

The role of Islamic civilization in medical sciences advancement

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ABSTRACT

The revival of the rich Islamic civilization in terms of the correct awareness of the Islamic civilization formation process and its brilliance in this era of history in which the world is extremely influenced by the western reflections and sciences. The supremacy of a civilization will result in its founders' spiritual and mental sovereignty on the contemporary and adjacent communities. This is experienced in Islamic civilization and in Greece. This issue has been more evident in western civilization. Western countries could restore their civilization through taking advantage of particularly Islamic ones. In thirteenth century, the nationality, achievement, and improvement emerged in the western countries. The national mobilization in crusade and the scientific profit which they gained in the victories and the defeats of Islamic culture and civilization revitalized the superiority of the European countries. The aim of this study was to refer the role and position of the Islamic civilization in progress of the sciences including medicine.

Keywords: Teb-al-Nabi, Jondishapoor, Beit-al-Hakame, medieval centuries, modern medicine.

Introduction

At the beginning of Islam, it became clear that according to the first verses of Islam prophet (peace be upon him) Islam religion had considered special position and value to the science. As we know, there are few verses in holy Koran the diseases. In addition, the express and clear orders of the Islamic prophet (peace be upon him) as well as the meetings of the Shiite Imams such as Imam Bagher and Sadegh (great be upon them), in addition to the breeding the uniqueness in empirical sciences position in Islam religion [1,2].

Medical science has been developed greatly by Moslems on the eve of Islam. Hence, the scientists of the Islam beginning period can be considered the original founders of the modern medical science. The Moslem thinkers have paid attention to the issue because of two reasons. First, the religious instructions have emphasized the issues such as sanitary, nutrition, as well as the prevention and the remedy of the diseases. Second, the human socialites need these modern sciences [2]. Once science developed among Moslems that some parts of sciences blended in

superstitions and imaginations [1]. However, most of them have been removed since the advent of Islam religion. Since it considers the science particularly and knows the religion as a factor for the achievement in science, a lot of verses and anecdotes indicate this issue than the other religions. Accordingly, Moslems have acquired different sciences in the light of the religious trainings. Undoubtedly, the attention of this religion and its pioneers toward the medical science has been the major reasons for the Moslem's regard towards this important issue [3]. The great prophet of Islam said "it's recommended to acquire medical science along side the religion science since they are equal."

The aim of this study was as the followings:

1. offering a comprehensive definition for the formation procedure of Islamic civilization also recognizing its position in modern medical science.
2. Introducing the Quranic medicine and prophetic ones as the important branches of Islamic medicine.
3. Introducing the effective science centres in progressing the Islamic medicine as well as a position to train Islamic physician in addition to compile and translate their works.
4. Mentioning the medical bases of Europe in the medieval, As the medical sciences began to thrive.
5. Introducing the Moslem's medical achievements in spreading the medical science.
6. Citing the effect of Moslems' physicians on western ones.

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Many foreign and Iranian scientists and orientalists in addition to Islam researchers have paid much attention to the Koran and the prophet's anecdotes because they are the basic resources to investigate the whole Islamic sciences ^[2]. The personality and speeches of Islamic prophet have also Muslims and as the points considered by the Islam researchers. Goostav Lobon and Vildorant have studied the different aspects of his personality. They admired Islamic in their works and wrote about this religion and its interest to grow and thrive the human sciences especially medical science ^[4].

There are not any separate compilations about the role and the position of the Islamic civilization in medical sciences advancement. However, in some parts of from other civilization to the Islamic world, the Muslim's scientific life in middle age, Iranian people's role in advancement of the medical science in Islamic civilization, and the function of Islamic in awakening the west countries of the science. In addition, there were some books about Quranic issues and Islamic medicine and the remedy of diseases. All of them have been studied in present investigation.

Materials and Methods

The study's method is descriptive – explaining, along with critical view that has reintegrated in six parts.

Islamic civilization

One of the historical and undeniable facts in positive and constructive effect of Islamic Culture and civilization is in medical advancement. In order to investigate the share of Islamic civilization in advancement of the medical knowledge, it is important to study initially about the Muslims' achievements to affect scientifically on the other societies. It is believed that Islam's own holy book and anecdote caused the improvement of Islamic science and civilization through the encouragement toward the acquiring of the knowledge and science also above all, through the laxity and negligence possessing bibles ^[1]. In initial Islamic centuries, it is said that there were many representatives of different sciences of all religions in most scientific discussion in Baghdad city. Moreover, they discuss a free situation that model the growth of Islamic culture. ^[4-9].

It's obvious that such a new and powerful civilization as Islam or western ones take advantage of other previous and contemporary civilizations. They attract the suitable and its constructive components. After it becomes mature and enriched, it will produce a particular thought and culture in a new mould.

Therefore, Islamic civilization can be resulted from two following aspects: 1- what was appeared by Islam and spread in the light of the initiative of the Muslims performance whose main origin can be called "Koran and traditions". 2- The use of inheritance remained from the previous civilization in Islam territory. They were improved and evolved by the Muslims. Finally, they became Islamic civilization.

Further, Islamic medicine has been the medicine instructed by the holy prophet and innocent Imams of Islam. Then, it has continued based on the Greek, Iranian, and Indian medicine also the efforts of all the scientists and physicians from the defeated nations of Arabic attacks ^[5,10].

The major elements of the Islamic civilization and sciences were Koran and the anecdotes. According to Muslims' belief, Koran is God's speech and the anecdotes are the speeches remained of the prophet and Imams. In addition to interpret Koran, these contain the various instructions about different issues such as science and medicine. As there is no limitation about science acquisition and knowledge is the lost of the believer person, Muslims tried to take advantage of different nation's sciences and experiences. In addition, they tried to enhance their cultural enrichment. They utilized the different civilization and other nations such as Egypt, Iran, Room, Greece, India, China, and Mesopotamia. In addition, they learned their sciences and techniques. And kept many scientific works of various nations by translating them. Then, they developed this method until they became the founders of many sciences and techniques. They instigated a brilliant culture and civilization which led human civilization for centuries.

