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Impact of Well-Designed Hospitals in Promoting Medical Tourism

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Abstract: *Medical tourism is also known as wellness tourism. It is defined as a person traveling outside his own country to get the best and affordable medical treatment. The world population is more aware and concerned about good healthcare options and other advanced services they search destinations that have more accredited hospitals and other alternative therapies at an affordable cost. The healthcare sector plays a key role in empowering the industry. The architecture and health care sector are closely related. Well-designed hospitals enhance the satisfaction level and promote a speedy recovery and life expectancy of the patient. The Planning and designing of a hospital directly impact a patient's psychology, mood, and behaviour. The objective of this paper is to highlight how hospital architecture strengthens the healing and wellbeing of a patient through its functional and specialized design approach towards the various sensitive spaces. India has emerged as a medical tourism destination in the world due to its high standard in treatments with various alternative therapy options. India has State of Art hospitals and wellness centres that have a patient-friendly ambiance and provide a sense of security and confidence amongst them. This paper also focuses on why medical tourists get attracted to India. Considering a patient's interaction with nature or how nature effects the mood and boosts the comfort level of a patient. Incorporation of natural ventilation, increased natural landscape features and other such elements into the design of hospitals play a key role on patient's healing. Judiciously designed spaces and ergonomically designed furniture increases the efficiency of the medical team and other support staff. All these features promote better healing and increases the patient's satisfaction level this in turn benefit the medical tourism industry.*

Keywords: *Medical tourism, well design hospitals, life expectancy, natural landscape, ergonomics, alternative treatment, better healing*

I. INTRODUCTION

Hospital design has a great impact on the patient's healing process. Today hospital design is more complex and specialized. Architects pay special attention from the conceptual stages as it directly influences the patient's wellbeing during the stay. Nowadays the healthcare sector is trying to link up many socio-economic factors to deliver cost-effective treatment, aiming to receive maximum benefits and efficiency. Continuous research and innovation in the medical field have generated more knowledge and technologies which create great demand and changes in the delivery of the healthcare sector. Old definitions of hospitals mentions that it is a closed sterile and isolated space with a white interior and stone and brick exterior that young visitors are not allowed to enter. Traditional hospitals only delivered healthcare not necessarily health which should be the ultimate focus. Under this old structure, the patients are completely dependent on the medical staff and spend a hard time with their treatment. Hence the old structure cannot meet the different needs of all patients (Elsayed Metwally, Amr 2013). The benefit of a well-designed hospital experiences better patient satisfaction level though extensive use of natural light, access to fresh air, sunlight, use of natural construction materials access to outdoors and gardens, and bright welcoming environment of the interior promote speedy recovery of a patient. On the other hand, shorter treatment saves resources and more bed emptied for new patients. Medical tourism has emerged as a rapidly growing sector in India. The sector encompasses hospitals, medical equipment, medical insurances and tourist destination places, etc. Some researchers have suggested that health and medical tourism are interrelated but with different importance. In India, an estimated 69000 public and private sector hospitals served patients as per the report published in 2019 by Statistics. Private sector hospitals contributed a major role in this sector. Joint Commission International (JCI), the US-based accrediting agency for hospitals outside the US, has accredited nearly 39 hospitals in India. JCI certification is known as leaders in the healthcare sector for their safety and health care standards.

Research clearly shows that careful design and planning of a hospital can result in measurable psychologic improvement, especially increases patients' satisfaction level, hospital safety, enhance the ability of doctors and staff, reduction in patients aggression and staff stress level. According to Tay (Tay, 2003) along with the medical facilities and clinical workforce, topographical location and carefully-designed building is also a criterion for attracting patients in hospitals. Well-designed hospitals can lead to minimize the hospitalization period by improving patient's morale, boosting confidence in patient's family, expanding chances for more foreign medical tourist which directly contributes to the growth of medical tourism of a country.

II. DEFINITION OF MEDICAL TOURISM

Medical tourism is also known as Health tourism. Carrera and Bridges in 2006 sought to define Health Tourism. According to them Health Tourism can be defined as the organized travel outside one's surrounding for the maintenance, improvement, or restoration of the individual's overall well-being. Nowadays, it is a multibillion-dollar industry in terms of revenue & employment generation. The third world Asian countries like Malaysia, Singapore, Thailand, and India are best known for their traditional alternative treatments/medicines and cost-effectiveness. The growth of medical tourism has increased with the rise of the internet and the advancement of healthcare intermediaries or medical tourism facilitators between international patients and hospital networks (Connell, 2006). Medical tourism is considered one of the fastest-growing sectors around the globe.



