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HISTORY AND LUMINARIES OF MEDICAL EDUCATION IN IRAN

*Amirmahdi Taleb¹, Mohammad Mahdi Isfahani², Masoumeh Mohajer Rahbari³, Mohammad Reza Rajab Nejad¹, Kamyar Ghabili⁴, Mohammad Ali Torbati⁵ and Majid Khalili⁶

¹Institute for Medical History, Islamic and Complementary Medicine, Iran University of Medical Sciences, Tehran, Iran

²Research Centre for Quran, Hadith and Medicine, Tehran University of Medical Sciences, Tehran, Iran

³Reproductive Health Department, Shahrood University of Medical Sciences, Faculty of Medicine, Shahrood, Iran

⁴Physical Medicine & Rehabilitation Research Center, Tabriz University of Medical Sciences

⁵Liver & Gastrointestinal Diseases Research Center, Tabriz University of Medical Science

⁶Tuberculosis & Lung Research Center, Tabriz University of Medical Sciences

*Author for Correspondence

ABSTRACT

Historical debate and exchange of Iranian civilization with other civilizations such as Indian and Greek in different cultural, scientific and medical areas have always been famous among the science historians. Medical education background in Iran can be divided into two general parts including the ancient Iran and also the post-Islamic era. One of the characteristics of the ancient Iran was its communication and collaboration with other medical schools at that period. The rise of Islam and its emphasis on fundamental principles led to the increasing scientific development of Islamic society in all the areas including medical science and its unique characteristics and innovations. The most important milestone in the development of medical education in Iran after the fundamental measures taken by some famous characters in Qajar age was the victory of Islamic revolution which was commenced by innovative formation of ministry of health and medical education in 1985. Although only some of the physicians and famous scientists in medical science and Islamic and Iranian culture and civilization areas have been mentioned herein, it should be mentioned that this group of the scientific society of the country have always been the leader of quantitative and qualitative improvement and sustainable development of medical education in Iran by defending the values of the system and by relying on Islamic fundamental values.

Keywords: Medical History, Medical Education, Islamic Revolution, Iran

INTRODUCTION

According to the general consensus of all historians especially those who are interested in medical history, the history of medicine begins from the early days of man's creation. Commencement and long past of medical history may be only sought in the ambiguous designs remained on the walls of the caves or between the ancient fossils. It is quoted that the first medical instructions were inspired by the angels of God to the people who were in need. Discovered signs such as existence of microbe in the 500 years old fossils with symptoms of bone and joints diseases such as Rickets, application of treatment methods by the man of the late third age and beginning of ice age as well as acquaintance of the stone age physicians with the herbs all indicate the continuous campaign of man against diseases and as a result adopting methods to overcome them (Sadr, 1991; Sarmadi, 2000).

Medicine in Iran has a history as ancient as the Iranian culture and civilization. Iranian valuable treasure of culture and civilization has clearly proved its effect and fruitfulness on different areas of human sciences including medicine and the long range test of history. Historical debate and exchange of Iranian civilization with other civilizations such as Indian and Greek in different cultural, scientific and medical areas have always been famous among the science historians (Tajbakhsh, 2000; Azizi, 2003).

In the series of his studies on medical history, Prof. Paul Hysen has considered the origin of medical science to go back to more than 8,000 years ago established by the primitive Iranian tribes (Figure 1) (Hysen).

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In his book, "Iranian Medical History and the East Caliphate Territories", Dr. Cyril Elgood writes: "Situation of medicine in the ancient Iran was more improved than in Assyria. Even it can be said that the Iranian instructed the Greeks the principles of what is called as Greek medicine. It is unlikely the Greeks could have created the method today called as Hippocrates method only within two centuries." He adds: "The Iranians who have always been a pioneer in the scientific issues have changed and completed it and have developed it in such a manner that it was finally received by the Greeks and they could firmly and comprehensively explain that and could change that into an independent form" (Sadr, 1991; Elgood, 1992; Kassiri, 2011).

