Contribution of Medieval Islam to the Modern Hospital System

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Abstract

Development of hospital system during the medieval Islamic period has affected the modern hospital system throughout the globe in multiple ways. It has been precursor in terms of introducing innovative ideas and practices like mobile field hospitals, encouraging medical research through establishing medical schools and universities, laying down foundation for sound hospital administration based on compassion and humane treatment to patients, encouraging employment of female staff, innovative medical facilities and public healthcare system and introduction of medical ethics. These traits make medieval Islamic hospitals as the forerunners of modern hospital system.

Keywords: Hospital, Bimaristan, Al-Nuri Hospital, Al-Mansur Hospital, medieval Islam.

1. Introduction

I.   Subject of the Study: Contribution of Medieval Islam to the Modern Hospital System

II.   Problem of the Study: To analyze the role and contribution of Medieval Islam in influencing various aspects of modern hospital System

III.   Limitations of the Study: This analysis is limited to developments in the field of hospital system in the Medieval Islamic World and its impact on modern hospital system. Allusions to various aspects of the hospital system are made to prove the impact of the Medieval Islam.

IV.   Theoretical Framework of the Study: It is a historical topic and no theoretical framework has been developed.

V.   Methodology of the Study: Major tools of research – historical, analytical, comparative and descriptive – have been applied. More emphasis is on historical technique. Relevant material available in English, and Arabic languages has been used and Arabic sources are used in translated (into English) form.

VI.   Previous Researches etc.: Undoubtedly, some work in the form of academic research has been undertaken in the realms of Islamic medicine and hospitals in the medieval Islamic era in recent years; nonetheless, the research studies available pertain to Western interpretations and there is dearth of Arab Islamic perspective in respect of the contribution of medieval Islamic hospital system on the different aspects of modern hospital system.

VII.   Results and Conclusion: The trends emerging from this study show that Medieval Islamic hospital system has played remarkable role in influencing different aspects of modern hospital system, especially in terms of compassion, equality and humane conduct towards the patients in hospitals, mobile field hospitals, medical ethics, sound hospital administration, different types of sections for different ailments and promotion of medical research etc., which been precursor for the modern hospital system.

VIII. Bibliography: The books and other materials used in the study are shown in the references. Both Arabic and English sources have been used.

XI- Outline of the Study:

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2. Preface

Modern hospital system owes a lot to the hospital system developed during the medieval ages in the Islamic World. Known as *Bimaristan*, a derivative from the Persian, meaning place for the sick, this term was used in the

medieval Islamic world, to indicate a hospital in the modern sense. Medieval Islamic hospitals provided care and treatment to the sick and ill patients by the qualified medical personnel. The physicians of the medieval Islamic world are said to be the first to distinguish between a hospital and other diverse kinds of healing temples, sleep temples, hospices, asylums and leper-houses. Apart from looking after the sick patients, the medieval Islamic physicians also played pivotal role in introducing public hospitals, psychiatric hospitals and medical schools/universities, the later also being considered the first academic medical centres.

3. Development of Islamic Hospitals

The Prophet Muhammad is credited with having inspired the idea of establishing an Islamic hospital. The first Muslim service was launched in the courtyard of the Prophet's mosque in Medina and during the *Ghazwah Khandaq* or the Battle of the Trench on seeing wounded soldiers, the Prophet ordered the assemblage of a tent to provide care to the injured soldiers and subsequently Caliphs and Muslim rulers launched mobile hospitals which included doctors and pharmacists (Rahman, 2004). The oldest recorded *Bimaristan*, set up in the third century in the present day Khuzestan province of Iran, survived the change of rulers in the aftermath of Arab Muslim conquest in 638 AD and subsequently developed into a public hospital with medical university and psychiatric facilities under the guidance of Islamic physicians (Miller, 2006).