Figure 1- Medical Tourism Sector Growing Globe

Source:-International Journal of Travel Medicine and Global health

III. TYPES OF MEDICAL TOURISM

Medical tourism is broadly divided into two parts. They are as follows:

- 1) International Medical tourism
- 2) Domestic Medical tourism

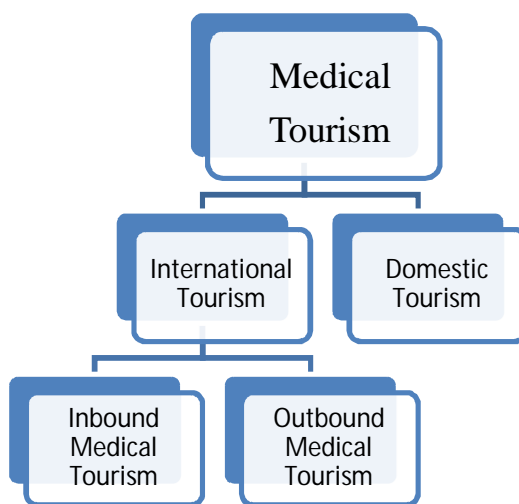


Figure 2- Types of Medical Tourism

A. International Medical Tourism

When a person travels outside of his country to receive good medical treatment, care at an affordable cost and in lesser time as compared to his own country is called International Medical Tourism. International Medical Tourism is again sub-divided into two categories.

- 1) *Inbound Medical Tourism*: Means the tourists of outside origin entering another country for medical purposes.
- 2) *Outbound Medical Tourism*: Means the tourists who travel from the country of their origin to another country.

B. Domestic Medical tourism

It refers to the person who travels within the country to get a high level of medical treatment and care compared to its native place at an affordable cost.

IV. CLASSIFICATION OF MEDICAL TOURISM

A. Classification of Medical Tourism

Globally medical tourism is broadly classified into four sub-groups

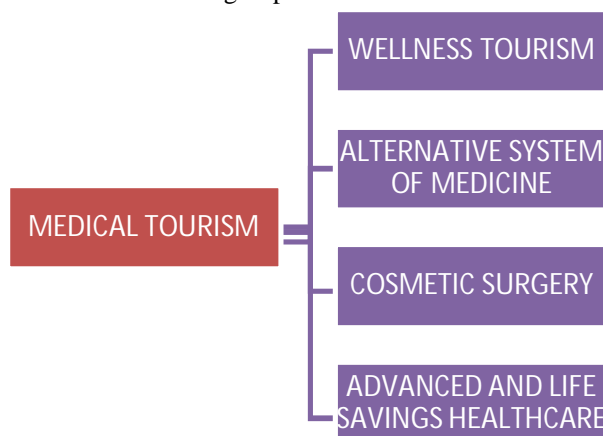


Figure 3-Classification of Medical Tourism

B. India –The new hub for Medical Tourism

India is one of the most favourable choices for medical tourism across the globe. In 2017, 495,056 patients visited India to seek medical care. According to the report of the Federation of Indian Chambers of Commerce and Industry and Ernst & Young, most of the medical tourists were from Bangladesh, South East Asia, and other SAARC countries. According to the Union Minister of State for Ayush, "India is the world's largest manufacturer of generic medicine and there is huge scope for medical value travel to India, both in conventional and alternative medical treatments such as Ayurveda"(ET, September 04, 2018). Ayush refers to the alternative medical system in India. It includes Ayurveda, yoga, Unani, Siddha & homeopathy. According to tourism & culture minister Prahlad Patel, "India has always been a leader in Ayurveda and we can become a global hub for medical tourism".(HT,December 15,2020)

Table 1-Variou Services Offered Under These Groups Across the World

	Wellness Tourism	An alternative system of medicine	Cosmetic surgery	Advanced and life savings healthcare
Services Offered	spa, stress relief, rejuvenation centres	Ayurveda, Siddha, Yoga and Naturopathy and other traditional therapies	Dental, Plastic Surgery, Skin Treatment	Organ transplant, Cardiovascular surgery, hip replacement, etc
Comparative Analysis with India				
	Wellness Tourism	The alternative system of medicine	Cosmetic surgery	Advanced and life savings healthcare
Profit Margins	Low	High	Medium	High
Key competitors	Thailand, South Africa	-----	South Africa, Cuba	Singapore, Jordan
India's				

