From the early static spaces to the current dynamic patterns

Evolution of health-care centers over the time and the effect of it on human's attitude

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Abstract

The issue of medication, health and treatment has been always one of the most underlying and vital issues in improvement of human life and the rate of utilizing this status is highly depended on human health in order to use desired conditions. Academic works have revealed that the better conditions are in terms of physical and mental conditions, the more the awareness of people is increased to understand the environment and to create appropriate conditions for living. Hence, this study has also investigated the way of establishment of these centers and familiarity with the process of their establishment to analyze the current patterns and the effect of the evolution on human mind. This is a descriptive-analytical research in terms of content and has tried to use physical investigations and data collection to explain issues in a hierarchical framework to express the evolution. After analysis of the process of emergence of these centers, their impact in individual and social behavior and thoughts of people is evaluated over the time and finally, a conclusion is presented through collecting the data obtained from the references. The results showed that although health centers used to be defined as attachments to different buildings at the early times, they have gained independent identity over the time and have been defined as unit buildings with certain uses due to the social needs and the advancement process of knowledge and technology. They have been advanced to an extent that some centers could be today observed for temporary residence to take medical processes in this field. Hence, the health centers have been encompassed in individual and collective opinions gradually and after a long way, so that the main medical and health activities, mental health, have faced welcoming of humans for utilization of these services in these centers.

Keywords: health-care centers, evolution, disease, social behavior.

Introduction

With the beginning of collective life and early sedentarization on the earth, humans gradually tried to improve their living conditions and began to learn different techniques and use these techniques to make small and big changes in their living process. People moved from the caves in the heart of mountains and from the pits dug in the ground to the shelters made by their hand.
These shelters were gradually developed, the inner space of these shelters was partitioned and special use was determined for each space. This process could be a beginning point to define the way of today's life. The health center is not also an exception. At the first, no health center was existed in independent definition. These centers were established and developed like settlements and depending on human needs and the den conditions.

Recognition of health centers, whether small or large and with any level of services, familiarity with past of these buildings and the way of their advent and establishment could be effective in understanding the emergence of the evolution and awareness of strengths and weaknesses of these centers. Everything that is established, produced or created at the current world could not mean perfection of that issue; past examples and buildings in some cases are more efficient and adequate than the current ones and have been preferred to the current examples. Hence, sometimes using the thoughts and opinions of ancestors and integrating them with the current methods and approaches could cause more useful and efficient outcomes. In this regard, health centers could be considered among buildings, which have been evolved over the time and with gradual influence of human. Human has always searched the most perfect examples. About the health centers, similar to other buildings, it could be mentioned that construction of these buildings has passed new ways for high efficiency for the patients and personnel over time. Hence, with the recognition of the evolution of health centers, the strengths and weaknesses of past and current examples could be extracted and the outcome of the investigations could be used for purpose of construction of more efficient buildings.

**Definition of hospital:**

Hospital is a social institution, which has been sustained in history of social life due to the necessity of continuing life and survival and returning to health and treatment of diseases and along with the evolution and development of sciences and techniques and living skills and methods and spending long path, they have been appeared in the current form as a need in human societies. Hence, the history of hospital has been mixed with the medication history and the growth and development of hospital is in fact caused by increasing development and advancement of medical sciences and technology, especially over the decade.

**History of hospital construction:**

According to this issue that in what society, what country or region or using what system of supplying health services the hospitals are created, they could have different performances. On the other hand, the way of distribution of facilities and hospital services is significantly different in advanced regions across the world compared to developing societies. Millions of people of the world suffer from disease and pains without the ability to use hospitals, because they have not enough budget to use these services. High social classes have access to hospital beds more than their need and its surplus is out of reach of low social classes for economic reasons. And there is
no harmony between the private and public hospitals in terms of number of beds with regard to low-income and high-income classes.