Islam spread from Turkistan to Spain. Having blended with the civilization of Iran, India, Syria, Mesopotamia, and Greece, it produced a culture that was unique and pioneer for centuries. Islam emphasizes on both profound thinking and science acquisition a civilization based on the science and knowledge. There are plenty verses in holy Koran that invite the believers to think and intensively reproach those avoid thinking. Many Quranic verses invite the believers to study in the sky and the earth, internal world, nature, and animals. Islam prophet though that it was necessary for each Muslim to acquire science. He referred to the scientists as the most superior people. Due to these instructions and orders, Muslims turn to learn all kinds of science. "As, there has been more requires to medical science, Muslims mostly have considered to this science than the others in the prosperous Islamic era of civilization ^[6,11,12].

Arabic and nonArabic Muslims have also found out the importance of medical science since the second A.H century. Hence, they have begun to study and translate it. Accordingly, since this century, Islamic culture and civilization seriously have been formed by both the scientific inheritance of the other non-Arabic nations such as Indian, Iranian, Greek, etc. In addition, by mixing the Islamic spirit dominated the Islamic countries. One of the greatest areas of this civilization was medical sciences. At first, the medical books of the civilized nations such as Iran, Greece, Serian, India, etc. were translated, and analyze them. Finally, this science was included in Islamic sciences area more thoroughly. This made the Islamic civilization specially to be more burgeoning ^[6,13]. As Arabic was the most common. Language of that era, most of the books in that time were written in Arabic language. For example, Gorgi Zeidan called Zakaria Razi, the Arabic Galen. ^[5,14,15]. "over five centuries, there was an enormous movement in medicine and translation as well as

completion of these sciences in the era of sons of Abbas Caliphate. Undoubtedly, many Arabic, non Arabic, Muslims physicians, translators, and authors that among them some people were the followers of the other religions, have an important role in the burgeoning of the science^[5,16].

Muslims' strong desire to acquire of the medical science was so that those seekers from many Islamic large cities such as Bagdad, Cordova and Ghornate (in Spain or Andlos), Istanbul, Tones, Kahere, Dameshgh, Alexandria, Jerusalem, Ray, Shiraz, Isfahan, Marve, Neishaboor, Bokhara and so on went Kaher city from Ray city and from Cordova to the Bagded. Therefore, as the western people confess "If Islam and Muslims were not in the history, the Renaissance would come back in Europe for centuries". "So that one of the western physicians mentioned more than three hundreds well-known Arabic books translated in to Latin"^[4,17,18]. At last, medical sciences have been spread by Italy and Spain as well as the other newly established scientific centre since the eleventh century. This instigated many European students to go to the Islamic centers especially Spain in order to acquire this science^[1].

Quranic medicine

One of the sciences affected by the holy Koran among the Muslims was Islamic medicine. Koran mystery of the Muslim's attention to sciences especially medical ones must be sought in short message of Koran and the instructions of Islam prophet (peace be upon him) and his family (peace be with them). More than 700 verses of the thinking about the nature and so on. Some certain cases also attracted human's attention to the branches of medical sciences. One of the essential reasons of the Muslim's attention to the medical sciences may be these verses of the holy Koran. Some of them including: inviting to consider the origin of the human's advent and the stages of their creation (Tarogh/5) and to think about the animals' existing construction (Ghashie/7), also to recognize the foods (Abas/24), in addition to prohibit some edible things such as carrions, wine, and the pig meat. This has stimulated the Muslims to find out the reason of these religious commandments. Fasting and its commandments about the patients that isn't necessary for them in addition to the washing ablutions and the ablution before prayer, the reduction of duty, purification after easing nature, breaking ones fast, the pilgrimage to Mecca (Haj), the blind people, and the lames and war patients"^[7,19,20].

Over the Islam history, Koran has always been the important source for the Islamic investigators. Due to this matter, many different sciences or majors were founded. It is obvious from a brief view to the history of the Islamic thought evolution that the Islamic scientists have tried to make according to Koran some knowledge arrived in Islamic communications and thought areas over the time (the introduction of the holy Koran and medicine). Totally, the Quranic medicine can be divided into three parts: medicine, Hygiene, and keeping health. "The medical and hygienic instructions of Koran next mixed with the medicine of other countries such as Iran, Room, Greece, India, and Alexandria. The Islamic medicine was formed by the blending of them. To do that great work, the share of non Arabic physicians especially Iranian ones were more than Arabic physicians"^[5,21-25].

(a) Medicine in Quran

The discovery of some medical secrets in holy Koran is related to different disciplines and accurate medical issues from the science of embryology and the stages of human creation as medical point of view and its evolutionary periods in mother's womb to the child's birth and taking care of the baby. Originally, the human's

creation stages in Koran stated form soil, sperm, its transition, the stage of sex determination, sperm's mixings, nutrition and breathing, giving life to it until the stages of breast feeding and after that step by step uniquely and accurately with a miracle point of view: Accordingly, the embryology in Koran has been investigated as the different scientific point of views. In addition, in Quranic medicine, the descriptive dissection and the explanation of the organs' duties and the philosophy of their creation are according to the Koran and the modern scientific findings. The creation of the ear and its priority over the eye, the philosophy of being pair of hands, feet and other body organs, the lines in our fingers which are not equal in every one to histology, parasitology, bacteriology, the study of illness (the relationship between body and spirit) all are the example of this issue. This also contains the recognition of the causes of such disease as the changing of Jacob's eye color into white, the disorder in Moses speech, and allowing to use of some prohibited things during the anxiety. There are also some remedies in Koran which are investigated in terms of the physicians' points of view like the cure of job's skin disease by the cold water, the remedy of Maryam after her child birth by the fresh dates, the remedy of eye cataract according to the modern medicine, the cure of Jonah by the root of squash, speech therapy of Moses and so on. All of these examples are investigated and discussed in Quranic medicine^[2, 8,26,27].

(b) Hygiene in Quran

In Koran, the diseases and their causes; prevention, hygiene, the person's health and general hygiene about body, cloth, house, food, etc are in the sub branch of nutrition hygiene. It considered to the discussion about the properties of each clean fruit and food. Also, the drug properties of the fruits and foods was explained in Koran. Some verses of Koran are about these. The health-giving drugs in Koran are honey, grains, grapes, sugar, date, pomegranate, fig, some drug oils such as olive, and curative drops like favor hedysarum as well as purgative manna.

