

## Comparison of Master of Science in Critical Care Nursing Curriculum in Iran and Master of Science in Critical Care in the University of Glasgow: A Comparative Study

Hamideh Ebrahimi<sup>1</sup>, Masoumeh Ebrahimi<sup>2</sup>, Meimanat Hosseini<sup>3\*</sup>

<sup>1</sup>Nursing, Student Research Committee, Shahid Beheshti University of Medical Sciences, Tehran, Iran

<sup>2</sup>Clinical Research Development Unit of Pirooz Hospital, Guilan University of Medical Sciences, Rasht, Guilan, Iran

<sup>3</sup>Department of Community Health Nursing, School of Nursing and Midwifery, Shahid Beheshti University of Medical Sciences, Tehran, Iran

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#### \*Corresponding Author:

Meimanat Hosseini

Department of Community Health Nursing, School of Nursing and Midwifery, Shahid Beheshti University of Medical Sciences, Tehran, Iran.

#### Email:

meimanathossini@yahoo.com

#### Tel:

+98-912 239 4767

### ABSTRACT

**Background:** The main purpose of a health system is to provide quality care services, and providing orderly, high-quality, safe, and economic services requires skillful and knowledgeable nurses. Critical Care M.Sc. curriculum in Iran was revised in June 2010. Studies show that, since specialized associations such as the World Health Organization have demanded the improvement of educational standards for the graduates of this major, educational planner have tried to design a successful and efficient curriculum through examining other successful educational systems in the world. By comparing different educational systems, quality of educational programs can be improved. In addition, comparative studies are one of the most dynamic scientific approaches adopted by educational planners in various countries, such that it is considered a prerequisite for designing modern educational systems. In light of this, the present study tried to compare Critical Care M.Sc. curriculum in Iran with that of the university of Glasgow. It is one of the oldest universities in the UK, the fourth oldest and of the top 100 universities in the world.

**Methods:** This was a comparative and descriptive study conducted in 2020 to compare the Critical Care M.Sc. curriculum in Iran with a corresponding one in the university of Glasgow through Beredy model.

**Results:** Although Critical Care M.Sc. Curriculum in Iran is in an acceptable position compared to the university of Glasgow's evidence-based education approach, the focus on academic writing skills for improving the graduates' skill of writing research papers, and the availability of a part time program were of the advantages of Critical Clinical Care curriculum at the university of Glasgow. On the other hand, lack of a specific and strategic programing, and ambiguities about missions of the graduates were the weaknesses. The curriculum in Iran was clear about the philosophy, mission, and perspective, while job opportunities of the graduates in clinical settings were not clear. This was one of the reasons for the reluctance of the graduates to enter clinical environment, which was a disadvantage of the program in Iran.

**Conclusion:** Although Critical Care M.S Curriculum in Iran is in an acceptable position compared to the one in the University of Glasgow's evidence-based approach, Focus on the academic writing skills for improving the graduates' skills of writing research papers, and availability of a part time program were of the advantages of the critical clinical care program at the University of Glasgow. On the other hand, lack of a strategic programing and the ambiguities about missions of the graduates were the weaknesses. The curriculum in Iran was clear about the philosophy, mission, and perspective, while the job opportunities of the graduates in clinical setting were not clear. This is one of the reasons for the reluctance of graduates to enter clinical environment, which is a disadvantage of the program in Iran

**Key words:** Comparative study, Curriculum component, Master of science, In nursing, Critical care

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## Introduction

Nursing curriculums are designed by university professors regarding specific capabilities and skills, using sources and educational aids to teach students specific skills. The whole curriculum package is guided and adjusted by a managerial structure (1). The main purpose of health systems is to provide quality care services, and providing orderly, high-quality, safe, and economic care services require expert nurses with adequate skills and knowledge(2).

Three main missions of education, research, and provision of services are generally accepted and emphasized by universities. Among these missions, education is of more importance, as it is an activity which makes learning possible (3). Educational systems and curriculums are among the main tools for implementing comprehensive social, political, economic, and cultural changes. Curriculums need to be consistent with the needs of society (4). Therefore, Critical Care M.Sc. curriculum was revised in Iran, in 2010. A study by Sajjadi revealed that following the specialized associations' demand (like the World Health Organization) to improve educational standards of the graduates, it is possible to design a more successful and efficient program by examining other successful programs in the world. Through comparative studies on other educational systems in the world, the quality of Iran's educational system can be improved (5).