The history of beginning hospital construction to the current concept:

The history and evolution of hospital has gained attentions over the 20 years, since medical studies have played key role in establishment of hospitals. During the 18\textsuperscript{th} century, the treatments of patients and surgery included cutting foot or removing surface glands or pregnancy and used to be done at home. Till that time, hospital (with the first definition) was mainly responsible for taking care of patients and majority of the patients used to die there. This kind of maintenance places was in form of large halls and the beds of patients were placed there and even they used to give a single bed to two patients. The main axis of these salons was in cross form or similar forms and the placed were integrated with churches.

History of hospital services:

The early hospitals were not few in human history; although it is clear that they were located in Silan, India, Iran and Arabia but no advancement was observed in field of hospital construction before Christian. Majority of hospitals created in early ages of hospital construction had simple plans and sufficient facilities for the development. The blocks had usually independent parts linked by the network of corridors. This simple geometric design could simply encompass new units for new uses required.

Some Christian nuns announced their readiness to receive patients from the beginning and some elementary hospitals were built from the beginning. A clear example that dates back to the period after first period of hospital construction of Christians is the Tannere Hospital in France (1293). This building was very similar to the early churches. It had an 80-m salon in length and was partitioned to smaller spaces and the beds were placed in these small spaces. Each space could be partitioned from total area using a curtain. In the warehouse if this space, the altar and cross were placed.

In the Medieval at the Europe, the medical science was also dominated by the church and hospitals have passed lots of evolutions since the Medieval to the date (especially in the Europe), which could be divided to two different periods: 1- traditional system, 2- nationalization of health centers and separation of religion from treatment.


**Traditional system:**

The age of helping the poor using charities: this age was continued almost from Medieval to the 1870 up to the eve of the French Revolution. In this age, the main role on Administration of Hospitals was for the religious groups. In majority of European countries, the early hospitals were considered as places to support the poor, disabled people and pilgrims and were located usually in adjacency of churches. In France, hospitals were firstly known as "The Guesthouse of God" and the word used today in English and France is derived from the origin of "Hospitality".

However, hospital activities managed by priests had some features as follows:

- Taking care of physical health of patients as a way for religious promotions.
- Required financial resources for management of hospital used to be supplied only through helps and gifts of people to charities.
- Hospital centers by that time used to heal the pains of the poor and hence, the physical pains or the diseases caused by them was not the only reason for establishment of the hospitals, but also any kind of disability such as poverty and hunger, lack of shelter and similar issues were in the scope of activity of these hospitals. In these centers, the medical-religious conditions (mainly in heart or adjacency of church and in form of a hall processes as the holy places and shrines) were awful.

The patient room was at the first patient salon and large rooms were changed into smaller rooms over the time and the number of patients was also reduced. The hospitals were similar to leprosy home and were outcast in social terms and were considered as an association for experience and observation for the physicians who were not organized in professional terms. Hospitalization of several patients on a big bed, existence of epidemics and infections and taking surgery operations in presence of other patients were other characteristics of these hospitals.

Nowadays, there are many hospitals with the title of saints on them. The titles are originated from the medieval orders, which made more than thousand secondary medical centers under dominance of priests in second half of 13th century. During the cross wars between Muslims and Christians for occupation of holy territory and continuing from late 11th to late 13th centuries, many patients and disabled and poor people and victims of war used to refer from the holy territory. As a result, the European cities were exposed to the danger of epidemic diseases and this was the time that some regulations were arranged for nursing including the command.
of Hospital Knights, Saint John, in 1099 AD the command Temple Knight and the Lazar Command (who was devoted for the lepers) and the command of Knights of the Holy Spirit.

In late 13\textsuperscript{th} century, during which leprosy was prevailed terribly and was increased in the Europe, an inhuman and brutal act was taken to fight against it. In this regard, the Philip IV of France (king of France from 1285-1314), who was famous because of collecting heavy taxes from Jews, decided to fire the lepers to make the earth clean from presence of these patients. Particularly, they used to call this disease as a punishment on behalf of God. Church disagreed with this measure and supported the lepers and maintained them in Lazar Monasteries.