(c) Maintaining the health and good health in Koran

In Koran, it was considered to the precision in the foods and not to lavish them. In addition, it has considered avoiding eating harmful meats of some animals, and drinking alcohol. The philosophy of some foods' prohibition is that they are the origin of many diseases. In addition, it has paid attention to the hygiene in sex affairs (the relationship between the spouses and the avoidance of having illegal affairs with others, also attention to the genital hygiene), to circumcise and to go fasting (to evacuate body from the corrupt materials)^[2,28-30]. it has also mentioned about purification, resting, washing ablutions and sheeting with burying of the dead also disinfecting them and so on^[5,31]. besides, it's considered the physical power that will be discussed in this chapter. It was cited I Koran about it by Jetro's girls (Quranic stories/16). In addition, it was mentioned that one of the human privileges and superiorities is the healthy physical; power (Baghare/247, Takvir/19-20).

In addition, there are some recommendations simply are considered medical ones by the physicians for the prevention of the many problems in the community; however, in Quranic practical commandments such as to go fasting and to avoid eating gluttonously and some foods like pig meat, carrion, wine, etc. "Actually, the secret of Islam success was that it put medical and hygienic orders not only in Islamic practical programs but also I the initial of the Muslims' worships. These include the regular use

of brushing, rinse the mouth with water before washing ablutions and the ablutions before prayer, use of bath and washing ablutions, maintaining the purity, avoiding from dog and pig, prohibition of dead people's meat and the choked people's meat, avoid eating gluttonously, prohibition of the patient from harmful things (maintaining medicine), prohibition of the excessive meat eating, and feeding baby with the mother's milk" [2,32].

There are many religious commandments in Koran that have medical and hygienic profits. Nowadays, the advanced medical sciences figured out them. They were divided into various branches in Quranic medicine. One of these branches is food hygiene. Totally, two kinds of food were referred in Koran: (a) the clean, lawful, and sweet smelling foods- (b) the impure foods.

In different verses of Koran, human beings were invited to use of clean and sweet smelling foods such as milk, honey, fig, etc. for example in the verses of Baghare/168 & 75- Meade 4&5, Eralf-81&151&160- Momenoon/51- Enfal/69- Nahl/114- Eralf/ 32). Originally, the prohibition as one of the divine religion's services to human beings. Since, they were prohibited when the microbes were not explored and the effect of impure food on human disease was not clear [7,33]. These hygienic and medical orders of Koran have helped medical science enormously.

The western researchers also acknowledge this issue. Goostav Loben wrote "some precepts in Koran such as the ablution before prayer, the washing ablutions, the prohibition of the wines, the reference of vegetable food instead of the animal food in continental area was extremely philosophically and useful to maintain healthy" [4,34-38].

Prophetic Medicine

Al-Teb-al-nabavi (the medicine of the prophet) are the collection of medical orders used by the Muslims as an alternative for the Greek medical system, originating from Galen medicine, in fact, the authors of prophetic medicine were religious and nonmedical persons who collected these orders by using the Quranic verses and the great Islam prophet (peace be upon him). Although, it was as an alternative for Greek medicine initially, some great individual like Ad-Dhahabi tried to couple Islamic-Arabic medicine with Galen as well as the Islamic physicians. Nevertheless, all of the therapeutic methods suggested by thinkers like Jalal-al-din-al-Siooti (died in 1505) were derived from the early Islamic communities which are based on the medical science of the great Islamic prophet (P.U.H), holy Koran, his traditions and the narrated anecdotes. According to the existing evidence, the use of some therapeutic items including hena, olive, and tooth brush in the prophet medicine was documented [9,39].

The background of Islamic medical science dated back to the great Islam prophet (P.U.H) and especially to his divine government in Medina. Many emphasized orders in Koran and the Islam prophet's recommendation were about observing the hygiene and cleanliness, which were known as components of the faith and tenet. In addition, there are numerous commandments issued to the purity of the believers and their ceremonious purification, as well as avoidance of malicious things and the filths. Generally, the religious instructions instigate human beings in each era to consider their physical and mental health when they face to the nature, community, and themselves.

Quranic medicine became the origination of the prophet and Imams medicine. "According to the prophet medicine, God has sent certain drug in nature for each pain. Men can take advantage the natural drugs and remedies by using the divine revelation and the prophet as well as Imamsguides. Some specialists have concluded that the borrowing program from the western countries cannot meet all of the medical communities' needs." [2,40]. It goes without saying that the divine instructions of the religion pioneers have been for the human's mundane and hereafter prosperous, they have also inevitably considered to their physical health. Yet, the separation and distinction between the rank of physicians and religious authorities were emphasized in many anecdotes. Further, they themselves referred to the physicians in order to instruct practically their followers. One of the cotemporary ones great Islam prophet's physicians was Hares-ebn-Kalde who was considered by him. Besides, the religious authorities and the Islam great prophet (P.U.H) recommended to the patients many times to refer to the physicians surely in addition to resort to God blessing. The highlighted orders of the holy Koran and the Islam prophet's descendents about profound thinking and the science acquisition from cradle to the grave instigated the Muslim's willing toward the mundane and spiritual sciences including medical sciences. This resulted in the immense movement to the translation and compilation of the religious and scientific books.

These recommendations used by Muslims have been known as the prophet medicine. The interpreters and explanation then have increased something to them. The Quranic orders not only utilized to remedy but also to prevent the diseases. The great prophet's method about the disease is considerable as he told, "there is a remedy for each pain and disease." He also recommended treating of holy Koran to morale reinforcement of the patients" [5].

The prophet medicine is a certain method in Islamic medical science including the spiritual and physical medicine and the religious beliefs of Islam religion based on hygiene, disease prevention, and good health.

Over centuries, many works were compiled in this way. The polymath Majlesi in the 14th volume of the Behar-al-Anvarhas cited many medical and hygienic instructions from Islam prophet (peace be upon him).

According to Lobon, the instructions and orders of the Islam prophet (P.U.H) about medical medicine is authentic and right. Most of the regulations about body health stated in the short and simple Arabic words, so that everyone can memorize it [4]. In his book, the history of Islamic medicine, Edward Brown said, "It is also true that if someone wants to take divine advantage of the prophet medicine, He (or she) must utilize them with full faith" [2].