The availability of modern well-equipped hospitals with world-class infrastructure and high-quality treatment facilities as per the international standard at a reduced cost has made India a most popular destination for medical tourism. Chennai is named the health capital of India. Now more and more patients from countries like Bangladesh, Afghanistan, Maldives, Korea, and Nigeria travel to India for specialized surgeries, like Knee replacement, Heart By-pass Surgeries _ popular indigenous treatment methodology. India has State of Art hospitals and wellness centres that have patient-friendly ambiance and provide a sense of security and confidence amongst them.

V. ROLE OF BETTER HOSPITAL DESIGN TO PROMOTE HEALING

A. Role of Better Hospital Design to Promote Healing

World Health Organization defined "health" simply as the physical, mental, and social wellbeing of humanity in which health was widened beyond those biomedical aspects (e.g., illness, disease) to encompass the socio-economic and psychological domains. Architect Bruce Mau stated in his book *Massive Change* that what is the importance of design. He wrote that, "For most of us design is invisible until it fails.... When the system fails, we become temporality conscious of the extraordinary force and power of design." Kleeman wrote in his book *The challenge of interior design* that "There are those who prove that essentially of an interior space and its position not only can interact with those who enter it but also regulate their behaviour." In the psychology of everyday things, Norman, reports that humans do not always behave awkward and do not always err, but most of the times the things which they are using are not up to the standard. According to Moray "People having good intentions, proficient and knowledgeable, may even be forced to make mistakes by which the design of their space inspire their behaviour." Therefore, designers must take into consideration all the points while designing a hospital to satisfy patients' needs as well as satisfy the patient's family.

VI. THE BUILT ENVIRONMENT AND WELLBEING

Researchers have proved that there is a close link between human health and the built environment. The physical environment is not only essential for good health but it can be stressful for the individual (Dilani,2006). According to Dilani(Dilani, 2001), Physical features in an institution can increase stress, and are therefore essential factors for improving comfort. To build a protective physical environment, it is crucial to consider an individual's fundamental requirement (Heerwagen et al.1995). He suggested a methodology and guideline for salutogenic design it deals with human health and wellbeing and increased life expectancy. This model highlighted the following factors:

- A. Social linkage with formal and informal meeting points.
- B. Personal commands for regulating lighting, daylight, sound, temperature, and access to private rooms.
- C. Restoration and relaxation with quiet rooms, soft lighting, access to nature, and a good view.

Florence Nightingale in the nineteenth century developed a theory of health care, which highlighted that physical factors such as noise, lighting, and daylight are vital for an individual's physical and mental health. Patient's safety and quality care depend on the building design in which they inhabit during the most critical time of their life. People need different facilities at their disposal. The designer should create a space that is more flexible and comfortable for the patient and their family irrespective of their age and physical condition.

While designing a hospital it is very important to understand the space carefully. A hospital must function optimally, first and foremost. Hospitals should be functional as well as aesthetically beautiful. Space that gives patient comfort and free from anxiety contribute to a patient's wellness and improved recovery times. Access outdoor for fresh air and daylight enhances the healing process. Interior finishes and types of furniture influence the space and change its appearance and feel more like a home than an institution.

VII. RELATIONSHIP OF NATURE WITH HEALTHCARE

Nature plays an important role in human health and psychology. It has been seen that the human body shows positive results in healing when exposed to nature. Research shows that getting connected with nature can help a patient to recover more quickly. After the publication of an influential study by environmental psychologist Roger Ulrich and professor of Texas A& M University and his team recorded that patients with leafy vegetable and trees outside of their windows healed faster and had fewer complications and pain after surgery compared to those who faced a brick wall from their window.