In addition to Cross Knights, like the founders of hospitals, cross warriors and their followers used to protect the patients referring to hospitals as a result of epidemics by that time, during a single year, more than 10 thousand people were died due to the plague in Dijon Hospital (a city of France, Dijon) and were buried in the cemetery in adjacency of hospital. Till 14\textsuperscript{th} century, there was no hospital technique and there was no doctor or surgeon in these hospitals. The only medicines were herbal teas and syrups, taking blood from the patient or a bath of hot water and mineral water prescribed by the priest to heal their pain. General health of people was terrible and people used to be died sometimes due to epidemics as a result of plague, cholera and smallpox.

Since about 1350 AD, some hospitals of that time could have access to doctors; although the number of doctors was insignificant compared to number of priests to the end of Medieval. By that time, certain decisions were made about the leprosy to isolate the patients. These patients used to live in special placed provided for them and were basically separated from the society, except for special cases and special symptoms of patients who could enter to the cities and return to the leprosy home after short time. The effect of the isolation was to an extent that the leprosy was eradicated in many European countries in 14\textsuperscript{th} century.

On 1338 AD, the first health code was codified in time of Richard II in the England. In 1348, the first health and isolation commission were established in Venice. In 15\textsuperscript{th} century, because of special social-historical conditions, the way was paved for deep changes in European countries. The evolutions called Renaissance were created at the first in Italy and were them promoted to France, Germany, Spain and Netherlands and new life was begun in social, artistic, literary and scientific fields and fundamental changes were created in all scientific fields, especially medication, and the thought of criticism of Scholastic was released. In 1450, German Gutenberg could invent printing machine and hence, one of the biggest industrial and scientific evolutions was happened and could be effective in medical sciences.
The medical advancements in Renaissance era were originated in the advancement of anatomy of dead bodies as an act that was banned because of influence and dominance of church. The priests cooperating with doctors and anatomists used to provide the dead bodies without owners for the medical students in hospitals affiliated to church for purpose of anatomy and the anatomists used to anatomize the organs, bones, neurons and different body tracts to found out about the correlation of lots of diseases with organ changes. In 1543, the first hospital of the new world was built in Mexico City and the first Urban Health Commission was also established in Venice, Italy. The commission used to test all foods and medicines supplied for selling and used also to isolate infectious patients from others. In 1538, Henry VIII of England ordered that all marriages and deaths should be registered in formal offices.

However, various social factors and fields ended the influence of priests in territory of hospitals and separated in fact the traditional health centers from homes for orphans and the causes of this phenomenon are as follows:

- Evolution of governmental organizations and recognition of the duties of the government to supply health of people through weakening the feudal system and emergence of public social institutes
- Growth and promotion of medication and intense need of society to regulating and ordering the medical units; it is clear that priests used to heal the pains of physical and mental patients based on the humanitarian motivations and had not the ability to meet health and medical needs of patients and cope with medical sciences.
- Another reason for separation of religion from medication could be inadequate conditions of the health centers in terms of hygiene, so that the places were themselves changed into places for prevalence of infectious diseases and epidemics at the society. About 18th century, mortality of epidemic diseases was terrible. In Europe, more than 60 million people were died due to smallpox and there was no health and hygiene. In the Hotel Dieu Hospital in Paris, 6 patients used to sleep on a single bed and the doctors used to apply abag containing sponge soaked in vinegar on their nose while checking the patients not to smell the sickening smell of the hospital.

**Nationalization of health centers and separation of religion from medication:**

One of the most important effects of French Revolution in 1789, along with emergence and promotion of reformist economic and social opinions, was replacement of charities (homes for orphans and economic health centers of religious institutes) by social welfare institutes. Since then, hospitals had to change their nature into public governmental institutes. Hence, codification of special regulations in this field lasted long time even in the France, at which the revolution was happened.
of affairs of health centers was worsened and made continuing this situation of the government depending on handling the affairs of health centers and financing of the centers. To enforce the said goal, management of hospitals, clinics and health of the urban spaces were assigned to municipalities in some countries and the municipalities used the state budget or urban budget for finance of health centers and gaining the management of health centers and homes for orphans.