One of the Islam prophet's anecdotes is that the body science is prior to the religion science [5]. Further, the importance of cleanliness and the avoidance from the filths as a point of two secular and mundane dimensions, edification of the soul, and the relationships with the God also mentioned in the prophet medicine. In one of his anecdotes, the great Islam prophet implied that where there is a pain, there will be a remedy for it from God. Due to these kinds of verses and anecdotes, Muslims instigated not to be frustrated of any pains and by using Quranic verses, they made Islamic medical science. In addition, it isn't recommended in prophet medicine to utilize the drug unless it will be necessary. It is also true about the blowing on the water dish. Moreover, there was told about quarantine in prophet in a

country, don't go there and vice versa, don't go to the other places when there is the plague in your land." In fact, Islam ordered that the patients must remain in a place and should not emigrate to the other places in order not to spread the disease if it is necessary in some situations. The case of the quarantine had been told in Islam before others [2].

The medicine of Imams

If the Islamic authorities did not accentuate on the virtue of the knowledge, Islamic civilization would not become this enormity. In Shiite world, there are also some famous works called the medicine of Imams (Teb-al-Aeme) cited along with the prophets medicine by Imam Sadeh and Imam Reza (praise be upon them) [2]. They gave orders about body hygiene, forbidden things, and the prohibited, disapproved, or permitted foods based on their harmful or harmless properties for human's body. All of these indicate the importance of body health maintenance [3]. The classification of the reported news and verses from the innocents (praise be upon them) were formulated in the form of the certain medical collection about their accentuated recommendation of hygiene and remedy among them the Sadeh's medicine and Reza's medicine are well known. Imams cited two kinds of remedies: (1) the spiritual remedy which was occurred by Quraic verses and the divine names, that said "We sent what is the healing for the believers from Koran." (Osara/82). Imam Ali (P.U.H) in Komeil prayer told God "your name is the medicine and recalling you is the remedy". There the medicine and recalling you is the remedy". There is a verse in Koran, which is a comprehensive medicine it has been: "Drink, eat; but don't Lavish". Imam Reza (P.U.H) told "Recover by Koran, since it is the remedy for every pain" [2]. (2) The remedy by the foods, drinks, fruits, oils, etc. [10].

There were many things mentioned in Imam Jafar's anecdotes about medicine including: permitting to cure by branding, referring to non Muslim physician when it is needing, and giving the charity, saying night prayers, cupping, remedying by honey and milk, avoiding, remedying of the all kinds of diseases by prayer and divine verses also the foods and fruits, edible oils, and plant drug. Hence, Muslims have obeyed the Koran medicine as well as the medicine of prophet and Imams. They have thought that type of the food and having it directly related to the health. They mostly believed that prevention was more effective than the medicine for their health. For example, a Muslim Andalusia physician called Aboomarvan-bn-Zahar in the sixth century A.H. wrote a book about the food prevention that the titled Al-Agzie. Moreover, some Islamic physicians have versified them in the form of the poem e.g. the savant Moyaseri versified an encyclopedia about medicine and took advantage the medicine of the prophet in it [2].

The scientific and valid centers in Islam world

One of the other ways of the arrival of medicine to Islamic civilization was the existence of the scientific centers which have a long time history in Islam. Medina city had become important ones in Imam Sadeh (P.U.H) period. It was told that he taught more than 4000 students. Gondishapoor and Beit-al-Hekma were also considered as two important and valid scientific centers in Islam world.

Gondishapoor: "Gondishapoor is one of the most ancient dated back to the Aryans era. It was called Gantashpirta that has meant the beautiful Garden (Sarmadi,1990). According to the historians, the Hippocratic medicine was first taught in Iran there. As it was thought by Greek physician, this city was also

called the city of Hippocrates [11]. According to the historians, the first Shapoor who by the son of Ardshir Babakan founded a city in Iran by the Roman and Greek captives were taken by himself to Iran after he had defeated Roman Army and had taken captive Valrianus, the Roman Caesar, and had taken possession of Antakie city during 241-271. After this war, he took some Roman scientists to Iran and asked them to carry out the scientific investigations and to spread the knowledge and culture there [6, 11, 12]. King Shapoor called this city Vanoshahpoohar that was meant in Pahlavi Language the city of Shapoor was better than the Antakie city. Finally, this name changed into Gondishapoor so called Jodishapoor by Arabian people. Nastoori's authorities managed this city [5]. This city became a scientific centre initially. Shapoor ordered to translate many Greek books to the Pahlavi language. It was known about the medicine in the world. There were other names for this city including Pilabad, Khoz, Nilab, Nilat. It was called in Cerian language as Beit Lapat [6], Dehkhoda dictionary, following the word of Jondichaoor, the exact place of this city is now in Khoozestan located in Shoosh and south east of Dezfool and north east of current Shooshtar. It is called Shahabad now [6, 11].

At first, the medicine was thought in Greek language at this university. After the official languages had become Pahlavi in Anoooshiravan era, many other languages were translated into Pahlavi. All of the Greek, Ceriani, Indian scientists and physicians who was living in Iran, translated their language works into Pahlavi language. After Islam, these were translated into Arabic languages. It can be said that they were the factors of the formation of Islamic sciences. The translation of these sciences which had been evolved in Sasanian era, were transferred to the Islam world. In addition, Iranian Zoroastrian medicines were also taught there. Accordingly, a new medical school formed in Iran that was a blending of India and Greek and Iranian medicine. In this university, teaching medicine was more important than the others [5].

In the middle of Sasanian dynasty, the king Anoooshiravan developed this university so that he set up a huge hospital in which the medicine and the other sciences were instructed. After his dynasty, the other Sasanian kings supported this university. Therefore, it become one of the biggest scientific and medical centers [1, 5].

Gondishapoor hospital was the first educational hospital in the world in which the medicine science was taught and all of the known books of the time were gathered and translated there. This changed Gondishapoor in to a main centre and core of the knowledge transformation between the East and West. It had a major effect on the formation of the "hospital" organization especial the educational clinic in the world. Jorgi Zeidan wrote about the Islamic hospital: Arabic people learnt the building of the hospital from Iranian people. Moreover, established some hospitals in the different places of Islamic countries like Gondishapoor which was the first and biggest hospital before Islam.

In this hospital, they conducted like the modern remedial centers at universities. That is, all of the medical affairs such as pharmaceuticals were conducted moreover, the experienced physicians instructed the young ones there. Therefore, a lot of eager of the learning and medicine science turned into there from the inside and outside of Iran [11].

