Healing architecture - A different approach of hospital design

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Abstract. Every day, in hospitals around the world, thousands of people spend hours, days, months for investigations, diagnosis or treatment, in search of healing. For patients and their families, the experience of the time spent in the hospital is often a crucial episode of their lives, whether their child was born there, whether it was the place where the life of a family member or loved one has been saved or a bout of illness was cured or treated there. The hospital often represents a milestone in people's lives, a landmark underlying society’s life. The increase in the number of patients with chronic diseases, of the percentage of aging population and the number of patients requiring treatments influence the hospital’s contemporary approach, and issues such as the above will become even more significant in the future. Future hospitals will have to meet the citizens’ requirements, expectations, but especially their increasingly higher and more diverse needs. In this context, in order to gain the citizens’ confidence, hospitals need to become a safety landmark for the community, where quality care and effective care spaces should be designed and developed so that they provide a positive contribution to the healing process. There is growing awareness that the patients’ evolution and healing are influenced directly by the environment in which the healing process is carried out, so this concept has become the key to architectural layouts when hospitals and health care establishments are being designed or constructed. The aim of this paper is to define and present those innovative features of hospital design - both spatial and aesthetic - that would positively impact on the patients' healing process. By creating an environment with positive psychological stimuli, reflected in an efficient structure and friendly interior finishings, the architecture of hospitals would support a contemporary approach to the treatment, recovery and healing of the patients.

1 Introduction

The healthcare environment has an important impact on the patient’s welfare, on the community and at a global scale on the entire society. This environment is in constant change and adaptation in line with the evolution of the medical world, the diagnostic and treatment technology evolution, the changes in the society;
meanwhile it is strongly influenced by the degree of patient satisfaction, the increased competition and the need for replacing of the obsolete facilities.

A healing environment is one that is based on research evidence used to inform design decisions. The research comes from the fields of evolutionary biology, neurosciences, psychoneuroimmunology (the effect of the emotions on the immune system and environmental psychology). [1]

The future should recognize the healing environments as a vital part of the therapeutic treatment in which the design of healthcare settings contributes to health rather than adds to the burden of stress.

This article aims to define how the elements within the healing environments can be balanced with the global project requirements for a successful result, including positive outcomes for the patient.

2 Patient needs

A person is an embodied, intelligent being with the free will to act in fulfilment of his human needs [2]. As healthcare providers, the healthcare units, the doctors and all the healthcare unit staff should realize that they are not providing services strictly to the patient, the sick, but to the individual, to the human being, who most of the time, he and his family are having a difficult moment in their lives, being in pain, stressed, scared, worried.

We are asking ourselves “What do patients or patient’s families think?” as if patients and their relatives had somehow different thoughts or feelings than normal human beings. We are asking this question because the traditional notion of a patient is someone to whom we do things; someone who needs to be fixed; someone expected to give up at least a portion of his or her free will to undergo the clinician’s decided course of treatment; someone treated, manipulated, and in short dominated – at least in the traditional, perhaps unconscious, view [3]. In designing medical facilities, we are making the mistake of relating directly to medical protocols, to the patient pathology; these result in a sterile project that albeit meets medical standards and procedures, does not relate to the person in the context of his or her daily existence.

When speaking of a person's existential context we should relate to his/her needs. The Abraham Maslow's Hierarchy of Needs is an important milestone for the health care units’ design (Fig. 1).

A person should satisfy his/her physiological needs (first level) in order to getting to satisfy his/her needs from the next level. Physiological needs include food, water, shelter, and we may also include here the basic health services and life-savings interventions. The next level is the need for safety. A person must feel protected in a secure environment, to trust others and to have comfort and peace knowing that this psychological need can be satisfied. The next level consists of the social needs (often considered psychological). These needs are met through social interaction, attention, spiritual and emotional support.

Maslow’s Hierarchy fits very well in the way in which healthcare units have worked in the past 50 years.

Maslow created this hierarchy to explain how a perfectly healthy person is motivated to satisfy his/her needs and necessities. But the limitation of this hierarchy in terms of units and medical services is insufficient to meet the needs and necessities of a sick person and its family.
It is very important to understand that a person is not limited to the satisfaction of the basic needs; each person is a whole psycho-emotional universe reacting to the environment stimuli and whose energies often find their physical expression in the health and wellbeing of the body.

Thus, the design approach of the medical units should be viewed from a broader perspective and more open in terms of overall needs and patient needs. Patients want to benefit from advanced medical technologies and treatments, overqualified staff and available in a humanized environment that is comfortable and aesthetically pleasing.

Patients know they will receive the best medical care in any medical facility, where their basic needs are met; but the difference between medical units comes from the fine architectural details that create the healing design of the healthcare environment meeting the deeper needs of the patients, having a positive effect on the healing process and improving health. Thus, the patient requires beyond the satisfaction of its basic needs, a healing environment: a place to heal the body, the mind and the soul.

There is now a growing body of research with more than 1000 papers relevant to the relationship between design and outcomes, including topics such as patient safety and stress reduction for patient safety and stress reduction for patients and stuff [4]. Zimring notes, “It is now widely recognized that well-designed physical settings play an important role in making hospitals less risky and stressful, promoting more healing for patients, and providing better places for staff to work” [5].