In a comparative examination, two or more phenomena are placed next to each other to analyze their similarities and differences (3). One of the functions of comparative studies is to examine curriculums in other countries through scientific transactions and indigenizing of the findings. The outcomes of such examinations can be used to improve and modify existing curriculums or develop new ones. Accordingly, some believe that to have better results in nursing programs in Iran and to detect strengths and weaknesses of such programs, it is essential to conduct comparative studies and use experiences of successful universities in this field (6). For instance, in a comparative study by Ashrafi, to

improve postgraduate programs in Iran, using part-time programs, designing supplementary educational programs for instructors, and introducing supplementary curriculums depending on the needs of society and prevalent diseases in different regions were emphasized (7). Also, the pediatric nursing masters' curriculum in Iran and the USA were compared by Ghorbani et al. (8) To improve the quality of the program in Iran, it was recommended to consider the work experience of the applicants, conduct psychological interviews, and provide part-time educational programs (8)

Given that comparative studies are of the most dynamic scientific approaches used by educational planners in various countries, they are considered a requirement for designing modern educational systems. On the other hand, the curriculum is a scientific field including at least the elements, objectives, content, teaching methods and evaluation methods; and one of the goals of educational planning authorities is to optimize the existing curriculum and direct the current situation towards a more modern one. Therefore, regarding the efficiency of examining the different educational standards in the world (9), the present paper compared the Critical Care M.Sc. curriculum in Iran with the one in the University of Glasgow. The University of Glasgow was established in 1451 and it is one of the oldest universities in Britain, the fourth oldest, and of the top 100 university in the World.

## Materials and Methods

This study was a descriptive and comparative study carried out in 2020 to compare the Critical Care M.Sc. curriculum in Iran with that of the University of Glasgow, which is one of the top universities in the UK. First, the curriculums were collected from the websites of the Ministry of Health and Treatment in Iran and the university of Glasgow, and analyzed based on Beredy model for description, interpretation, juxtaposition, and comparison (3). The description stage consisted of the definition, history of curriculum, values, beliefs, mission and perspective, general



objectives, expected capabilities, roles, professional tasks of the graduates, admission condition and procedure, and specifications and structure. After studying and examining the curriculums, they were entered into the interpretation stage, and the analyzed information was placed next to each other in juxtaposition stage. Then, the information was presented in tables. After organizing the information, differences and similarities were clarified and compared. Based on the differences, strengths, weaknesses, and strategies for making changes were codified (6). The comparison was made with every element of curriculums including history, philosophy, mission, objective, general goals, professional position of graduates, expected capabilities, professional roles and tasks, admission condition and procedure, educational

program evaluation, structure of the educational unit, title, definition, duration, and credits.

Ethical concerns including information confidentiality and honesty in reporting the findings about the two programs were observed. The paper was extracted from a research project approved by students research department of Shahid Beheshti University of Medical Sciences (project code: 1399/60/886) with ethics code: IR.SBMU.RETECH.REC.1399.798.

### Results

Given the fact that curriculum is centralized in Iran, but decentralized in British universities, and that, each university has its own curriculum, the following results were obtained; the results of comparing the elements of the programs are listed in Tables 1-10.

**Table 1.** Comparison of philosophy (values and beliefs), mission, and perspective

University	Philosophy, mission, and perspective
Iran	<p>Philosophy (values and beliefs): The following values are emphasized by the program:</p> <ul style="list-style-type: none"> <li>• As God’s successor on the earth, human being is holy, respectable, has dignity, and is entitled of comprehensive rights even in a critical condition.</li> <li>• Believing in science authority, and trying to achieve the highest care quality based on knowledge and wisdom, is a fundamental value in critical care nursing.</li> </ul> <p>The revised version of the curriculum emphasizes the following values:</p> <ul style="list-style-type: none"> <li>• Medical examination and care should be based on a holistic approach. based on this approach, not only everyday functional needs are met, but also all physical, social, mental, emotional, and spiritual needs should be respected.</li> <li>• Since holistic care requires interdisciplinary and team cooperation, cooperative approaches are emphasized in care provision.</li> <li>• Provision of quality care requires comprehensive practical skills. Therefore, the revised version emphasizes acquiring scientific skills, and such skills which should be acquired comprehensively in each unit are determined.</li> <li>• Independence, learning, and training are emphasized; so that a course titled “skill training” is introduced to help comprehensive skill training.</li> </ul> <p>Mission: Critical care nursing MSN is about training efficient graduates with the required capabilities to improve and optimize nursing care for critically ill patients who need critical care, and to decrease mortality and side-effects. The graduates should be able to provide required consultation to health system managers and policy makers to overcome the needs and problems of the patients in critical care wards and improve the quality of nursing care.</p> <p>Perspective: Critical Care (M.Sc.) program is expected to minimize mortality rate of the critically ill patients to the level of the leading countries in the region through implementing world-class standards and increasing the use of managerial, educational, and research solutions.</p>
The university of Glasgow	<p>The philosophy of the curriculum of university of Glasgow is not specifically designed for critical care programs. It is available on the website of the university as a comprehensive document titled “strategic program of the University of Glasgow for 2015-2020.” Correspondence with the university (two letters) indicated that the university does not have any specific strategy for critical care.</p> <p>Mission: Gathering individuals and create a global environment for learning, researching; and</p>