However, parallel to establishment of health centers by the governments in different areas and allocation of these places mainly to the poor, the private sector was also established with the profit target in medical field. However, it should be noted that in same period, deep disputes were created between Europe and America on the way of supplying health services. At the same time that European countries and America were being developed rapidly in this field, other countries were taking the first steps.

Specialization and development of health centers and hospitals:

The deformation of supplying health services and management of relevant organizations is related to the years after World War II. Since then, many countries took the way of evolution in organization and supply of health services and especially hospital services and on the other hand, social and scientific evolutions and lifestyle could lead to growth and development of health services in international level. In fact, with the advent of war and bitter dangers reminded from the epidemics after the World War I, the US offered establishment of International Welfare organization in 1963 to prevent different health problems and the organization was founded by membership of 44 countries and could provide the conditions for establishment of World Health Organization.

On the other hand, complexity of diagnosis and treatment could lead to establishment of equipped centers and the public religious centers were removed from direct interference in medical affairs because of advent of specializations and the government became responsible for finance of health centers more than before with the reduction of financial resources obtained from helps and supports of people paid as gift for management of charities. Therefore, health costs were gradually considered in the budget of the governments. With the description, the management of health centers and their administrations were mainly assigned to neighborhoods or independent sectors and the elected or appointed mayor was responsible for management of health units. However, the duty of neighborhoods and limitation of activity of hospital centers, which was in limit of neighborhoods by that time, was not adjusted with total desired society; because the hospitals of independent municipalities used to refuse receiving patients probably referred from other municipalities or neighborhoods. The budget of these hospitals used to be supplied mainly from income of municipalities. Hence, hospitals were active in closed space.

In fact, hospitals followed 3 factors: 1- government 2- local administrative organization and 3- medical personnel.
In this step, two fluctuations are observable, which are mainly in conflict with each other. One of them is related to governmental centralization (financing, distribution of facilities, establishment of institutes, codification of regulations and local supervisions) and the other one is policies based on free and private activity. However, the problems caused by chaos in the health affairs, inequality of geographical distribution, inadaptability of local staff with health needs and increasing development of medical and health techniques and social support systems has made governments increase their interference. In other words, The Healthcare Industry was changed. The change and dynamicity could be analyzed from 3 perspectives: 1- financial affairs: in fact, the healthcare industry was changed from individual form and payment of expenses to protect personal health into public costs to enhance general health of people; 2- organization: the healthcare services were changed from institutes in a veil of confusion and inactive mode into large establishments and professional system with various medical and health goals; 3- methodology: the healthcare services were changed from the state of supplying services just in emergencies and hospitalization of patients to centers for supplying basic healthcare services and inhibitory medication based on social needs.

Functions of hospital:

Hospital and the range of hospitalization:

Supplying health services for inpatients is usually taken in hospital and includes types of cares and operations needing hospitalization of patients. Analysis of the desires of patients has shown that through meeting at least physical needs or paying attention to mental needs of patients, the hospital can create such atmosphere, in light of which and under supervision of doctors, the patients could take benefit of advancement in improvement. Hence, the way to achieve total planning of hospital departments is related to needs of patients, which are different based on type and are sometimes unpredictable. Moreover, the similar needs of people serving the services in hospital or visiting the hospital are also added to the above-mentioned desires. However, showing response to the desires should be in such a way that could meet comfort of patients.

Evolution and development of wards:

The first evolution in old system of general wards of hospital was created in the Rigs Hospital in Denmark. In this project, several new items are observable. One of them is placing less number of beds in a room and partitioning them by several partitions and the other one is placement of beds along the window, which is apparently an insignificant measure but it has numerous advantages: firstly, each patient could use the good view and outside landscape; secondly, the live and intense light of the sky creates no problem; thirdly, the patients prefer vertical wind direction and not along the wind direction.
The change and evolution were continued all around the world and the division was changed gradually to walls and reached an independent room with personal service. Through placement of the station of nurses in the center and patient rooms in two sides of the station, more relationships have been created between nurse and patient and the route of nurses has been also shortened.