Caliph Al-Walid ibn Abd al-Malik is frequently credited with establishing the first permanent Bimaristan in Damascus in 707 AD, after Jundishapur, which had trained physicians and a well-equipped dispensary, where treatment was meted out to the blind, lepers and other disabled people, and also separated those patients with leprosy from the rest of the patients (Rehman, 2004). Some scholars have argued that this *bimaristan* was no more than a *lepersoria* because it only segregated patients with leprosy (Miller, 2006). Undoubtedly, most of the Islamic hospitals built earlier had physicians that diagnosed and treated all patients; nevertheless, the Bimaristan at Damascus was unique in that it had doctors that specialized in certain diseases.

In this regard Sir John Bagot Glubb has observed: "By Mamun's time medical schools were extremely active in Baghdad. The first free public hospital was opened in Baghdad during the Caliphate of Haroon-al-Rashid. As the system developed, physicians and surgeons were appointed who gave lectures to medical students and issued diplomas to those who were considered qualified to practice. The first hospital in Egypt was opened in 872 AD and thereafter public hospitals sprang up all over the empire from Spain and the Maghreb to Persia." (Glubb, 1969).

While according priority to best locations, preferably over hills or by river side, the Islamic rulers selected such sites for *bimaristan* from the health point of view. Al Adhodi's Bimaristan, built by Adhodo al-Dawla, in Baghdad by the River Dejlah, is a good example of this (Al-Ghazal, 2007: 3). When Al-Razi was asked by Haroon Al-Rashid to build the first general hospital, the former selected the place after putting few pieces of meat in different places in Baghdad to check the least spoiled one with the best fresh air (*Ibid.*).

Impressive *bimaristans* were developed by the medieval Islamic rulers at Cordoba, Baghdad, Damascus, Bokhara, Sevilla and Cairo. A total of 34 major ones have been identified. Tudela, who visited Baghdad in 1160, wrote that there were 60 hospitals in that city and 50 in Cordoba (Porter, 1997: 103). The greatest and most magnificent was The Mansuri hospital in Cairo, which was completed in 1284, was most magnificent self-contained institution endowed with four great courts, each with a water fountain in the centre, separate wards for men and women and for different diseases, a dispensary, lecture halls, and an out-patient department from where patients were visited at their homes, a chapel and library. According to some scholars, fever wards were cooled by fountains. Musicians and storytellers entertained the sick, and on discharge each patient received a sum of money sufficient to pay for immediate expenses until he could resume work (Major 1954:260; Porter 1997:104-105; Guthrie 1958: 95,96).

Porter (1997) has opined that probably the first mental hospital for the insane (a *maristan*) in Europe was built by Islam in Granada in 1365 (Porter 1997:105). The hospitals at Cordova, Baghdad, Damascus and Cairo in particular also served as centres of medical education, attracting students from Europe and the Far East, spanning the void of Medieval scientific stagnation until the creation of Europe's own fledgling medical schools at Salerno (11th century), followed by Montpellier and Bologna (13th century) (Guthrie 1958:95-96,102-124).

4. Mobile field hospitals

Frequent conquest forays by the Arab Muslim armies in different lands culminated in the setting up of mobile dispensaries and field hospitals for the treatment of the injured and wounded soldiers in the battlefield. Physicians were often allocated to mobile or field medical teams to treat patients outside of the hospital by the turn of the 10th century. Crone Patricia (2005) cites the example of Ali Ibn Isa who asked Sinan ibn Thabit to send a mobile medical team to tour the countryside of southern Iraq and treat the residents there, whether Muslim or non-Muslim, as well as the cattle (Crone, 2005: 310).

Miller (2006) has opined that the bimaristans were of two types; mobile and fixed. The mobile bimaristans got developed into true travelling dispensaries with doctors and pharmacists. These bimaristans were transported

upon beasts of burden. The physicians in the mobile clinics were of the same standing as those in fixed hospitals, and the field hospitals were well equipped with medicaments, instruments, tents, and a staff of doctors, nurses and orderlies.