The interesting point is that acceptance of Islam by the Iranians and the influence of pure Islamic culture highly increased the richness and brilliance of Iranian culture (Tajbakhsh, 2000). By the rise of Islam and commencement of its heavenly education in different areas such as encouragement of Muslims to gain knowledge for God's satisfaction as well as the efforts and diligence made by the Islamic messenger and the innocent Imams towards elevation of research and education culture led to much more developments of Islamic scientists in the areas of human sciences and techniques and especially medicine as compared to other human ages. This trend was developed in the broad territory of the Iran in that era with a unique effect in the manner that many researchers appeared in different scientific fields such as medical sciences whose names will always remain in the world. Here we do not intend to remember or discuss about Razi, Ahvazi, Avicenna, Jorjani, Aghili Alavi Khorasani and other scholars of Iranian traditional medicine who introduced themselves as students of medicine up to the end of their lives, but the main point is their continuous effort and diligence to achieve more developments in medicine, pharmaceuticals, nursing, health, nutrition and even more specialized branches such as sports, social and rehabilitation medicine and even medical ethics.

The result of their efforts is the codification of hundreds of eternal works based on research and study for the current generation, the works that have been taught for almost 700 years as the educational resources and textbooks of most European medical education centers including Salerno, Padua and Bologna universities of Italy and Montpellier university of France (Figure 2) (Tajbakhsh, 2000; Roostaei, 2003; Abbasi, 2008).

History of Medical Education in Iran

Medical education background in Iran can be divided into two general parts including the ancient Iran and the post-Islamic era.

Ancient Iran Era

Medicine among the Aryan tribes was one of the sciences that had been developed and improved about 3 centuries BC before most human tribes. It can be understood from the works remained from Zoroastrianism that Mazdisna-based medical educations were much more and much earlier available in the world as compared to other current schools of that time. On this basis, Jamshid (Thraetaona) was the inventor of medicine and Feraydoon (Thritta) was the first one who dealt with the treatment of patients. Medical science in the ancient Iran and especially among Achaemenians and Sasanidshad been grown and developed in such a manner that they knew the diseases, methods of preparation and formulation of different pharmaceutical forms and their applications in treating the disease. On the other hand, they used the common methods at that time to supervise on the professional performance of physicians, the relation between physician and patient and their responsibilities towards government and society according to the governing rules and regulations of the society (Sadr, 1991; Najmabadi, 1992).

The physicians were educated theoretically and practically in the important educational centers of that time, i.e., Ray, Hamedan, Perspolis, Passargad, etc. in the hospitals. Three groups of physicians graduated from those educational centers, 1) Divine healers who were in fact some type of psychiatrists, 2) The group who used herbs to treat the patients, and 3) Official or legal physicians who were trusted by the government (Najmabadi, 1992; Brawn, 1992). Head of the physicians who was assigned by the government and was responsible to supervise on the performance of other physicians. In addition to educational hospitals, there were also special hospitals for men and women in each city that offered therapeutic services (Sarmadi, 2000; Najmabadi, 1992).

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Another characteristic of the ancient Iranian medicine was its communication and collaboration with other schools and especially Greek, Mesopotamian and Egyptian civilizations that reached its peak during Sasanids era. In fact, one of the first university cities of the world was established during that era upon establishment of Jondishapour city, the Iranian Scientific Center, by the First Shapour (about 250-260 AD). The beginning of activity of the Great University of Jondishapour should be considered as a milestone in the commencement of unique golden prosperity age of current science and knowledge of that time especially in different fields of medical science and its education. According to the attention of Sasanids rulers including the Second Shapour and Anoushiravan towards the scientific elevation and development of Jondishapour, medical practical education in that university was developed specifically and increasingly in the manner that in addition to the faculty of medicine, the educational hospital began to offer educational and therapeutic services as well (Najmabadi, 1992).

One of the major characteristics in the activity period of faculty of medicine of that university in addition to organization of educational system was the development of infrastructural affairs of medical education including research and study in the associated sciences, translation and authorship of different books in the field of medical science, promotion of different languages including Greek, Pahlavi and Indian through those books, using the experiences of foreign physicians in the educational, research and therapeutic activities, holding special meetings for medical debates (similar to today's medical conferences), etc. In this regard, holding of the first medical congress in the 20th year of Anoushiravan monarchy (531-579 AD) has been reported in which Gabriel, the Anoushiravan's physician and head of physicians and responsible officer for health of the society of that era managed that scientific congress (Sadr, 1991; Tajbakhsh, 2000; Najmabadi, 1992).

