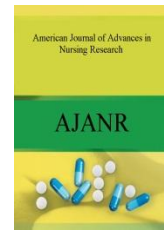




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### COMPARATIVE INSIGHTS FOR SUSTAINABLE DEVELOPMENT OF NURSING EDUCATION IN IRAN

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#### ABSTRACT

Efficient and safe nursing care and health systems require well-trained nurses, and nursing education supports the development of competent nurses. This review compares aspects of nursing education in Iran including structure, curriculum, clinical training, faculty development, and the way forward to developed and other developing countries. Iran has made remarkable advances with the establishment of university programs and the adoption of national curriculum standards. Yet, educational outcomes are influenced by faculty and resource limitations and lack of integration between theoretical and practical knowledge. Comparing Iran with developed and developing countries reveals that developed countries are ahead in technology, research, and flexible curricula, while Iran is strong in early exposure to clinical settings and comprehensive educational systems. This research underlines the need to embrace new teaching approaches, build faculty capacity and incorporate technology to improve student learning. To achieve sustainable growth in nursing education in Iran, reforms, resource allocation and international co-operation are necessary to address changing health care needs and enhance patient outcomes.

#### INTRODUCTION

Nursing education is a vital element of health care systems throughout the world, because nurses are the largest group of health care professionals responsible for providing safe, quality and patient-centered nursing care in diverse clinical settings. This evolution has been shaped by advances in medical science, technology and the complexities of nursing practice, and has led to an emphasis on competency-based education, evidence-based nursing practice and interprofessional education and practice.

Against this backdrop, comparative studies of nursing education systems have played an important role in assessing the strengths and weaknesses of nursing education systems and inform reforms aligned with country-level and global needs. In Iran, for instance,

nursing education has undergone major reforms in the last few decades, especially following the sociopolitical changes of the Iranian revolution and the Iran-Iraq war which have resulted in restructuring of the system, development of nursing programs and establishment of university-based nursing education programs. [1] Today, Iran has a complete range of education programs in nursing at undergraduate, masters and doctoral levels, which are crucial to enhancing the health workforce and in line with international trends in nursing education. But there are also issues in the system that are common among developing countries, including insufficient educational facilities, low numbers of faculty and educational managers, gaps between theory and practice and increasing numbers of students to address workforce shortages. Comparative studies indicate that, although the level of nursing education in Iran can be considered moderate among developed countries and developing

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countries, it must be more responsive to health care needs and international trends. Developed countries may lead in aspects such as flexibility of curricula, use of simulation and technology, accreditation and integration of research and evidence-based practice, while developing countries, like Iran, may have systemic and policy impediments that affect education. But, the Iranian system has its own strengths, including national curricula, early clinical placement and increasing higher education, which highlight its commitment to improving health care and nursing quality. Descriptive-comparative models such as Bereday's enable systematic comparison of countries, and an evidence-based approach to policy and practice development and education reform.

In addition, the emergence of globalisation and information and communication technologies has also resulted in an increased need for flexible, responsive and culturally sensitive nursing education systems to respond to changing health care needs. Hence comparison of the Iranian nursing education system with both developed and developing countries provides insight on what, why and how changes should be made, prospects for collaboration between countries and opportunities for sustainable development.[2] This review aims to integrate previous descriptive-comparative studies and to provide a comprehensive picture of the nursing education system in Iran with regard to its development, status and prospects in the world, and to enhance nursing education and health services.

### Structure of Nursing Education Systems

Nursing education systems differ between countries, but typically involve a structured and regulated approach to training healthcare practitioners. Nursing education generally occurs in three tiers: diploma nursing, undergraduate programs, and postgraduate programs. Diploma courses, which are often hospital-based, provide basic nursing knowledge and skills, leading to entry-level positions. Bachelor of Science in Nursing (B.Sc. Nursing) degree programs offer a broader education combining theoretical, clinical, research and leadership skills [3]. These degrees are typically regulated nationally by a body such as a nursing council or accreditation authority. Master's and doctoral programs, or postgraduate studies, focus on advanced practice, education, research, and policy. Many nations follow competency-based curricula that include lecture-based teaching, simulation exercises, and substantial clinical practice in hospitals and the community. It also includes licensing exams and ongoing

professional development to uphold competency.[4] In developed nations, systems tend to be highly standardized and research-focused with significant integration of technology and evidence-based practice, while in developing countries challenges include infrastructure, staffing and quality of training. But there is a growing international focus on standardizing nursing education to support workforce mobility and enhance patient care. In conclusion, a robust nursing education system is crucial for providing safe, quality, and patient-focused care across a wide range of healthcare settings.