5. Medical schools and universities

Under the tutelage of the medieval Islamic rulers, the hospital, apart from treating patients, also served as a medical school where medical education and training was imparted to the students (Rehman, 2004). The Islamic hospitals were the first to keep written records of patients and their medical treatment and this responsibility was entrusted to the students to keep these patient records, which were subsequently edited by doctors and referenced in future treatments (Miller, 2006). Subsequent period witnessed emergence of medical schools and universities where academic degrees and diplomas were awarded to students who were qualified to be a practicing Doctor of Medicine (Glubb, 1969; Alatas, 2006; Imamuddin, 1981).

While these Islamic hospitals were also the earliest to establish a system of internship and externship, these also had arrangements for resident and student education. The outstanding physicians like al-Razi, Ibn Sina and Ibn Zuhr were both hospitals directors and deans of medical schools. Apart from imparting theoretical knowledge to the students, clinical training was also provided to the students.

In the 12th century, Ibn Zuhr established surgery as an independent discipline of medicine, by introducing a training course designed specifically for future surgeons. Al-Nuri hospital in Cairo (Egypt) also served as a teaching hospital and its medical school had elegant rooms and a well-equipped library. Many Muslim physicians and physicists, including Ibn Abi Usaybi'ah and 'Ala ad-Din ibn al-Nafis, were the products of this medical school of Nuri hospital. Undoubtedly, imparting education in medicine was most often facilitated at the Bimaristan teaching hospitals; nonetheless, there were also many *madrasa* medical schools dedicated to the teaching of medicine, and as Gibb (1970: 281) has pointed out, from the 155 madrasa colleges in 15th century Damascus, three of them were medical schools.

6. Hospital's Organization and Staff

The organization of hospitals under medieval Islamic rulers was facilitated through the bifurcation of the hospitals into two sections – one for males and one for females. Within those sections were halls, each for a specific disease and monitored by one or more doctors. Health workers were employed to clean the hospital and take care of the patients. The employees served both day and night shifts to ensure they were all well-rested. The Islamic hospitals during the medieval were called upon to serve mainly had two goals: the welfare of their patients and to educate new physicians. According to Miller (2006), each hospital was equipped with its own pharmacy, library, lecture halls, mosque and occasionally a chapel for Christian patients. Patients were looked after well. Once admitted into a hospital, the patient could stay until his full recovery. After patient's full recovery, he was provided, not only with clean clothes, but with pocket money as well. The patients received clean clothes and were given free medication and food under physician supervision until they were cured (al-Ghazal, 2007: 4-5).

The Islamic hospital system during the medieval ages had evolved a high standard mechanism of taking care of the patients. Hospitals of Baghdad constructed in the ninth and tenth centuries employed up to twenty-five staff physicians and had separate wards for different conditions. Al-Qairawan hospital and mosque in Tunisia, built in 830 AD, sufficiently equipped with halls organized into waiting rooms, a mosque, and a special bath. According to Tapper and McLachlan (2003), medieval Islamic hospitals had evolved a dress code that required physicians to "wear clean, white clothes," as stated by Ibn Hazim in the 11th century and it seems to be a predecessor to the dress code in vogue in modern hospitals which requires physicians to wear white coats (Tapper and McLachlan, 2003: 26-27).

7. Distinct Traits

The medieval Muslim hospitals set a precedent by employing female staff, both as female nurses and female physicians, which was a unique feature of the Muslim hospitals because female staff was rarely employed in ancient and medieval healing temples in other parts of the world. Employment of female staff was considered essential in the wake of the segregation between male and female patients in Islamic hospitals. Another distinct trait of the medieval Islamic hospitals was their secular character which aimed at serving all the people regardless of their race, religion, citizenship, or gender (Nagamia, 2003). According to Rehman (2004), the Waqf documents stated the hospital was required to keep all patients until they were fully recovered and both men and women were admitted to separate but equally equipped wards.