University	Philosophy, mission, and perspective
	empowering instructors and students to discover and share their knowledge to change the world. Values: Sharing beliefs and motivations and bringing communities closer to each other. Beliefs: <ul style="list-style-type: none"> <li>• Sharing knowledge through creativity and hard work.</li> <li>• Actively guiding students toward expanding their skills, knowledge, and understanding of the common feelings of the citizens</li> <li>• Encouraging balance and accepting failure through improving self-confidence. Failure is part of our work processes</li> <li>• Trying to be the best in everything regarding care, work, and provision of best services to students, clients, and instructors.</li> <li>• Welcoming any recommendation by students and professors.</li> <li>• Sharing findings and activities among local and international communities</li> <li>• Practicing ethical behaviors, and social and environmental responsiveness at work and</li> <li>• A chance to study in the university for anyone who has the talent</li> <li>• Doing our best to improve position of Glasgow in the west of</li> <li>• Scotland and in the international community</li> </ul>

**Table 2.** General goals of the curriculum

University	General goals of the curriculum
Iran	The general goal of the Critical Care (M.Sc.) program is to teach graduates adequate knowledge, good performance, skills, and meta-skills (professional behavior, communicational skill, information technology, life-long self-training, research, management , quality improvement, creative criticism, problem-solving in critical situations), and improve the quality of care for critically ill patients who need critical care.
Glasgow	The general goal of critical care program is to train highly skilled individuals for the critical care environment with life-saving care needs

**Table 3.** Professional position of the graduates

University	Professional position of the graduates
Iran	Graduates can work in the following positions: <ul style="list-style-type: none"> <li>• Critical care wards including CCU, ICU, hemodialysis, emergency, recovery, and transplant.</li> <li>• Critical care centers in hospices</li> <li>• Critical palliative care centers</li> <li>• Research centers and knowledge-based companies, and development and technology centers</li> <li>• Other fields that need critical care</li> <li>• Provision of critical care at home</li> </ul>
Glasgow	None mentioned

**Table 4.** Expected professional capabilities, roles, and tasks of the graduates

University	Expected professional capabilities, roles, and tasks of the graduates
Iran	Professional tasks of the graduate after the program are: <ul style="list-style-type: none"> <li>• Care role</li> <li>• Educational role</li> <li>• Research role</li> <li>• Support role</li> <li>• Consultation role</li> <li>• Management role</li> </ul>
Glasgow	None mentioned



**Table 5.** Requirements for admission

University	Requirement for admitted students
Iran	The applicants should participate in a nationwide admission exam. They should also have two years of clinical work experience and a bachelors' degree in clinical and hospital care. Work record in private hospitals or as part of the training course at hospitals is included. Therefore, the students subject to bright student programs (outstanding students) who can enter postgraduate programs without exam cannot enter this program immediately after graduation. They can enter the program after passing two years of work based on the regulation of the time. The graduates of bachelors' programs of nursing, anesthesia, and operation room can apply.
Glasgow	Available for all nurses, physicians, and undergraduates in medical science groups.

**Table 6.** Curriculum evaluation and exams

University	Program Evaluation and Exams
Iran	<ul style="list-style-type: none"> <li>• Written exam</li> <li>• Verbal exam</li> <li>• Computer interaction exam</li> <li>• 360° exam</li> <li>• OSCE (Objective Structured Clinical Examination)</li> <li>• DOPS (Direct Observation of Procedural Skill)</li> <li>• Project-based evaluations</li> <li>• Portfolio and logbook assessment of exams, papers, awards and notices.</li> </ul>
Glasgow	Educational approach in the university as this program is based on using a multi-teaching approach including speech, seminars, simulation, and visit of wards. Assignments will be evaluated based on skills requirements and passed courses.

