24 hours per week without a mentor in clin-



ical departments in the first 12 weeks, 24 hours per week in the second six weeks, and 35 hours per week in the final six weeks of the semester in the hospital and community settings. Students are trained directly by a preceptor and indirectly by a clinical mentor. At level 4, students complete vocational training courses under the supervision of two mentors. Preceptors usually are role model, clinical mentor, or supervisor. A clinical mentor helps students identify their clinical needs and achieve their realistic goals, and tries to enable students to identify types of available learning opportunities through clinical settings. It also helps students develop clinical thinking and assist in critical thinking in clinical affairs and issues dealing with patient care, emotional support, and information support. Faculty members try to use the theory in practice, socialization, and professional commitment throughout the education.

The BSN program is offered based on student-centered approach in McMaster University. The BSN students are placed in small groups and accordingly, teacher-student and student-student interactions are increased and the strengths and weaknesses of the groups are better understood.

If a BSN graduate looks for a registered nurse (RN) job in specialized departments, she should take the related exams and obtain the general certificate of the College of Nurses of Ontario.

Students are evaluated by a portfolio during the RN course and finally, a form including self-assessment score (with a reason for each score), preceptorship score, and clinical mentor score is completed for each student in order to obtain the total score. All the RN-BScN students should take at least one clinical course.

There was also the World Health Unit in McMaster Nursing School, which provides students with the opportunity of learning about the impact of various factors on the health of different populations. This course guides McMaster graduates interested in providing care and assistance to people in resource-constrained areas and also provides undergraduate students with international and intercultural learning experiences. Since 1984, faculty members and personnel of McMaster School of Nursing have provided the opportunity for the presence of 240 nursing students from 25 countries, six provinces, and three states in the Northern Canada.

Students of Hacettepe University should take 147 units of core and elective courses in eight semesters. Students should enroll minimum 15 and maximum 22 units per semester. Academic writing skills and Turkish language skills were among the core courses. Psychology, development of emotional intelligence, histology, policy making and health economics, and communication skills were

among the elective courses offered to students.

In terms of the total number of units students should pass during the study course, BSN program students in Turkey should pass 147 elective and core units. In Iran, there are 130 elective and core units in BSN program. At McMaster School of Nursing, students should pass 130 units in four levels during the general course. All three schools offered elective courses to students, which in addition to enhancing their motivation, contributes to the efficiency and effectiveness of the course. Also, the McMaster School of Nursing focused heavily on community health and the training of students to maintain health. For example, students attending internship program should be housed in community-based centers. Legal nursing is a course offered in Turkey, which seems worth pondering and more attention should be paid on that in Iran.

In Iran and Turkey, the BSN program typically took four years, but in McMaster College, there were three courses as a four-year program for general nursing, a two-year program for post-RN, and a three-year program for RPN (registered practical nurse). Unlike McMaster University, which trained nursing student at four levels, Turkey and Iran offered BSN program in eight semesters.

A noteworthy point regarding McMaster University was the adequacy of resources, equipment, space, facilities, and allocation of faculty members for clinical education, which reflects the particular attention of the school on clinical education. Also, the portfolio-based assessment was used for the evaluation of students. The preceptorship training was one of the most important parts of the BSN program that is not addressed in Tehran and Hacettepe nursing schools. In the case of attending clinical courses, students were not allowed to take specialty courses, such as adult, cardiac, and neonatal intensive care unit nursing, until achieving the basic level. McMaster University also had an interesting idea about evaluation including the sum of the scores given by self-assessment, the preceptor, and the clinical mentor of the school.

Unlike the teacher-centered approach in the undergraduate education in Iran and Turkey, the McMaster School of Nursing followed the person-centered approach relying on problem-solving models, in small groups including eight students and one mentor. One-third of the courses were offered in English language at the Hacettepe School of Nursing. The academic writing skills was also an important core course.

The continuous assessment system in McMaster University was defined based on educational dimensions including skills and knowledge, professional behavior and attitude toward performance, and personal health, while the continuous assessment system was not defined in Iran and Turkey. In terms of alumni contact, all the three

colleges had programs in place, but McMaster University demonstrated it more effectively so that the alumni taught students in clinical practice. The graduates of McMaster University should hold license of competence to find a job in nursing carrier. In Iran, however, graduates were required to complete a two-year compulsory medical service program and receive no license of competence from eligible institutions or associations. No information was found on the website of the Hacettepe University about entering the nursing graduates into job market.

There were many similarities between the courses offered in Tehran and Hacettepe universities. For example, courses such as microbiology, parasitology, biochemistry, anatomy, internal-medicine, surgery, pediatrics, gynecological diseases, psychiatric nursing, nursing history and development, and deontology are common, but among nursing courses offered in Turkey, communication and self-awareness, critical thinking, sexual health, school health, development of emotional intelligence, wounds and nursing care were also considered. Health policy-making and health economics to train nursing leaders were among the interesting courses offered in the Nursing School of Hacettepe University. Although there were courses in infants nursing care, internal medicine, surgery, and pediatrics nursing care at McMaster School of Nursing, courses such as occupational health, palliative care, and nursing care at chronic and outpatient departments were also offered in the BSN program.

In the evaluation of the McMaster School of Nursing curriculum, an interesting point that was not that much considered by the other two schools was the monthly and four-year performance reports of the school; the four-year performance report included events, awards, changes, number of admissions and graduates, and the percentage of goals achievement in the faculty during the considered period. For example, the four-year performance report of McMaster School of Nursing (2008 - 2011) was currently available on the official website of the university.