Invention of the special method in Gondishapoor

"Gondishapur university invented a particular method in order to attract and extract the different nation's educations and to select the best of them as following: (1) by using of pharmacology and the therapeutic methods of other nation innovation anew therapeutic methods which were better than the Greek and Indian methods. (2) the physicians of this university altered and completed the other scientific methods by their explorations and recorded all of their regulations and medical principal. (3) by gathering the Greek, Indian, and Iranian physicians and other countries, they increased the number of their medical students from the other countries in addition to the enhancement of the various drug plants from all over the world and vice versa" [5].

When Arabian people attached Iran, this school was at the highest point of its scientific growth. Gondishapur was handed in the Islamic army in 636. However, because of its fame, it saved from the harmful events and had continued to be as an ancient medical and Greek sciences centre. The city of Gondishapur without any war and bleeding was submitted to the Islamic army in 19 A.H. then, it remained over two centuries and had a lot of services for the Arabian people" [5]. As the result of its fame, the Muslims instead of the translation of the medical books turned to the independent compilation of the special works in medical field. Hence, the medical science spread among the Muslims more rapidly than the other sciences. The physicians and translator mostly were non-Arabic and Christian in the first and second centuries. Yet, Muslims gradually became the dominant scientists in this university.

The scientific area of Gondishapur has been one of the most famous centers whose fame has still remained. It had influenced on the establishment of Beit-al-hekme in Bagdad directly in later years and had remained until the third century when Bagdad became well-known [6].

Beit-al-hekme (library)

Beit-al-hekme or the treasury of philosophy was the centre of the scientists and philosophers in addition to the translators of the scientific books belonging to the Abbasi era in Arabic or other languages. This center had its most prominence in Maamoon periods and became a pattern of Gondishapur university and has been kept on to Ebn-Nadim era (died 1385 Hegira). It was probably continued until the attack of Moguls to Bagdad. "the establishment of Beit-al-hekme was extracted from the foreign countries and most likely Iranian government system" [6].

As it is said in the history, the first Beit-al-hekme was set up in Haroon-al-Rashid period. Iranian ministers of Barmakian caliph in Beit-al-hekme gathered many scientific Indian, Persian, and Greek books [6]. Over this era, Muslims gained some scientific books such as medical books within the war in the small Asia. Before his victory, all of these books from the defeated countries were kept in Bagdad, nevertheless, he ordered that all of them were maintained in a certain centre called Beit-al-hekme. After Haroon period, some books were brought from Rome to Bagdad that most of them were in the Greek, Seriani, Pahlavi, Ghebtii, and Arabic languages" [5].

However, the thriving era of Beit-al-hekme was in Maamoon Abasi caliphate. He hired a lot of great translators of that time from the other religions including Sabeian, Zoroastrians, Christians, etc [6]. Besides, some of Gondishapur's physicians were also invited to the Bagdad by Iranian ministers' orders [5]. However, the prosperity and equipment of Beit-al-hekme as scientific centre above all were because of Maamoon's efforts among all of the Abasi caliphs [6].

"This place was one of the greatest cultural institutes that had an effective impact on the growth of Knowledge and culture in the West and East. The establishment of this centre imitated from Gondishapur university in Bagdad by Maamoon caliph [5].

The translation of the medical books has been done accurately. In Beit-al-hekme. Some of these translators knew the different scientific languages of their time [6]. While they were translating the medical books in Beit-al-hekme of Bagdad, some European translators also engaged in translating the medical works of the other nations in Andalus. However, the difference of the scientific level in these two centers was quite clear. The translation of Muslims in the second and third centuries A.H. had been with more skills and Knowledge. Since the translators of Beit-al-hekme engaged in both book translators had translated just the books [1]. The translator in Beit-al-hekme had abundant eagerness to the court and they were supported by the caliphs. Hence, they tried hard to offer a good translation. Because of this issue, there was a good growth especially in medical science over that time. The importance of this scientific movement in terms of the translation of the works and scientific achievements was so great that some writers have known these periods equal to the Renaissance in the west. They believed that the European translators had less accuracy. They were mostly Christian physicians and lived in the king court. There were the name of some physicians in "The levels of physicians" including Esrail-bn-Zakaria, Sabet-bn-Ghore, Joseh-al-Saber Sanan-bn-Sabet, Helal-bn-Ebrahim, etc.

In the next centuries, the compilations and translations of the Beit-al-hekme's professors were distributed among the great scientific centers such as Egypt, Syria, the north of Africa, Spain, Iran, etc. Then, the other scientists wrote some interpretations about these books [6]. It goes without saying that in these translators, and the first class researchers that compiled civilized nations. Hence, the translators not only translated the scientific works but also compiled the valuable books and epistles in various scientific issues [2]. The graduate education was gradually become more common in Islamic countries after the establishment of Beit-al-hekme.

The medical science in the Middle Ages

One of the factors in the formation of the new western civilization was Islam and Islamic civilization that undoubtedly have had special scientific effect on it. There were some common backgrounds among them that facilitated the impact of Islamic culture and civilization on the western countries in the Middle Ages. This era was from 400 to 1400 A.D. and was one of the most important stages of the history.

At the eve of Islam, the Muslim's scientific method in medical investigations was based on the scientific principles. That is, based on the accurate observation of the events and scientific events, the exploration of passive and active affairs, and the acceptance of the cases confirmed just by experience [13]. "the important method of wide conclusions by which our contemporary researchers could have many important inventions and explorations after many years, was clear for the researcher have said [4]. He told "In Middle Ages, it was important to mostly teach the medical science in European countries, while the medical students in Muslim's hospital were encouraged to observe the type of disease and experience in that time [4]. Muslims had equipped labs and hospitals for acquiring the experience and medical experiments there were different wards in each hospital for special cures. Including internal disease, surgery, ophthalmology, bone, etc [6]. Also, there were some

hospital allotted to certain diseases such as insanity, black leprosy. Besides, there were some special hospitals and free drugstores for war wounded [4].

As it is cleared from the investigations, the preference of Islamic medical quality in surgery was quite clear in the Middle Ages. Will Doran in his history of civilization stated "The Christian physicians acquired many things about the different scientific methods and surgical operations for patient's cure from the Islamic physicians in the crusade" [1]. Mohamad-Zakaria-Razi was extremely well known surgical operation [11].