Famous historian Will Durant (1950), while writing about the Al-Mansuri hospital in Cairo, Egypt, asserts that the hospital had a spacious quadrangular enclosure with four buildings around a courtyard 'adorned with arcades and cooled with fountains and brooks.' He further describes that the hospital had 'separate wards for diverse diseases and for convalescents' and was equipped with laboratories, a dispensary, out-patient clinics,

kitchens, baths, a library, a religious place for worship, lecture halls and 'pleasant accommodations for the insane' (Durant, 1950: 330-331).

While describing Ali Mansuri hospital where nursing was admirable and no stint was made of drugs and appliances; each patient was provided with means upon leaving so that he should not require immediately to undertake heavy work, William Osler (2004) noted that "it reads like that of a twentieth century institution with hospital units," (Osler, 2004: 73-74). H.R. Turner (1997) has opined that the medieval Islamic hospitals in Cairo, Baghdad and Damascus were no less advanced than the later hospitals of England's Victorian era'(Turner, 1997: 134).   Andrew C. Miller (2006) has opined: "The Al-Mansuri bimaristan was one of the largest and most elaborate hospitals ever built. It had a total capacity of 8000 beds, and the annual income from endowments alone was one million dirhams. It freely served all citizens without regard for their colour, religion, sex, age or social status."

8. Medical Facilities and Public Healthcare
Adequate medical facilities in terms of the physicians, attendants, medicine and other facilities were provided in the medieval Islamic hospitals that were built in all major cities. The Qalawun Hospital in Cairo could care for 8,000 patients, and a staff that included physicians, pharmacists, and nurses. Availability of adequate research facilities in medical sciences proved instrumental in making advances, which included the discovery of the contagious nature of diseases and research into optics and the mechanisms of the eye. Islamic hospitals built by the Muslims for the mentally sick subsequently spread to Europe during the Crusades, inspired by the hospitals in the Middle East.

Equal treatment was meted out to the patients in the Muslim hospitals irrespective of their ethnic background, financial status, gender and religion. According to one scholar, like modern hospitals, medieval Islamic hospitals were often large urban structures which served a variety of different purposes, including its roles as a centre of medical treatment, a home for patients recovering from illness or accidents, an insane asylum for patients suffering from mental illness, a retirement home for the elderly, a medical school for students, and an outpatient clinic dispensing medical drugs (Savage-Smith, 1996: 933).

Woods (2004) has opined that Muslim hospitals were the first to feature competency tests for doctors, drug purity regulations, nurses and interns and advanced surgical procedures. The Muslim physicians of the medieval ages had developed a better understanding of the pathology of contagion, accordingly they played key role in creating hospitals with separate wards for specific ailment for the first time in order to keep the people with contagious diseases away from other patients.

Another distinctive feature of the medieval Islam was that during this period Islamic cities had developed an early public healthcare system. According to Savage-Smith and Pormann (2007), "The extraordinary provision o public bath-houses, complex sanitary systems of drainage (more extensive even than the famous Roman infrastructure), fresh water supplies, and the large and sophisticated urban hospitals, all contributed to the general health of the population." Besides, competency tests were also conducted by medical authorities visiting hospitals and clinics "to regulate, in one way or another, the performance and competency of those providing medical care or active in the medical market-place."

9. Medical Ethics
Medieval Muslim hospitals had developed higher standards of medical ethics, a unique trait that distinguished them from their contemporaries. Patients in these hospitals were meted out equal treatment irrespective of their religious, ethnic, and socio-cultural backgrounds. The hospitals often employed staff from Christian, Jewish and other minority backgrounds. Muslim doctors and physicians were expected to have obligations towards their patients, regardless of their wealth or backgrounds. The ethical standards of Muslim physicians was first laid down in the 9th century by Ishaq bin Ali Rahawi is credited to be the first to frame the ethical standards of Muslim physicians in his first treatise entitled, *Adab al-Tabib* (*Conduct of a Physician*), which is dedicated to medical ethics. While regarding physicians as 'guardians of souls and bodies', Rahawi wrote twenty chapters on various topics related to medical ethics, which inter alia included: What the physician must avoid and beware of; The manners of visitors; The care of Remedy remedies by the physician; The dignity of the medical profession; The examination of physicians; and the removal of corruption among physicians (Turner, 1997; FSTC,).