### Curriculum and Teaching Strategies

Nursing education teaching strategies and curricula focus on enabling the development of capable, ethical, and patient-centered health-care practitioners through the application of academic and clinical learning. Nursing curricula are often competency-based and include core areas like anatomy and physiology, pharmacology, microbiology, medical-surgical nursing, community health, mental health nursing and maternal and child health. Besides clinical disciplines, it also covers research methods, ethics, communication and leadership to equip nurses for various roles in the health care system. Contemporary curriculum places an emphasis on outcome-based learning, integrating learning outcomes with clinical competencies and standards set by professional accrediting bodies. Nursing education methods have shifted from traditional didactic lectures to more engaging and participatory learning formats. Approaches like problem-based learning (PBL), case studies, simulation practice, and experiential learning are common to develop critical thinking, decision-making, and reasoning skills. Simulation labs with high-fidelity models provide a safe space for students to practice clinical situations, enhancing their confidence and minimising errors in clinical practice[5]. Hospital and community placements offer supervised clinical practice, allowing students to practice skills in a real-world environment. Moreover, the integration of technology, such as e-learning, virtual reality simulations, and blended learning approaches, enhances accessibility and flexibility. Regular assessment, both formative and summative, including practical exams and reflective writing, provides feedback for learning. In conclusion, a holistic and creative curriculum and effective teaching approaches are essential to equip nursing students for the challenges of the future.



**Table 1: Comparative Structure of Nursing Education in Iran, Developed and Developing Countries**

Aspect	Iran	Developed Countries	Developing Countries
Education Levels	Diploma, BSc, MSc, PhD	Primarily BSc, MSc, PhD	Diploma and BSc dominant
Regulatory Bodies	Ministry of Health, Nursing Boards	Independent accreditation agencies	Variable or limited regulation
Curriculum Standardization	National standardized curriculum	Flexible and competency-based	Often inconsistent
Licensing System	National licensing exams	Strict licensure and re-certification	Limited or inconsistent
Continuing Education	Required but developing	Mandatory and structured	Limited opportunities

**Table 2: Curriculum and Teaching Strategies Comparison**

Component	Iran	Developed Countries	Developing Countries
Teaching Methods	Lecture + clinical training	PBL, simulation, blended learning	Mostly traditional lectures
Technology Integration	Moderate (e-learning emerging)	High (VR, AI, simulation labs)	Low to moderate
Curriculum Design	National standardized	Flexible & outcome-based	Often rigid
Skill Development	Early clinical exposure	Advanced simulation-based learning	Limited practical exposure
Assessment Methods	Exams + clinical evaluation	Continuous, competency-based	Mostly exam-focused

**Figure:1 Curriculum and Teaching Strategies**

Figure 2: Faculty Development and Educational Resources



### Clinical Education and Practical Training

Practical and clinical education is a vital component of nursing education, integrating theory with practical application in patient care. This element of nursing education aims to ensure that nursing students gain practical experience in various clinical environments, such as hospitals, community health clinics, primary health care, and specialized areas such as intensive care and maternity wards. During clinical placements, students acquire basic nursing skills, including patient assessment, medication management, wound dressing, infection prevention, and communication skills with patients and health care providers.[6] Guidance from clinical instructors and preceptors helps students gain competence, confidence and professionalism, while

upholding ethical and safety considerations. Practical experience is frequently framed within competency-based education, which requires students to demonstrate particular skills and achieve certain learning objectives. Clinical simulation, using mannequins or computer-based simulations, is an important element of preparation for direct patient care, enabling students to rehearse skills and decision-making in a safe, controlled environment. Progress assessments and reflective practice are often facilitated through clinical logbooks, skill checklists and reflective journals. Additionally, interprofessional education is increasingly incorporated, enabling nursing students to collaborate with medical, pharmacy, and allied health students, thereby fostering teamwork and holistic care approaches. Potential issues with clinical education



might include the number of clinical placements, student-instructor ratios, and the diversity of cases encountered. But ongoing initiatives to enhance collaboration between academia and hospitals, as well as the use of contemporary simulation techniques, are enhancing clinical training. In summary, quality clinical education means nursing graduates are well-equipped to practise independently and provide safe, effective and empathetic care in complex healthcare settings.[7, 8]