**Table 7.** Specifications, structure, and credits

University	Specifications, Structure, and Credits
Iran	<p>The main credits in the program are:</p> <ul style="list-style-type: none"> <li>• Advanced research method</li> <li>• Statistics</li> <li>• Diagnostic assessment</li> <li>• Basic nursing concepts</li> <li>• Internal, surgery</li> <li>• Internal and surgery training</li> </ul> <p>The main courses of this program are:</p> <ul style="list-style-type: none"> <li>• Research method and academic writing (semester one) including systematic research learning and basic statistics method, and improving skills in academic writing</li> <li>• Diagnosing vital organ failure (semester one)</li> <li>• Improving evidence-based skills (semester one)</li> </ul>
Glasgow	<p>Evidence-based skills education based on the guidelines to improve work performance in their career path.</p> <ul style="list-style-type: none"> <li>• Managing patients with multi-vital organ problem (semester two).</li> </ul> <p>Vital organs means the respiratory, cardiac, brain, kidney, liver, digestive, and circulatory system.</p> <ul style="list-style-type: none"> <li>• Infection and sepsis (semester two)</li> <li>• Critical care management (semester two)</li> </ul> <p>This course focuses on ethics, approaches, ethical/logical aspects and the principles of management.</p>



**Table 8.** Curriculum title

University	Curriculum title
Iran	Critical care nursing (M.Sc.)
Glasgow	Clinical care

**Table 9.** Definition of the curriculum

University	Definition of the curriculum
Iran	Critical care nursing is a specific branch of nursing which deals with life-threatening problems, and preventive and life-saving measures. The graduates are in charge of providing advanced and quality care to the critically ill patients and their families.
Glasgow	Critical care for patients is changing and needs considerable specialized skills. Major health problems from the great polio pandemic in 1950 to COVID-19 pandemic in 2020 emphasize the importance of critical care in ICUs.

**Table 10.** The curriculum by semester and credit

University	Semester and credits
Iran	<p>The curriculum consists of four academic semesters (two years). The total number of credits is 32 including:</p> <ul style="list-style-type: none"> <li>• Mandatory specialized credits (core): 26 credits</li> <li>• Optional specialized credits (non-core): 2 credits</li> <li>• Dissertation (4 credits)</li> </ul> <p>Make-up courses are 12 credits, which are not included in the total number of credits.</p> <p>Students of critical care are admitted as full-time (12 months) or part time students (24 months) in September and January.</p> <p>The courses are available in three periods:</p> <ul style="list-style-type: none"> <li>• A three-month semester (semester one, full time)</li> <li>• A three-month semester (semester two, full time)</li> <li>• Six-month dissertation or project report (summer semester, full time)</li> </ul> <p>Notice: in the part-term program, semesters one and two are held in 12 months and dissertation is dealt with in another 12 months. For project report, students can adopt relevant topics about critical care in one year. The resultant project is expected to be accepted as a national or international work in reputable journals.</p>
Glasgow	

**Table 11.** History of critical care discipline formation

University	History
Iran	The Critical Care Nursing curriculum became available in 2008 in the Nursing School, in Shahid Beheshti University, and was revised throughout a period of four to six years. The last revision was done in 2019.
Glasgow	The Critical Clinical Care curriculum was implemented in QUEH, the biggest educational and critical care center in Scotland, which is also one of the biggest in the UK. The hospital opened in 2015 as one of the largest hospitals in Europe.

Although Critical Care MSc. curriculum is in an acceptable position compared to the University of Glasgow’s evidence-based approach, the focus of academic writing skills to improve the graduates’ skills of writing research papers, and the availability of a part time curriculum were of the advantages of Critical Clinical Care curriculum at the University of Glasgow. On the other hand, lack

of a strategic programming, and ambiguities about missions of the graduates were the weaknesses. The curriculum in Iran was clear about the philosophy, mission, and perspective of the program, while carrier position of the graduates in clinical setting was not clear. This is one of the reasons for the reluctance of graduates to enter clinical environment, which is a disadvantage of



the program in Iran

### Discussion

Through examining the elements and comparing the similarities and differences in detail, the following results were obtained; the information on the status of the Masters of Critical Care curriculum at the university of Glasgow was obtained through reviewing the university website (10). The curriculum in Iran specifically discusses philosophy, mission, and perspective. Values and beliefs stated in the curriculum in Iran are based on the beliefs and values accepted in society. Values of professional nursing in clinical setting are also defined, and the perspective is specifically designed based on the objectives of M.Sc.) in Critical Care Nursing . On the other hand, the philosophy, mission and the strategy of the program in general are not specifically addressed in the curriculum provided by the university of Glasgow, which can be viewed as a weakness