Post-Islam Era

Upon appearance of Islam and after its development into the Iranian borders followed by the Iranians joining to that knowledge-oriented religion, not only Jondishapour international university was patterned for the establishment of some other scientific and educational centers in the Islamic government territory, but also the scientific prosperity of that large university continued to increase until 3-4 Hegira centuries (Tajbakhsh, 2000; Ghonaimah, 1993). Later the establishment of different educational centers and hospitals throughout the Islamic world and especially assigning Baghdad as the Islamic capital, the scientific decline and fall of those centers began gradually upon migration of the scientists and physicians of Jondishapour international university to Baghdad and other scientific centers of Islamic civilization (Najmabadi, 1992; Ghonaimah, 1993; Araam, 1987).

On the other hand, considering the principles of Islamic faith including fundamental subjects such as 1) coordination of Islam with man's nature and his relation with environment, 2) the emphasis of Islam and its true leaders on gaining knowledge (e.g., verse 128 of Baqarah Surah of Holy Quran as well as the Hadith quoted from Islamic messenger (pbuh): Seeking knowledge is obligatory for all the Muslim), 3) the principle of equity, 4) campaigning against racial discrimination, 5) emphasis on health and its continuous promotion, the scientific development of Islamic society in all areas including medical sciences increased (Issabak, 1992).

By the establishment of educational centers in the form of specific schools named *Nezamieh* which were supported by the Islamic government, a new area was opened for more development of knowledge and especially applied sciences such as medicine, more attraction to interested people in learning medical sciences, development of international scientific cooperation, public-interest activities such as endowment with the goal of establishing educational, therapeutic and medical sciences, etc. (Tajbakhsh, 2000; Issabak, 1992; Tajbakhsh, 2001).

Anyway, following the establishment of a suitable background and strengthening available capabilities in the Islamic society taken from Islamic instructions, major Islamic physicians such as Razi, Ahvazi, Avicenna, Jorjani, Ibn-e-Nafis and hundreds of physicians and researchers came into the area of scientific world (Isfahani, 1997; Modanlou, 2008; Bungyet *et al.*, 1996; Tabei and Riazi, 2009; Nabipouret *et al.*, 2009; Changizi Ashtiyani *et al.*, 2011; Masic, 2010). In this way, another golden age in medical history and its education begins in the civilization of Islamic Iran. Recording the clinical condition of patients, codifying

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the method of achieving a correct diagnosis, discussion with students to solve diagnostic and therapeutic problems through group's discussion by Razi or exchange of scientific views through correspondences and distance learning, using innovative methods with the goal of providing diversity in education such as composing poems by Avicenna, codifying medical advices by Ali ibn-e-Abbas Ahvazi or AghiliAlaviKhorasani, the efforts made by scientists and students to codify necessary books, translation, providing critics and descriptions on the books, etc. were only some of the characteristics of medical education in the age of Islamic Iranian civilization (Figure 3) (Avicenna, 2008; MajossiAhvazi, 2008; Aghili, 2007; Sadr, 2008).

The development trend of medical sciences and its education continued until 10-11 centuries with ups and downs arising from historical events and political and social conditions of Iran until the beginning of a new age of interaction between the Iranian civilization medicine and world medical education upon the fundamental measures taken by prime ministers such as GhaemMaghamFarahani and MirzaTaghi Khan Amir Kabir and especially upon establishment of Darolfonoon school in 1851. In the early establishment years of Darolfonoon, period of education was 7 years which later decreased to 5 years. During 12 programs and nearly in 44th year of Nasereddin Shah Monarchy, a total number of 1,100 physicians graduated from DarolfonoonSchool. Inviting foreign instructors especially in the fields of medicine and pharmaceuticals and sending students abroad for education, establishment of governmental hospitals with the goal of offering therapeutic and educational services throughout Iran, establishment of medical school and in the next years, establishment of faculty of medicine in the university of Tehran, etc. may be considered as some of the fundamental measures taken within the recent 2 decades with the goal of developing medical science and its education in Iran (Sarmadi, 2000; Hedayati, 2002; Mehrabi, 2005).