While taking to task the fake doctors who roamed the cities and the countryside selling their 'cures', al-Razi introduced many practical, progressive, medical and psychological ideas in the 10th century. Simultaneously, he cautioned that even highly educated doctors did not have the answers to all medical problems and could not cure all ailments or heal every disease, which was humanly speaking impossible. To become more useful in their services and truer to their calling, Razi advised physicians to keep pace with advanced knowledge by persistently studying medical books and exposing themselves to new information. He also wrote the following on medical ethics: "The doctor's aim is to do good, even to our enemies, so much more to our friends, and my profession forbids us to do harm to our kindred, as it is instituted for the benefit and welfare of the human race, and God

imposed on physicians the oath not to compose mortiferous remedies," (Cited in FSTC).

Unlike most ancient and medieval societies' belief that mental illness was caused by either demonic possession or as punishment from a god, which culminated in a negative attitude towards mental illness in Judeo-Christian and Greco-Roman societies, Islamic neuro-ethics and nuero-theology demonstrated a more sympathetic attitude towards the mentally ill (Paladin, 1998: 257), as enshrined in Sura 4:5 of the Holy Quran: "Do not give your property which God assigned you to manage to the insane: but feed and clothe the insane with this property and tell splendid words to him." This verse from the Holy Quran sums up Islam's attitude towards the mentally ill, which are considered unsuitable for managing property but must be given a humane treatment and be kept under care by a guardian, in accordance with Islamic law.

Such an affirmative neuro-ethical understanding of mental health accordingly resulted in the establishment of the first psychiatric hospitals in the medieval Islamic world from the 8th century (Youssef, Youssef & Dening, 1996: 57), and an early scientific understanding of neuroscience and psychology by medieval Islamic physicians and psychologists, who discovered that mental disorders are caused by dysfunctions in the brain.

10. Conclusion

There exist countless links between the modern world of health and medical treatment and the past medical system, especially with the medieval Islamic civilization which focused a great deal of energy and thought on developing the medical arts and sciences. One major aspect was the development of hospitals and medical schools throughout the period. Larger hospitals accommodated medical schools and libraries, where senior physicians imparted medical techniques to the students and how to fully apply their knowledge when dealing with their patients.

The hospital is a medical/social invention that today everybody can count on it being a place that can save us and relieve us from pain in time of illness or accident. This has been made possible owing to the healthcare system developed by medieval Islamic society which forms the backbone of present healthcare system. The *bimaristan* of the medieval Islamic era served multiple purposes: a centre of medical treatment, a convalescent home for those recovering from illness or accidents, an insane asylum and a retirement home giving basic maintenance needs for the aged and infirm who lacked a family to care for them. It developed that way because the contemporary Islamic rulers, scholars and medical practitioners took ancient knowledge and time honoured practice, merged it with new research and incubated it in an atmosphere of intellectual achievement and constant quest for improvement. The bimaristan may be the greatest achievement of the medieval Islamic world. The modern hospital and system of medical education and healthcare it gave rise to, is certainly its greatest legacy.

Miller (2006) is of the view that medieval Islam transformed hospitals into institutionalized establishments for patient care, medical education and training. The complex structure and hierarchy of these hospitals, advent of medical records, physician licensure, government oversight and universal access to care set the example upon which later hospitals were modeled. Medieval Islamic hospitals spurred the growth and proliferation of hospitals in the West, especially when Spain and Portugal, being part of the Islamic Empire for over seven centuries, were afloat with Islamic hospitals. Cordova alone had fifty major hospitals. Physicians fleeing Spain moved on to establish academic medical centres in other European cities. The westerners had extensive interactions with the *bimaristans* that were nearly 1000 years the predecessors of their Western counterparts.

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