The scientific thoughts of Islam world were introduced to the western countries in this way in the Middle Ages and resulted in significant evolutions in mentioned fields in the west. There were some issues such as the science acquisition of man western researchers in Islamic countries before the Islamic scientists, blending the culture of Muslims and Christians, the translation of the Islamic works from Arabian to Latin language, trades and the crusades.

Islamic culture were arrived in the western world by them and evolved the European country effectively and profoundly. Over the initial centuries of Islam; however, the conditions were different in Europe. There were a few hospital centers there and there were few therapeutic and scientific method, while there were many equipped hospital with different wards in different specialties in Islam territory. Before Renaissance, the Europeans were under the control of the church. They acted according to their religious motifs and superstitions derived from the Christian religion so that they just resolved to the prayer therapy. Having defeated and conquered the Muslim's army, the European people surprised by the signs of Muslim's science and technology as well as civilization their cities.

This caused main change in the European life style and caused them to increase their education and knowledge and to being the broadening of the sciences acquired from the Islamic scientists. For example, will do Rant wrote "The largest hospital of the world were founded by Islamic governments in the Middle Ages [5]. "Muslims prepared various hospitals with the supreme equipments in Baghdad, Cario, Cordova, Damascus, etc" [11]. for example, the greatest Islamic hospital the Middle Ages was Mansoori Hospital (684 A.H.) in Egypt. It contained drugstore, experiment room, indoor ward, kitchen, bathroom, library, mosque, and stud hall. It requires to mention that the first European medical school, Salidin I Italy, was built by Muslims [7]. Dr. Ahmad Jesus in the history of hospitals Islam introduced about 80 hospitals setup in Islamic countries [7]. Researchers suggested that in the late of the Middle Ages, the crusade wars and the relationship between the Europeans and the Islam world played an important role in developing and arrival of the medical science of the Muslims in Europe. During these wars, many medical compilations of the Muslims about different practical and theoretical field such as clinical medicine, obstetrics, ophthalmology, surgery, pharmaceuticals, etc. were transited and brought to Europe by crusaders [1].

"Seid Jamal-e-din Asadabadi told about the Islam's help to the global scientific movement in the Middle Ages " The French, English, German people were much farther than the Arabic people to the Rome and Bizans (little Asia). It's obvious that they could easier take advantage of these two civilization's scientific treasures, yet they didn't do that. When the Arabic civilization illuminated Bizans and the western countries, they utilized these sciences accurately. This occurred after the sciences had been formed in Arabic countries.... Is it another clear reason for the natural love of the Muslims to sciences?" [14]

One of the determining facts in the history of the Middle Ages articulately in scientific thinking of the western countries was the advent of Islam and also the Christian's acquaintance with it. So that, the history of west Middle Ages will be incomplete. Since in this era, the relationship between Islam world and the west Christianity resulted between Islam world and the west Christianity resulted in their cultural and scientific communication. It is critical to recognize this communication and its influences, which was apparently one-sided. In the tenth century, the Muslim's works were translated and the Europeans used Islamic philosophy, sciences, and arts. In addition, they got acquaintance with some parts of Greek heritage.

Muslims Achievements in medical world and their Role in the west medical progress

While speaking about the effect of Islamic civilization and culture the west, the cultural and scientific precedence of Islamic countries was accepted. Since, a nation could not affect its outside countries unless it passed the stages of cultural evolution. The western countries have also been aware of this issue that how the science acquisition of the civilized and ancient nations such as Iran, India, Egypt, Syria, etc. which were called Islamic countries; has significant impact on the west cultural and scientific progress. However, the advent of Islamic sciences to the European countries has culminated two periods of him. The first was from the 7th to 9th century, which was along with the Islamic nations' progression all around the world. The second was from the 9th century to the Renaissance, which the particular impact of human sciences of European culture has been quiet, obvious. In this era, Italy and Spain and some of the other European centers were able to transform these sciences to the European countries [12].

The actual influence of Islamic culture on the European countries has initiated since the time which the Europeans could take back their lads from the Muslims the crusades was also another factor in developing the Islamic civilization within these countries [15]. In addition; trade, commercial; investigations, and translations are the major ways of Islamic civilization and science's arrival to Europe. Montgomery wrote: According to an expert's state, the European ancient reference books indicate that the effect of Arabic works was much more than the Greek ones. For instance, in these works, it was mentioned Frari degrade and Aviceina in more than three thousands but Hipakrtis just one hundred times. Briefly, the European medicine in the 15th and 16th centuries was an extension of Arabic medicine. To Goostav Lobon, the Islamic medical works has become outside the program of the medical universities only over these three recent centuries [4]. The Muslims have been the pioneers of civilization and sciences from the 3rd century A.H. to the Mogul attack to Iran [3].

The great performance of the Muslims in sciences and techniques led to gather of the antecedents' works and composing, explaining, and comports of them and at last their transition to the western countries. During the translation of foreign medical books into Arabic languages, the Islamic medicine has been initiated in Islamic countries since the early 3rd A.H. one of the first Islamic medicine books also reflecting the precursors' opinion was Ferdoos-al-hekme written by Ali-bn-Reb Tabari I 236 A.H. he was the professor of Zakaria-Razi. It was printed with a very philosophic introduction from the copy of Berlin, Britannia, and Goota by Mohamad Dabir Sedighi in Berlin in 1928. It is available now. Eb. Rebn himself translated it in Seriani Language [16].

There were two kinds of medicine colleges since the beginning of medicine education in Islam. The first were the hospitals in which the clinical and practical education was instructed. In addition, the others were the theoretical medicine schools. The first desert hospital was founded among the tents in Badr war in the eve of Islam by Islam prophet (peace be upon him) [7]. "There were two hospitals in Islamic civilization: mobile, and fixed. They called the mobile hospitals, Mahmood which means moving from one place to another. These hospitals were equipped with the physician, drug makers with the equipments of single and complex drugs for patients and injuries. They often engaged in curing the sufferers when common disease spread among them [5].

Fixed Hospitals

There were many Fixed Hospitals in most Islamic countries. Each contained two single parts: Feminine and masculine. Each part included both modern medical equipments and the masculine and feminine advisors or servants.

They were divided into internal, surgical, bone-setting, and oculist's profession wards. The expert knowledge of the physicians had five major branches including: 1-the doctor of natures, in fact they are the physicians of blood, phlegm, black bile, and bile. 2- The doctor of surgery, they are so called surgeons today. 3- Experienced doctors who set the bone fracture. 4- Oculists doctors who cured the pain of the patient's eye. 5- Guardians who included paramedical persons such as nurses and nurse's side. Each hospital also had a dependent drug store which was its own.