The way of development of health organizations:
Development of health organizations should be taken with regard to existing organizations in each district with planning in local and urban and also state scales, so that the medical, educational and research needs could be met. Per 20,000 people, a health center is needed. In crowded urban centers, the health center could meet needs of people up to 25,000 people and to 2000-3000 people in less crowded and rural areas. Each group of these health centers would have a health center, which could include 200-500 beds due to the needs. However, health centers need mostly health educations, prevention of diseases by vaccination and attentions of nurses and family and health team. The health center organization has expanded establishments of general health educations and nursing school and clinic with the capacity of 200 people and ready for interns and a center for health in addition to medical establishments. At the same time, the organization is in close relationship with medical centers near the big city. The medical center of big city has a large hospital that acts in the near district like the health organization. Moreover, it could be more complete than health organization in specialized fields. Also, there are some specialized hospitals near the organization to meet whole district including clinics and health organizations.

Social environment:
Social environment of every country interferes in determination of hospital facilities through two ways: the first one is related to development of the country. Type of diseases varies in different countries during different steps of development; because the type of dominant diseases in countries is changed with change in income level and lifestyle. Moreover, different economic and social steps could affect type of facilities and the healthcare style of hospitals. This is because; development of health affairs in hospital is closely depended on efficient manpower and access to experiences and skilled doctors and financial and material resources.

The second way of the effect of social environment in determining hospital facilities is related to social behavior to fight against diseases. In western countries, bad reactions and negative behaviors of people are not observed against diagnosis of doctors and they accept the prescription and the treatment process. However, in many developing countries, people have special beliefs about nature of some diseases and couldn't accept the treatment and prescription of doctors easily. People in these countries refer to traditional physicians or magicians to treat their diseases and believe that their opinions are close to public opinion about the diseases. Still there are beliefs in some countries about this issue that diseases are resulted from extraordinary factors and could show the dissatisfaction of ancient goddesses and evil spirits or due to the black magic. In some societies, people believe that people get disease because of bad acts and behavior taken against others and the disease could not be healed until the time that the sin or
bad behavior is satisfied. To face such reasons, traditional physicians perform deft Exorcism because of the patient and the mentally ill people. Naturally, for such people, it is meaningless to refer to an educated doctor by modern medication. Hence, many authorities of healthcare and treatment in these countries have found that they should use a combination of local traditional medicine and new medical methods in their traditional societies.

Hence, in many developing countries, diseases are divided to 3 wide classes and as it is clear, the type of treatment and nature of treatment in these countries is different from what is common in Western countries:

- Diseases, which could be treated by traditional medicine
- Diseases, which could be treated by modern medicine
- Diseases, which could be treated automatically

The effect of environmental factors on performance of hospitals could be also grouped in 3 classes:

- The first class is related to system and arrangements existed in all societies and these systems are observed by different social organizations.
- The second class is related to available material and financial resources.
- The last class is related to beneficiaries and the powerful groups of the society.

The environment of hospital is studied from different dimensions of place (locating in a city or village), province (locating in a province of country) and international dimension (locating is a country and comparing it with other countries) and the impacts are studied in combination and type of hospital activities in terms of quality and quantity. The outside environment of hospital is studied in terms of aspects such as supplying human resource of hospital, geographical conditions, healthcare and medical conditions and pattern of diseases in region, economic, social, cultural and demographic features of the region. It should be mentioned that continuity of every organization is depended on the society and material or other resources gained from the society to continue the work and the process of movement of organization is under mutual effect, along with other social institutes at the society and the society and the relevant institutes have special history, culture and value, which could distinguish them from other societies.

**Classification of hospitals:**

Classification of hospitals is based on average number of patients daily referred to hospital and the nature of units and services of the hospital and the predicted number of beds for hospitals with new built buildings should be more than 20% of average number of the patients.

- Hospitals in group 1: public hospitals: with more than 720 beds- private hospitals: with more than 240 beds
Hospitals in group 3: public hospitals: 36-240 beds- private hospitals: 36-120 beds

Types of hospitals:
Hospitals could be divided to following groups: the smallest (up to 50 beds), small (up to 150 beds), standard (up to 600 beds) and large hospitals. The financial supporters of hospitals may be the government, private charity foundations or a combination of them.