After the victory of Islamic revolution and focus on independence in different fields of Islamic system and with the goal of enjoying the capabilities of graduates of medicine in different levels of offering health, educational and research fields, we witnessed the innovative formation of ministry of health, treatment and medical education in 1985. As the first administrative establishment supervising on the above activities in the world, it provided a prosperity-based innovative movement in all scientific and executive fields for the world and especially for the legislator organizations in healthcare system (Deputy for Cultural, Juridical and Parliamentary Affairs, 1993).

Luminaries of Iranian Medical Education

Considering the records of medical science and its education in the ancient Iranian civilization, an overview of scientific history in this territory indicates that several political and scientific people have played a role in this field. In the meantime, while addressing the historical priority, only the names of the most famous physicians have been summarized in two general categories based on the studies and reports of medical historyresearchers:

Before Islam

Borzouyeh, Bozorgmehr (some historians believe both of these physicians are the same person), Gabriel and other physicians belong to family of Bokhteyashou (Tajbakhsh, 2000; Abbasi, 2008; Abbasi, 2008; Zargarane et al., 2011).

Islamic Civilization Age

- From the first until 12th Hegira century

Abolhasan-e-Tabari, Ibn-e-Raban-e-Tabari, Shapour-e-ibn-e-Sahale Ahwazi, Ibn-e-Masouyeh, Mohammad-e-ibn-e-ZakariRazi, Rabi-e-ibn-e-Ahmad-e-Akhavaini, Aboumaher-e-Shirazi, AboulAla Farsi, Ali-e-ibn-e-Abbas-e-Ahwazi, Ibn-e-MandouyehIsfahani, Ahmad-e-ibn-e-Abel Ashas-e-Farsi, Ibn-e-AbelSadegh-e-Neyshabouri, MoskouyehRazi, AbouSahl-e-Massihi, Abo Ai Sina(Avicenna), Ibn-e-Hendou, IbneAjim-e-Farsi, Ali-e-ibn-e-EssaKahhal, SeyyedIsmaeil-e-Jorjani, Najiboddin-e-Samarghandi, KhajehNasiroddin-e-Tousi, Yousef-e-ibn-e-Mohammad-e-Heravi, Alaeddin-e-Tabrizi, Ghiasseddin-e-Dashtaki, Emadoddin Mahmoud and EmadoddinMasoud-e-Shirazi, Qootboddin Mahmoud-e-Shirazi, Nafiss-e-ibn-e-Evaz-e-Kermani, Hakim ShafaeiIsfahani, Hakim Seyyed Mohammad-e-Moamen-e-Tonekaboni, Mir Mohammad Akbar Shah-e-Arzani,Nezamoddin Ahmad-e-Gilani, Mirza Mohammad

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Hashem-e-Alavikhan, Mirza Mohammad Nassiroddin-e-Isfahani, Seyyed Mohammad Hossain-e-Aghili-e-Alavi-e-Khorasani (Figure 4) (Tajbakhsh, 2000; Najmabadi, 1992; Nafissi, 1992).

- From the 13th century until the contemporary age (before the Islamic revolution)

Haji Baba Shirazi, Hakim Mir Seyyed Ali Tabrizi Marashi, Miza Jafar Tabib, Bahram Khan Tabib, Hakim Sabouri Rashti, Mirza Sadegh Khan Tabib, Hakim Seyyed Razi Tabatabaei Semnani, Mirza Ahmad Tonekaboni, Mirza Seyyed Ali Tabib, Mirza Ahmad Tabib Kashani, Hakim Mirza Zeinolaabedin, Mirza Abdolwahhab, Mirza Kazem Mahallati, Mirza Nasrollah, Mirza Hossain Khan Tabib, Mirza Aboulghassem Naeini, Mirza Ali Akbar Khan, Mirza Ali Akbar Doktor, Mirza Abdolbagi, Mirza Khalil Khan Saghafi (who was the first graduated physician from Darolfonoun medical school, Mirza Reza Doktor, Dr. Amir Khan Aalam, Dr. Mohammad Hossain Loghman Adham, Dr. Ahmad Khan Ahmadiyah, Dr. Hossain Moetamed, Dr. Razi Rezanoor, Dr. Mohammad Ali Sadr, Dr. Javad Ashtiani, Dr. Ahmad Gilanshah, Dr. Aboulghassem Bakhtiar, Dr. Valiollah Nasr, Dr. Jahanshah Saleh, Dr. Manouchehr Eghbal, Dr. Mohammad Qholi Shams (founder of modern eye medicine in Iran), Dr. Yahya Adl (founder of modern surgery in Iran), Dr. Mohammad Gharib (the paragon of medicine and ethic in , teaching and upbringing and founder of modern pediatric medicine in Iran), Dr. Nosratollah Kasmi, Dr. Mohammad Ali Hafizi, Dr. Aboutorab Nafissi, Dr. Mohammad Taghi Mir, Dr. Seyyed Jalal Mostafavi, Dr. Mostafa Habibi Golpayegani, Dr. Hasan Hashemian, Dr. Ali Far, Dr. Feraidoun Ala, Dr. Ali Sheik-ol-Islam, Dr. Zabih Ghorban, Dr. Ghassem-e-Moetamedi, Dr. Hossain Samirad, Dr. Hossain Kar (Roostaei, 2003; Mehrabi, 2005).