The first hospital of Islamic era was founded in Damascus in 88 A.L.H. by Omavian governments. Most of hospitals in Mesopotamia and Bizans were set up by the Iranian Scientists, ministers, and governors. Besides, there were some other hospitals, which were simultaneously founded in Bagdad, Egypt, Suria, and Jordan. In addition, some hospitals in Bagdad not only involved in therapeutic and educational needs but also met the need of people in Mesopotamia, Bizas, Suria, and the other places. Moreover, there were some hospitals within Rey, Isfahan, Neishaboor, and Marve in Iran. The examination of the physicians has also been started since the early 4th century in Islamic civilization [5].

In the 3rd century A.H., the first examination were given to the pharmacologists. Then, it gradually becomes serious at that period [5].

"The advancement of the Muslim's medicine continued until the 15th century. Islamic physicians were completely familiar with the anesthetics. Also, they were extremely cautious about counterfeit drugs.... Muslims built madhouse for insane before European countries thousands years ago" [11]. The translation of some drug book written by Birooni, Avicenna, Razi, Ebn- Bitar into European languages indicated the valuable services of Islamic physicians [12]. In his book, Alhavi, Razi wrote about some diseases which were more than what were in Galen and Hippocrates' works as well as other Greek physicians' books. One of the most significant books in Islamic medical history was Ghanoon written by Avicenna. There was in book such complicated that contained medical issues in all western medical eras. After it had been translated into Latin languages. It was considered instantly by many western scientists and physicians. Also, it was utilized as a textbook in their medical universities [16].

It can be said that after pharmacology, ophthalmology was one of the most prominent samples of Muslim's civilization of medical field. Many authentic and creative researches in

ophthalmology was the most important share of Muslims in medicine and its different scientific branches.

Al-ashar articles about eyes that was written by Hanin-ebn-Isak Ebadi (died 264 A.H). it was the oldest book in the ophthalmology that is now available. The writer of this book lived about two centuries before Avicenna. Dr. Max Meyerhof translated it into English languages. It has a useful introduction in which introduced some articles and books in ophthalmology and it was published in 1927 [17]. Many applied words in obstetrics were utilized by Muslims for the first time in medical world. The first books in ophthalmology have been compiled by Muslims since the ninth century and have been issued to the European countries. So that the European ophthalmology were founded based on Muslim's book about this field. Moreover, the creation of new methods in ophthalmology was one of the honors of Islamic physicians. Muslims could diagnose the reasons of much ophthalmic by their advancement in this science. They also stated how they cured these diseases and could achieve many significant progresses in eye surgery.

Some Islamic physicians instigated to diagnose and cure different diseases such as skin disease, itch parasite and introducing it, and the remedy of cataract [6]. In addition, the introducing and remedy of small-pox, measles, exploration of some skin diseases [3, 6], the remedy of metal disorders [3], and the diagnosis and remedy of whooping-cough and alpa fever are the examples of their works [6].

In addition, some physicians initiated the diagnosis and explanation of the body for example in the capillary blood circulation, the exploration of the pupil's reaction in front of the light, the determination of the exact number and location of the eye socket muscles [18]. They also wrote some books about surgery bladder stone [4,19,20] and the used these books and techniques in surgery [3, 4].

Another achievement of Islamic physicians was about pharmacology e.g. the exploration of alcohol and camphor [4], they also founded an equipment used for blood diffusion to the vessels. In addition, they utilized anesthetics while operating surgery and invented the surgical equipments and drew their pictures in the anatomy book [4,41]. They have daily medical visit as a routine and classified the medical drugs [6,42]. For example, Avicenna's infection theory caused the Europeans to consider the value of the quarantine as a factor limiting the spreading of infectious diseases.

Unlike the other scientists, Muslims compiled some comprehensive medical encyclopedias such as Kamel-alsanaye by Ali-bn-Abas Ahvazi (died 1005), Alhavi-al-Kebir felteb by Zachariah Razi (died 1001). Meanwhile, they recorded their empirical researches and clinical studies. The other services of Muslims to medicine are founding a movable hospital. There were such hospitals which carried by fort camels in Saljogian era in the sixth century (A.H.). The kings utilized them during their wars and trips [3,43].

Over six centuries, the professors taught only the scientific books which were translated from Arabic to the Latin languages in European universities. So that, some medical compilations of the Muslims were published more than twenty times in Europe in the fifteenth and sixteenth centuries [3,44]. some medical books of Muslims. For example, Avicenna, were recognized as a standard medical references. In addition, they have been as the educational schedules of medical universities in Europe until the fifteenth century.

Medicine has also been contended in Islamic courtiers after the fifth century. For example, there were significant achievements in ophthalmology in Egypt. They have some effects on the European countries. Some of these Islamic books were acclaimed in Europe up to eighteenth century ^[6,45]. Moreover, the exploration of lung blood circulation, and the explanation of the surgical equipments were also the Islamic physicians' innovations and explorations in this field ^[6,46]. It was reported from the western researchers that until fifteenth century, the European courtiers didn't accept something narrated unless it was about Islamic writers and compilers. In his civilization history, Lobun mentioned the name of some first-grade European physicians who were the students of the Islamic scientists or were narrated their speeches ^[4].

Generally, Muslims played significant roles in distribution of the medical science among European countries by medical explorations, investigation, and translation of the other nations' medical books. Their main origin was the anecdotes and Koran in which the believers were encouraged to acquire science. The westerners themselves told, "Muslims were the teachers of the Europeans for centuries" ^[6]. Nowadays, there are not any medical textbooks of that time. The translations of these original textbooks have just remained and caused them to secure "there were two medical centers in the ninth century: Cordova of these cities" ^[12,47-50].

Among the other physicians, Razi: (634-972) and Avicenna were the most acclaimed ones in Europe in the Middle Ages. Razi wrote more than 220 books which most of them were about medicine. Alhavi was his most important books in medical affairs. The translations of his books were the major Latin textbooks in Europe until seventeenth century. He was the first scientist who described smallpox and typhoid fever in one of his books. Avicenna was a great philosopher and scientist who practiced medicine when he was sixteen years old. He had many innovations in medicine. His manifest, Ghanoon Meyerhof told was one of the greatest one in the medical world. It was translated into Latin languages and was as a medical reference for the European physicians for centuries.