Hospitals could be divided to general, specialized and academic hospitals in terms of type of activity:

- Basic hospitals: usually include 100 inpatient beds and 4 specialties of internal medicine, surgery, obstetrics and gynecology and children
- Regional hospital: including at least 400 beds and more advanced diagnosis equipment and devices than basic hospitals with use in the radius of the region and in its center
- Specialized hospitals: emphasizing the separation of specialties from each other and establishment of separate center for diagnosis and treatment of one or more special diseases
- Academic hospitals (educational): if the hospital is considered for academic educations, it should be built near the university or higher education centers
- Field hospital: these hospitals are built in emergencies based on necessity and while occurrence of events such as war and flooding for urgent treatment of victims and wounded people and have capacity about 1000 beds.

Conclusion
Emergence of health centers has spent long way and has observed main changes. These changes have gradually led to independent identity of these centers, so that they have led to independent buildings from inclusion in churches and holy places. At the first, these structures had rigid physic, so that the patients had to tolerate heavy emotional pressure in addition to the disease. Majority of spaces have been full of people with various diseases maintained in a single space and they might sometimes observe death of patients in their adjacency. Gradually with the emergence and prevalence of different diseases, these spaces were separated and each space was defined based on unit activity. Hence, the intensity of prevalence of diseases was reduced and treatment entered to its evolutional way. The way of supplying services and the environment of supplying these services were the issues gained attention of human more and more. The space of maintaining patients was changed from squared rooms with a lot of patients into more independent spaces or more private spaces, so that everyone could take benefit of special services due to the medical needs and so that the diseases were not prevailed. Hence, the evolution of supplying services and improvement of conditions of patients and decline of life losses due to disease gradually led to paying attention to mental status of the patients. By that time, the mental dimension of patients was highlighted and the process of construction of these centers was gone toward this direction, so that the patients could tolerate least mental pressure.
and stress while entering and exiting. Therefore, buildings with soft and flexible physical appearance were designed and relaxation elements were used inside these buildings such as colors and the distribution of spaces and a different context was created through defining spaces for activities other than treatment. As a result, today the spiritual dimension of patients has been considered in addition to their physical conditions and construction of health centers and the way to supply health services is moving towards providing comfort and relaxation for the patients.

The emphasis on form of health centers is to an extent that these buildings have higher sense of invitation and could provide more facility for the patients in terms of servicing, so that in addition to separation of internal spaces of these centers in terms of supplying services, such direction should be taken that the health centers could be equipped to higher possibility of accommodation and receiving services in addition to health services and hence, more different health centers are being created over the time like Hotel Hospitals.

However, along with these advancement and physical development of health centers and the evolitional-structural process of these centers, people have gained evolved insight to these centers. At the first, healthcare was an ambiguous issue and out of intention and will of human with the interpretation that disease used to be considered as an extraordinary issue and treatment was considered as a holy action, so that the patients used to be rejected from the society and the treatment was possible just by holy powers. This opinion that disease was a result of sin and delinquency and that treatment is the forgiveness of holy power was the first attitude of human towards health centers. Over the time and with increased ability of human dominance on life, the opinion was destroyed or declined in many societies gradually and was replaced by medication and the relevant sciences. Human could have more dominance on their life and could gain the process of living affairs more than before. However, the evolution was different in different societies, so that some current societies like western societies and the communities in developed countries trust in medical sciences and the process of supplying medical services to high extent and on the contrary, some countries like developing countries are more and less relied on ancient beliefs and traditions and are sometimes relied on healing patients by superpowers and extraordinary powers. However, a common point between both thinking communities is paying attention to human attitude to treatment and effectiveness of this issue in mental status of people to create suitable conditions in this field. Moreover, human try constantly to improve their living conditions in both physical and mental terms with more emphasis on the construction process of these health centers and the issue of individual and social healthcare.
References

19) Handbook of Architecture, Architecture and Civil Engineering Site Chosen lovers.
20) Plan and Budget Organization of Tehran.