### Faculty Development and Educational Resources

Faculty development and educational resources play a vital role in the success and efficiency of nursing education programs. High-quality and highly skilled faculty are crucial in the education and development of nursing students. Faculty development initiatives aim to improve teaching, clinical, research and leadership skills among faculty members. These initiatives may involve workshops, continuing education programs, seminars, and training in emerging pedagogies such as simulation-based education, problem-based learning, and the use of electronic learning technologies.[9,10] Furthermore, higher education programs, research grants and involvement in conferences further enhance the academic prowess and professional development of the faculty. Learning resources also play a vital role in facilitating the teaching-learning process. This encompasses physical infrastructure, laboratories, skills labs, libraries, access to current textbooks and peer-reviewed journals, and e-learning platforms. The application of information and communication technology (ICT) in nursing education has revolutionised teaching and learning by providing access to virtual simulations, online learning resources and knowledge communities[11]. Learning management systems (LMS) support the delivery of content, assessment, and academic management. Clinical training facilities and hospital affiliations also enhance learning opportunities. But issues of a lack of faculty, funding, infrastructure, and disparities in digital access in developing nations continue to plague many of these programs. Investments in research and development, policy frameworks and institutional strengthening are needed to address these challenges. In conclusion, investing in faculty development and providing well-equipped educational resources are crucial for preparing nursing professionals to address the challenges of the healthcare sector.

### Future Directions in Nursing Education

The future of nursing education is being shaped by the continuing evolution of health care, technology and global health challenges, and demands a forward-thinking and disruptive approach to nursing education. A significant trend is the use of digital technologies, such as

artificial intelligence, virtual reality, and simulation-based scenarios, to improve clinical training and decision-making in a risk-free environment.[12] These innovations allow students to engage in immersive learning experiences, improving their readiness for complex clinical situations. Moreover, the growth of e-learning and blended learning approaches offers flexibility and convenience, allowing for ongoing and lifelong learning opportunities for nursing professionals. Another key trend is the focus on competency-based and outcomes-focused education, tailoring programs to international healthcare standards and person-centered care principles.[13–15] Inter-professional education is also becoming more prominent, fostering collaboration between nursing, medical, pharmacy and allied health students to enhance teamwork and comprehensive care. In addition, there is an emphasis on research and evidence-based practice, preparing nurses to critically evaluate research studies and integrate evidence into practice. Emphasis is also placed on leadership and policy to ensure nurses are skilled in decision-making and policy-making processes. The internationalization of nursing education is promoting global partnerships, exchange programs, and harmonization of skills and competencies to promote mobility of nurses across borders. At the same time, there is a greater focus on tackling emerging health priorities including population ageing, chronic illness, pandemics, and mental health problems. Environmental sustainability, cultural sensitivity, and ethical considerations are also being incorporated into nursing education. In conclusion, the future of nursing education is about innovation, flexibility and ensuring highly skilled, well-adapted, globally prepared nurses for the future.[16]

### CONCLUSION

Overall, nursing education in Iran has advanced substantially and shows remarkable progress towards international standards through the growth of university-level nursing education, curricula and rapid integration into patient care. Our comparison with developed and developing nations shows that while Iran has built a robust foundation in nursing education, there are still many challenges, such as inadequate resources, lack of faculty members and a disconnect between classroom and clinical practice. There are lessons from advanced countries in terms of the adoption of advanced simulation technologies, integration of research practices, flexible degrees and well-developed accreditation systems that can provide models for improvement. However, Iran's achievements, including the development of national curricula and a shift to higher education, offer a foundation for future growth. To improve nursing education, there is a pressing need for policy reform, enhanced investments in educational resources, and



faculty training programs. Collaborating with health care facilities to improve clinical training and bridge the gap between academia and practice can provide a more effective learning environment. Finally, leveraging technology, embracing evidence-based practice and fostering global partnerships will help equip nurses to

adapt to changing healthcare landscapes. Finally, a holistic approach that combines best practices from across the world with local expertise will help Iran build a sustainable, flexible, and high-quality nursing education system that enhances health outcomes and ensures long-term success.

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