In addition, there were great physicians such as Abol-Ghasem Zahravi, Ebn-Zahar Andlosi, and Ebn-Roshd; the philosophers who had many works and innovations in Islamic Spain. "Four outstanding medical founders of Iran medicine were Ebn-Tabari, Zakaria Razi, Ahvazi, and Avicenna, so that by the advent of them, the main elements of Islamic medicine were set up." ^[5]. The number of Islamic scientists in medicine and medical world was so great that Ebn Asibe in his book, Tabaghat-Al-Atba, allocated a volume to mention their names ^[4].

Conclusion

The supremacy of a civilization will instigate the mental and spiritual dominance of its founder on its contemporary and near communications. This experience was repeated in Islamic and Greek civilizations and occurred more obviously in western civilizations. Western countries could revitalize their civilization by taking advantage from diverse civilizations particularly Islamic ones after the internal and great events, which had been occurred there. In the thirteenth century, the spirit of nationality and advancement appeared in the west. Their national mobilization in the crusades and the scientific profits resulted from these wars and Islamic civilization caused to restore the spirit of the European dominance.

Islam (Koran and anecdote) caused to grow the Islamic civilization and science achievement by accentuating on the importance of thinking, encouraging the science and knowledge acquisition, and the most important of all by treating laxity and indulgence toward Islamic nations and those possessing Bibles. As there is no restriction to science acquisition in Islam and knowledge is the lost of the believers, Muslims tried to take advantages from different nation's experiences and sciences and to enhance their cultural enrichment.

First, the medical books of civilized nations such as Iranian, Greek, Serianian, and Indian ones translated into Arabic language. Finally, it arrived in Islamic science field more exactly and completely. Over five centuries, in Bani Abas caliphate era, there was an immense movement in medicine and the translation and compilation of the sciences. One of the sciences created among Muslims because of holy Koran was Islamic medicine. The constant emphasis of Koran and its prophet's off springs on profunded thinking and reflection as well as science acquire mundane and spiritual sciences including medical sciences. This instigated the immense movement of translation and compilation of the scientific and religious books.

Quranic medicine can be divided into three parts as following: Medicine, hygiene, maintaining health and good health. Some issues were studied in Quraic medicine including: the exploration of some medical secrets in holy book, paying attention to the diseases and their causes as Koran's point of view, prevention, hygiene, person's health, general health and nutrition hygiene, paying attention to food and not to Lavish it, avoiding eating harmful animals' meat and alcohol, the philosophy of forbidding some foods, considering the hygiene of sexual affairs, evacuating body from corrupt materials (observing fast), and Koran's consideration toward physical power. The writers of the prophet's medicine gathered these orders by sing the Koran's verses and the great Islam prophet's life style. Further, the classification of the verses and narrated news from the innocent Imams (peace be upon them) about the emphatic recommendations of hygiene and therapy were codified in the form of certain medical collection among them Teb-al-Sadegh (medicine of Sadegh) and Teb-al-Reza (medicine of Reza) were the most famous of all.

The existence of scientific centers was one of the other ways of arrival of the medicine to Islamic civilization. Gondishapoor and Beit-al-hekme are considered as two valid, important centers and scientific places in Islam's world. Gondishapoor had great influence in forming the organization of "hospital" especially educational clinic in the world. Gondishapoor was the first educational hospital in the world in which medicine was taught. In addition, the Greek physician taught Hippocratic medicine there for the first time. The Indian and serianian scientists and physicians also taught in Gondishapoor and translated their own language sciences into Pahlavi language. Further, the Iranian-Zoroastrian medicine was also taught there. Accordingly, a new medical school was produced in Iran. It was a blend of Indi-Greek and Iranian medicine. This university was an innovator of certain methods to attract and extract different nation's educations as well as to select them among others. The existence of this important medical core help Muslims be free from translating the foreign books rapidly instead engage in compiling special works independently about medical field. Hence, medical sciences were spread among Muslims much sooner than other sciences.

One of the other important and scientific centers at the beginning of the Muslim's scientific movement was Beit-al-hekme or the treasury of philosophy. This place was the focus of the scientists

and translators of scientific books belonging to Abasi era from Arabic language into others. Many scientific books attained from defeated countries such as Indian, Persian, and Greek ones were collected in Beit-al-hekme Baghdad. In addition, this centre was one of the greatest and cultural institutes of the burgeoning Islamic civilization era and had influenced on the Western and Eastern cultures. Actually, the caliphs' support from this centre's scientists and enough attention of its translators while translating scientific books were the main factors to transform this era to the pinnacle and heyday of sciences especially medicine.

Muslims have compiled medical books since the early third century A.H. However, their advancement in medicine continued until the fifteenth century. In the late Middle Ages, the supremacy of Islamic medicine was quite obvious in different fields. In the late Middle Ages, the crusades and Europeans contact with Islam's world influenced greatly on the advent and improving of Muslim's medical science. Muslims made them acquaint with some parts of Islamic sciences on Europe's culture was completely clear from the ninth century to Renaissance. Medical science has been spread in Europe since the eleventh century by Italy, Spain, and other newly founded centers. This caused many European students to turn into Islamic centers particularly Spain in order that science acquisition. One of the valuable services of Islamic physicians was the translation of their drug book into European languages. In addition, ophthalmology was one of the prominent samples of Muslims' civilization. Many applied expressions in ophthalmology also were brought to medical world by them for the first time. It can be said that the science of ophthalmology was founded based on Muslim's books about this field.

In addition, some other Muslim's physician began to diagnose and to cure the different diseases. On the other hands, some of them recognized and introduced the human body's organs. They also wrote many books about anatomy technique and general surgery for the first time so that European countries referred to these books. Unlike other scientists, Muslims compiled some comprehensive encyclopedias about medicine. Over six centuries, the only scientific books were taught in European's universities were ones translated from Arabic into Latin language. Some Muslim's books such as Avicenna's books have been known as a standard medical education program European in universities since 15th century. The explanation of surgical equipments also was the other Muslim physician's innovation and exploration.

Generally, it can be said that Muslims helped the spreading of the medical science considerably in Europe by exploring, investigating, translating, and compiling the medical books. Today the origin of these books is out of hand; however, just these translations saved them from completely ruined.

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