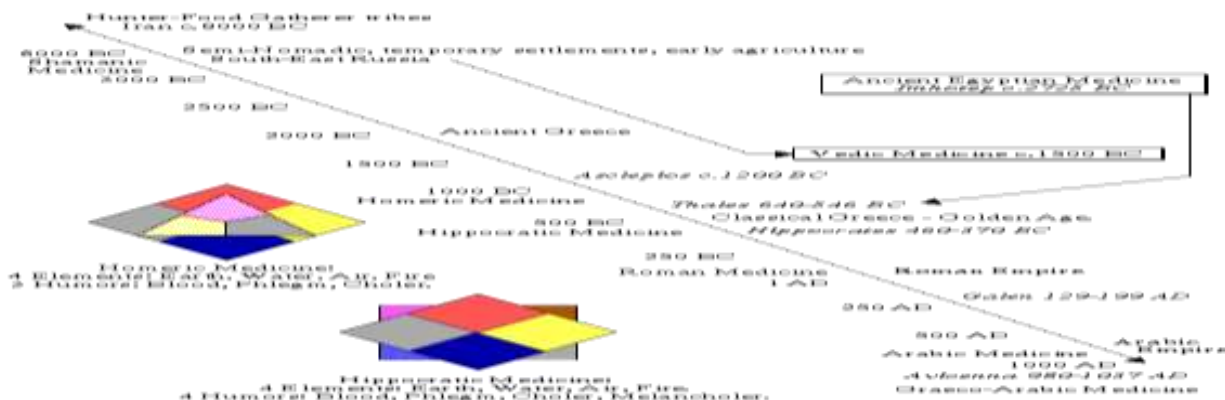


Figure 1: Formation medical knowledge and its development in the world and role of ancient Iranian’s in this event, adopted from <http://www.traditionalmedicine.net.au/index.html>. (Hysen)



Figure 2: An image of book’s cover of Al-Qhanoon (left) and Al-Havi (right) translated in Latin and published in 14th century, adopted from <http://www.stephenhicks.org/tag/avicenna>

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Figure 3: An image of manuscript attributed to KhajehNasireddin-e-Tossi’s medical works with explanation inserted in the margins of book’s pages adopted from central library of Tehran University, manuscript no. 5073



Figure 4: Prodigies in the medical world, Avicenna in the middle with a crown upon his head and between Galen (left side) and Hippocrates (right side) adopted from <http://www.stephenhicks.org/tag/avicenna>

After the Glorious Islamic Revolution

Dr. BastanHagh, Dr. AshrafossadatSanei, Dr. SeyyedHossainSiadati, Martyr Dr. Dialameh, Martyr Dr. Rahnamoon, Martyr Dr. Paknejad, Martyr Dr. Lavasani, Martyr Dr. FayyazBakhsh, Dr. Seyyed Ali Reza Marandi, Dr. HossainMalekAfzali, Dr. IrajFazel, Dr. Shams ShariatTorbaghan, Dr. Hamid Sajjadi, Dr. KalantarMoetamed, Dr. MoussaZargar, Dr. SeyyedJamaledinSajjadi, Dr. Mohammad Farhadi, Dr. Kamran BagheriLankarani, Dr. FeraidoonAzizi, Dr. Mohammad Reza Malekzadeh, Dr. Ismail Akbari, Dr. BagherLarijani, Dr. MarziehVahidDastjerdi, Dr. AbdollahBahrami, Dr. NaserSimforoush, Dr. Mohammad Ali Mohagheghi, Dr. SeyyedJalilHossaini, Dr. SeyyedZiaoddinTabei, Dr. BahramEinollahi, Dr. Ali Haeri, Dr. Seyyed Mohsen Ziaei, and etc.