In a study by Aghaei et al. (11) , nursing postgraduate programs in Iran and Canada were compared ,and it was found that the Iranian curriculum needed revision in terms of philosophy, objectives, and educational mission at higher education level .In other words, the designed tasks for graduates should be realistic and consistent with the philosophy, mission, and perspective of the program. In addition, changes in the country and students' population must be taken into account (12). Among the courses defined in the Critical Clinical Nursing curriculum in the university of Glasgow, evidence-based care is highlighted, which is not focused on the curriculum available in Iran. Evidence-based care is defined as the combination of research results with care skills. Results of a systematic study in Iran indicated that lack of skills regarding the research and its methods was one of the obstacles of evidence-based practice (13). The program in the university of Glasgow as full time (12 months) and part time (24 months), and the research in the form of a dissertation on summer semester in six months (full time) and 12 months (part time) are available. The students are

required to introduce a national or international research project published in reputable journals. In Iran, the program is available as full time, and the research in masters' degree is conducted through dissertation after passing theoretical and practical courses. According to the executive by-law of Critical Care Nursing M.Sc. in Iran, prepared by the Ministry of Health, students are not required to publish a paper in reputable scientific journals. The title of the program in Iran is Critical Care Nursing (M.Sc.), and the bachelor's graduates of nursing with at least two years of work experience in intensive care units can participate in the entrance exam. The title of the program in the university of Glasgow is Critical Clinical Care, and in addition to nurses with a bachelors' degree, general practitioners and other medical experts can get the degree. There is no requirement for clinical work experience in ICU wards on the university's website. A study by Free et al. (14) discovered that having clinical experience can improve efficiency of nurses (14). A mandatory course in the first semester of the university of Glasgow is academic writing, to improve students' skills in writing research papers and essays. On the other hand, Iranian students do not have satisfactory writing skills in English to meet the professional and academic writing requirements (15). Clearly, students with higher English language skills can benefit more from their postgraduate program compared to those who do not have basic English language skills (16). Availability of a part-time program was another advantage of the University of Glasgow. Since students entering such programs mostly have jobs outside the university, the availability of part time curriculum helps them preserve the quality of their lives and fulfill the responsibilities at work and at home while continuing their study (17). The number of credits in Iranian curriculum is specifically determined, while the curriculum of the university of Glasgow contained no scoring, and the term "credit" is not used there even once (10). Comparing the available courses in the two curriculums, it can be seen that the courses in the university of Glasgow



are based on evidences, and focus on the key issues of the day and society. The only common course between the two programs is “research method and basic statistics” which is due to the importance of research works and developing problem-finding skills in postgraduate programs. On the other hand, the main focus in Iran is on critical care wards. The fact that a shorter program is made available at the university of Glasgow compared to the similar programs in Iran means that, graduates from the University of Glasgow enter the clinical setting sooner (10). On the other hand, clinical matters are the main stressors for Iranian nursing students, and the slow process of graduation of postgraduate nursing students and critical care nurses in particular, and the lack of a clear promotion opportunity, or a clear clinical position for these students discourage them from graduating and working in critical care units (6)

### Conclusion

Although Critical Care MsN curriculum is in an acceptable position compared to the university of Glasgow's evidence-based education approach, the focus on academic writing skills to improve the graduates' skills of writing research papers, and the availability of a part time program were of the advantages of the Critical Clinical Care curriculum at the university of Glasgow. On the other hand, lack of a specific strategy, and ambiguities about missions of the graduates were the weaknesses. The curriculum in Iran was clear about the philosophy, mission, and perspective of the program, while carrier path of the graduates in clinical setting was not clear. This is one of the reasons for the reluctance of graduates to enter clinical environment, which is a disadvantage of the program.

### Conflict of interests

Lack of direct access to professors and students at the University of Glasgow, despite frequent correspondences with the university and using the university's website as the only source of information were some of the limitations in this study. There was no conflict of interest in data

collection and analysis

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### Authors' contributions

Ebrahimi H and Hosseini M designed research; Ebrahimi H conducted research; Ebrahimi H analyzed data; and Ebrahimi M wrote the paper. Hosseini M had primary responsibility for final content. All authors read and approved the final manuscript

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