McMaster School of Nursing trained nursing workforce to work throughout the world. Hence, it welcomed students from all over the world and considered inter-group interaction in the training of nursing workforces.

#### 4. Conclusions

The study aimed at comparing the BSN program curriculum among three nursing schools of University of Tehran, Hacettepe University in Turkey, and McMaster in Canada.

Numerous comparative studies are conducted each year worldwide including Iran of which the study of BSN program between Iran and Japan, the study of education

system and curriculum of nursing PhD program between Iran and Johns Hopkins School of Nursing (14), the study of the nursing PhD curriculum between Iranian universities and Widener University (11), and the study of the structure of BSN program curriculum between Iranian universities and several accredited nursing school from different countries are noteworthy (20). All of the studied programs emphasized the need to modify the nursing curriculum.

Nouhi et al., in the nursing adaptation program, placed a strong emphasis on reviewing and making serious revision in goal orientation, student admission, research, teaching methods, and theoretic and practical evaluations (20). The BSN program curriculum in Iran should be revised in terms of definition of goals, content, evaluation, clinical skills, and alumni status. In this regard, Nouhi et al., concluded that although the nursing curriculum of Iran was not in a bad situation compared to the curricula studied, in order to eliminate its shortcomings and defects, issues such as goals, student admission, research, teaching methods, and theoretic and practical evaluation should be seriously reviewed and revised to achieve the maximum efficacy by solving problems and meeting needs (20).

Concerning clinical education, although there was no difference between the Tehran School of Nursing and Midwifery and Hacettepe School of Nursing in education system, there was a significant difference in the clinical nursing education between the McMaster University, and Tehran and Hacettepe universities. A Preceptorship program with direct assistance from a preceptor and indirect assistance of a clinical mentor in teaching and evaluation of the students was the turning point of the differences. Although Rasouli et al., considered the evaluation of clinical education by mentors as a strength point of Iran's education system, they also indicated some issues such as inadequate experience of mentors in clinical setting and the inappropriate treatment of clinical nurses with mentors as the challenges the clinical nursing education faces in Iran (16).

The system of admission to nursing program in Iran was through the university entrance exam and getting an acceptable score, which also caused some problems for students during the education or afterwards. In many cases, students were disinterested after entering the program or lacked the skills required to enter the job market or pursue a degree or even continue the education, while at McMaster University, the student applied for the program based on his/her personality, ethics, and interests, attitudes, beliefs, and consciously. In this regard, Rafati et al., criticized the student admission system of Iran, and indicated paying attention to personal interests and conducting interviews for nursing admission essential (11). Nouhi et al., also

found in their study that nursing education program in Iran needs modifications in goals, content, method of admission, alumni matters, and clinical education (20).

It seems that the Tehran School of Nursing and Midwifery should reconsider educational goals and content and address issues such as problem solving ability, critical thinking, clinical judgment, efficient leadership ability, creativity, initiation, and efficient leadership ability. The mission of adaptive education is to recognize the similarities and differences of different education systems, and identify the reasons for their successes and failures and utilize their experiences to advance the education system. Educational goals and issues are similar in most educational systems, but the methods and plans used to teach science and solve problems depend on the tradition and culture of each community. Therefore, employing adaptive programs and updating educational systems proportional to the science advances and adaptation of the tradition and culture in each community seem essential. Accordingly, and based on the aforementioned issues stated, BSN education may require some revisions in the curriculum based on successful standards and expert opinions.

In terms of curriculum contents, it is evident that the content should be designed and organized in accordance with curriculum goals and on a way to fulfil it. There was no correlation between the courses offered and the curriculum content of BSN program with educational (theoretical and practical) goals at Tehran Nursing School. Issues such as ability to transfer leadership, management, communication, critical thinking, and clinical decision making skills were neglected in the BSN curriculum of Tehran Nursing School, and the mentors acted as a role model. In fact, the hidden curriculum of this program might be involved in teaching such skills. In addition, the evidence-based nursing and research in nursing were the goals emphasized in the program, but they were overlooked in the BSN program curriculum. Looking at the elective courses of the other two nursing schools (McMaster and Hacettepe), it can be said that the diversity in the courses was elective and the student could take the program according to his/her interests and needs.

Nevertheless this program was limited in Iran. Also, the curriculum of other two nursing schools (McMaster and Hacettepe) was focused on home-based care and community-based care, but treatment-oriented approach was still pursued in Iran. Given to the population aging in the world, special attention was paid to family-centered care and the care of the elderly in the curricula of the McMaster and Hacettepe nursing schools. Also, less attention was paid to the issue of prevention in the BSN program curricula of Hacettepe and Tehran universities.

Other aspects of health (mental, psychological, and so-

cial) may also need to be considered in the curriculum. Also, it is better to reconsider the procedure of student admission in clinical setting in Iran. Issues such as designing nursing curriculum based on the community needs, and modification of evaluation system and the procedure graduates entering the job market should be considered. Nursing professionals may need to pay more attention to interview and psychological exam scores of applicants in addition to their scores in the university entrance exam. In clinical education, training of preceptor and mentor is of particular importance as it has already started at Tehran School of Nursing and Midwifery and is hoped that will continue. As in the past, it seems better to hold the comprehensive or competency nursing exam to certify graduates applied to enter the workplace. Also, training nurses for home care and community health should be considered. Paying more attention to the issue of research in BSN program is also of particular importance.

### Supplementary Material

Supplementary material(s) is available [here](#) [To read supplementary materials, please refer to the journal website and open PDF/HTML].

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