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CONCLUSION

It is so clear for every researcher in different areas of history especially in field of medical history that this branch of science in Iranian culture and civilization consisted of hundreds innovative medical achievements which for instance several items can be noted in the Razi's, Avicenna's and or Jorjani's arts including in their valuable books, Al-Havi, Al-Qhanoon (Canon) and ZakhireyeKharazmshahi, respectively (Isfahani, 1997; Tabatabaei, 2009; Jorjani; Shojaet al., 2007; Hashemi and Reza, 2009, 32-35).

Before pervasion of foreign colonizers and their gaining hegemony on different arenas of Iran, medical sciences together with other sciences had being expanded with a sound development. Although self-estrangement and westernization of Iranian politicians during two past centuries has inflicted heavy beats on the structure of culture and civilization of the country but appearance of the Islamic revolution blew the fresh soul on its unwell and weak body. The beginning of Islamic rise and awaking movement in Iran that resulted in the victory of Islamic revolution under the guidance of its supreme founder, Imam Khomeini, the wave of national self-esteem resulting from the firm faith in the principles of fundamentals and values of the revolution, provided the ground for appearance of talents in different fields of society including higher education system. In the meantime, entrance of committed and specialized scholars of medical science into university educational environments resulted in an overview of educational programs as well as consideration of Islamic viewpoints in the education process by the then medical science executive managers. In addition, the valuable advice of Imam Khomeini should also be mentioned who always refreshed the progress of medical science educational system through his guidelines. In his *Kashf Al-Asrar* book, he states: "Today, there may not be anyone throughout Iran that had a university like Jondishapour as you say, who understands Bou Ali's (Avicenna) Al-Ghanoon book and this is a hard blow to our country by the foreigners through our unwise authorities." It seems that he mentions the natural scientific capabilities of Iranians just as his great grandfather, Prophet Mohammad (pbuh), had said more than 1400 years before in Khandagh War: "If knowledge is in the Pleiades, some men from Persia territory will achieve that"(Payandeh, 2003).

In this regard, the supreme leader, in a meeting with some physicians, has pointed out the importance of this part of culture and civilization treasure of our country in another way. He said, "We have had Avicenna or Razi or other scientists whose books are still important sources of knowledge and education in the universities of the world. So, why shouldn't we be hopeful for the scientific self-sufficiency of our country?"(Imam, 1948).

Or the Oppressed Martyred of the Islamic revolution, Dr. Beheshti, in his first lecture in 1980 in the Tehran faculty of medicine pointed the importance of use of Iranian medical scientific achievements: "Why have the ministry of health and the authorities not already taken any action in developing and recovery of traditional and herbal medicine? Why should the Iranians be always held captive by foreign medicines?"

Finally, upon approval of the Islamic consultative assembly in 1985, the efforts and follow ups of medical science family members resulted in the establishment of ministry of health and medical education and a new area of appearance of potential capabilities and innovations of Iranian scientists was opened to the scientific societies of the world in the form of execution of the plan for integration of medical education and offering health services. The result of this new system within the recent two decades was the education of expert and experienced graduates ready to offer services in different parts of health system of the country.

One of the interesting documentations of innovative medical education system of Iran is the supply of scientific services of medical society within the 8-year period of holly defense along with other Islamic combatants in the defense frontiers of revolution ideals which is certainly another golden page of the achievements of Islamic republic of Iran.

Although only some of the committed physicians and famous scientists in the field of medical science after the victory of Islamic revolution have been mentioned herein, it should be mentioned that this group of the scientific society of the country have always been the leader of quantitative and qualitative

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improvement and sustainable development of medical education in Iran by defending the values of the system and by relying on Islamic fundamental values. From this point of view, higher education system of medical science and health of the country has always indebted to their valuable services and it is hoped that upon approval of the comprehensive scientific map of the country the macro health plans may be put in the agenda of executive authorities and the capabilities of medical science education system of the country may provide the ground for achieving another valuable glory for the Islamic republic system by achieving the intended goals.

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