A. Reflection of Sustainability in Design

Sustainability is a new trend in the 21st century. Hospitals are expending a great deal of energy, money, and time to provide their patients with the best medical facility they can provide. These days hospitals use a lot of new equipment, these types of equipment create a lot of carbon footprint. Thus, harming the environment. The sense of responsibility should be reflected in designing elements of buildings. The elements are preserving natural resources, passive design strategies, reliable energy supply, and the use of eco-friendly building materials. The Lancet Planetary Health Journal by Arunima Malik in 2018 published that the healthcare sector alone is responsible for 3-10% of carbon emission worldwide. Sustainability is not a requirement but it's a need nowadays. To achieve the goal sustainable hospital design must include regenerative design principles such as orientation, natural shading, increased natural ventilation, biophilic interiors, designing more green spaces around the building. Interior landscaping of a hospital promotes air quality, reduces energy consumption, enhances the aesthetic quality of the space, and creates a positive biophilic environment. Sustainability in hospital design now a challenge for architects and planners to build the environment energy efficient and most cost-effective. A sustainable hospital plays an impact on patients' wellness and recovery.

VIII. FACTORS TO CONSIDER IN HOSPITAL DESIGNING

Hospital design is more complex and specialized. Architects and planners help to create the infrastructure to promote effective communication, affordable, and cost-effective facilities and ensure patients' faster recovery and safety. Well-designed hospital is a pride factor of the community. The design of a hospital depends on various factors like architects and designer views, socio-cultural aspects of that place, urban context of that area, and others such factors. Some important factors that are closely associated while designing health and hospital facilities are access, quality, demography, light, privacy, biophilic architecture, satisfaction, etc. These factors are affecting patients' psychology and wellbeing. The well-designed functions of a hospital shall increase the efficiency of the doctors and staff and reduce the stress level.

- 1) *Connectivity*: connectivity is one prime factor in hospital design. The hospital must be well connected to its locality through public and private transportation such as bus, car, scooter, bicycle, etc.
- 2) *Light*: Lighting plays an important role in hospital designing. It promotes patients' well-being, mood, and perception that increased satisfaction levels. A good amount of light boosts the work efficiency of the doctors, nurses, and staff and reduces error. Natural light impacts human health and performance. An adequate amount of natural light helps to reduce patients' recovery time, medication. Critical areas need specialized and high-performance lighting which is essential for the safe treatment of patients. Access to the natural daylight through windows in the interior of hospital wards is crucial. Appropriate window design allows the potential benefit of daylight which influences the psychological factors of the patients such as reduce irritability, depression. Architects and healthcare professionals should take the advantage of natural daylight without sacrificing clinical functionality and design.
- 3) *Accessibility/Circulation*: Accessibility or circulation is one of the major factors in hospital planning. It should be simple and easily accessible by all the user groups. The architect must focus on various circulation routes such as corridors which should not affect the movements of the wheelchairs, stretchers of the patients. Vertical accessibility like stairs, ramps, and lifts should be designed as per the norms. Staff movement within the hospital must be simple and clear. Staff sitting area requires adequate space to accommodate restroom, changing room, study, and conference. The number of entry and exit gates exterior as well as interior should be specified in number as more numbers affect circulation and often concerned of the security. The functional zones need to perform efficiently to create a healthy, safe, and pleasant environment. The design should give the patient and their relatives an impression of an efficient and organized unit.
- 4) *Biophilic Architecture*: According to Lexion medium in 1839 stated that "healing power through nature" he argued that many illnesses could be cured without medicines simply by paying attention to air, food, rest, physical activity, and state of mind. As per may, modern research found that humanization of health spaces and connection with nature improved patients' health condition and reduced pain, and stimulate patient recovery. Several studies support that patients' rooms having a view of nature, postoperative stays are generally shorter and less dependent on medication, and improved wellbeing of the patient. By adding biophilic design tools such as the presence of water, thermal and airflow variability, presence of natural light, allow visual connection with nature, use of natural landscape, and use of natural materials. Biophilic design helps in different levels of a patient through boost his immunity, improved cognitive performances and emotion, and mood enhancement.

- 5) **Patient Privacy:** Privacy is another prime factor in hospital design. Patient privacy promotes healthy interaction between the patient and doctor which boosts patient confidence and reduces harassment and discrimination. It assures quality care and maintains the confidentiality of the medical records. Patients' privacy consists of so many aspects like patient's physical privacy during consultation and examination (Physical privacy). It helps to maintain the patient's dignity and comfort, personal data and information safety (Information privacy), personal choices including cultural and religious belief (Decisional privacy), and personal relationship between family members and relatives (associational privacy). Architects should take care of these above-mentioned sensitive issues while designing a hospital. The floor plan must be flexible and adjustable vision control must be added to the doors and windows in terms of maintaining privacy. To ensure patients' safety and privacy architect must be taken care of the placement of doors and windows and their operation. The use of adjustable louvers, fireproof glazing, and safety-rated glazing material blocks radiant heat as per the International Building Code(IBC) to help to improve patient well-being during his stay.
- 6) **Satisfaction:** Patients satisfaction is an important indicator for measuring the quality of healthcare that has been offered to the patient during their treatment and stay. Patient satisfaction indicator is commonly used to measure the success level of doctors and hospital. It also affects patients retention, patient attraction, clinical outcomes, etc. The primary factor of the hospital is to satisfy patients through a carefully designed environment and high-quality services. Hospital professionals, doctors, and nurses understand that patient satisfaction is an important goal to achieve. The Healthcare industry is more concerned about the patient satisfaction survey as it plays a key role in the survival of the centers in the future and success. Patients satisfaction surveys were obtained through interviews and questionnaires filled by the patient and their relatives. Whether patients are satisfied depends on their expectations and various other factors. Nowadays due to the tendency of the healthcare industries to focus on patients –centered care, patients satisfaction reflects patients' involvement in decision making and to improve the quality care of the healthcare services. Patient satisfaction represents a key indicator to improve the overall environment of the institution, check all the safety and privacy parameters, cost reduction, introduce new health policies to improve the quality and standard of the hospital. Hospitals in Asian countries give importance to patient satisfaction surveys through their advanced caregiving strategies. Demographic factors such as age, gender, education level, socioeconomic status affect patient satisfaction level.



Figure 4-Theoretical Model on Patient Satisfaction in The Oxford Journal (Perneger, 2004)

IX. CASE STUDY

A. Max Hospital Saket, New Delhi... Holistic Planning and Design of Healing Environment

Max Super Speciality Hospital Saket, New Delhi is one of the best super specialty and multispeciality hospitals in Delhi. Max Hospital Saket is a state-of-the-art hospital with a high level of performance and comfort. Max hospital, Saket has more than 500 beds covering a 4.3 lakh sq. ft area and is empowered by world-class infrastructure. It takes care of the safety and privacy of the patient and their family and assures them of the best available treatment.

The goal of designing spacious corridors and ramps is to create a clear and smooth movement of wheelchairs and stretchers. Flexible planning and a relaxing environment reduce patient stress levels. Max Hospital Saket believed good communication between doctors and patients boosts a patient's satisfaction level. The spacious entrance lobby and reception area set a welcoming tone which significantly plays an important role in the spirit of patients and visitors. Max Hospital Saket provides high efficiency in different areas of services.

Important architectural elements like natural lighting, natural scenery, use of glass, indoor landscape contribute positively towards patient's health. Incorporating patient safety measures, optimized cleaning and hygiene, flexible modular structure, renewable energy, comfortable inpatient rooms and cool and soothing colours of the interior promote the wellbeing of patients. National as well as international patient satisfaction level is high in Max Hospital Saket. Max hospital is one of the hospitals forming the backbone of medical tourism in India.

X. CONCLUSION

Several studies have successfully demonstrated that well-designed hospitals play an important role in promoting the patient's wellbeing and reduce his/her stress level. Hospital design is a complex system of interrelated functions requiring constant movement of patients, staff, doctors, visitors, and goods. The health care industry should follow the maximum number of possible guidelines and norms while designing a hospital. Flexibility and easy accessibility between the spaces should be given to ensure smooth connectivity for staff and patients. Spaces must be arranged in a way to provide maximum comfort to patients of the hospital. Maximum use of natural components (Biophilic Architecture), natural light, use of eco-friendly construction materials, and energy-efficient hospital design can aid in accelerating the healing process, thus increasing the patients' satisfaction. An efficient hospital planning ensures a high staff efficiency level by reducing the travel distance between frequently used spaces and open planning allows visual connectivity for visual supervision. The corridors must be simple and clear and should have adequate width to increase connectivity between different parts of the building. Hospital design should follow the modular concept of space planning and design through the use of modular types of furniture and operation theatres, modular electrical, and medical equipment. The patient satisfaction survey reports help hospitals to get more patients and visitors in the future. India is one of the few Asian countries with a high rating of patient satisfaction. Due to this a lot of foreign patients travel to India to get advanced and cost-effective treatment promoting the medical tourism industry of the country and well-designed hospitals play a pivotal role in achieving this.

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