While debate is still ongoing about an exact definition of healing environments, many of the basic the components / patient needs of a healing environment have been clearly identified. According to Malkin (1992, p.10) they include: [6]

- Air quality,
- Thermal comfort,
- Noise control,
- Privacy,
- Light,
- Views of nature,
• Visual serenity for those who are very ill,
• Visual stimulation for those who are recuperating,
• Access to nature,
• Positive diversion,
• Access to social support and family,
• Elimination of environmental stressors.

Patient and staff safety and elimination of stress remain at the top of any definition of a healing environment, but a healing environment is more than a safe building. It is one that embraces patients, visitors, and staff while supporting them during the time they are in the building. [6].

The healing environment is the one that meets and satisfies, in a more complex way, the needs of the patient and his family.

3 Stress and healing environment

One of the main concerns in the design of medical units is the elimination of stress because it has a negative influence and is both the most common emotional state among patients and is based on most of the generator factors.

The negative effects of stress in patients are felt and expressed at a psychological, neuroendocrine and behavioural level. In stressful (negative) situations, the body feels overloaded and fatigue sets in. When stress continues, the body’s reaction may result in illness, memory loss, nausea, and many other problems [6]. Stress responses mobilize a person for dealing with a taxing or threatening situation, but they can consume energy and increase fatigue. Much research also had demonstrated that stress responses, via their central nervous system, suppress immune system functioning. Stress-related immune impairment decreases resistance to infection and slows or worsens recovery outcomes. When patients are stressed, for example, wounds heal more slowly (Kiecolt-Glaser et al. 1995) [7].

Stress levels are increased in hospitalized patients. Many factors of stress are impossible to be controlled or eliminated, such as painful medical procedures, fear generated by different pathologies with prognosis or fear of surgery, reduced physical capacity, interruption of professional activities and social networking during hospitalization. There are some factors of stress that can be reduced or even eliminated, such as: poorly designed physical environments, the lack of privacy, the noise, difficult way finding, lack of natural light, lack of nature views, hinder the presence of family.

Senses impact the individual’s perception of the environment and aid in recovery when a stressful situation occurs. Design is a powerful tool for reducing the stress that impacts the senses of both patients and staff [6]. We need here to mention design interventions in medical units, that reduce: a) stress due to sound, b) stress due to difficult way finding, c) stress due to sight, d) stress due to lack of privacy, e) stress due to lack of family presence.

a) It is common knowledge that hospitals are loud environments with far exceeding noise levels - World Health Organization guideline values. Hospitals are excessively noisy due to many sources of noise: the noise produced by medical equipment, patient transport by stretcher and cart on surfaces that are sound-reflecting inappropriate, noises produced by mobile phones, alarms, automatic coffee machines, juices and food, etc. New building designs should place high priority on creating much quieter environments. Fortunately highly effecting design strategies are available for quieting hospitals and other healthcare settings. The key to achieving a quite healthcare building is found mainly in appropriate design of physical environment, not in modifying organizational culture or staff behaviour [7].
Noise can be reduced or eliminated by various measures such as: using finishing with high quality sound absorption, for the ceilings, walls and floors, use carpets on corridors and public spaces, design rooms with a single bed, creating spaces where medical staff can meet for discussion, plan the facility with no or minimal overhead paging systems, individual nurse call systems, use of water features in public areas because the noise of flowing water has a soothing effect, introduce music as therapy.

b) Among the most intimidating aspects of large hospitals are the obstacles they present to way finding. Patients, already under stress, can easily feel buried or lost in a forbidding technological maze of equipment and hallways, while visitors are fearful of inadvertently wandering into some restricted, embarrassing, or even frightening space [8]. There are some strong studies that deal, for example, with designing better signage, optimal spacing and location of signage, or types of information that are most effecting in way finding. Other studies at the global level have looked at the properties of building layout that facilitate or impede movement. It is essential that these different pieces of information come together while designing new hospitals, where there is opportunity to develop an effective way finding system at multiple levels [7].

c) For most people, the first impression influences mood and feelings toward a person or place. A small waiting room, crowded, degraded in terms of finishes, an old metal mobile cabinet with tiles on the walls, old medical equipment, obsolete, worn furniture stored in the corridor between wards, are just some of the images that facilitate the discomfort and stress for the patient. Providing a hospitality-like environment where patients feel cared for the moment they enter the facility can be well worth the upfront costs. Features can include the following: appropriate carpet, wood and wood tones, harmonious colours and a unified colour scheme through the facility, comfortable seating arranged in groups for families to talk in private, abundant art. Think about everything patients see, from the minute they walk into the facility until the minute they leave. Create an experience for them [6].

d) The lack of privacy in wards with more patients is an important stress factor. The presence, in the same room, of strangers who in turn have health problems that require different care creates a tension which adds stress and inconvenience that the admitted patient lives. In many cases, the hospitalized patient is bedridden being forced to solve his physiological needs in bed with the help of hospital staff, and in these moments, the presence of other patients in the same room, is a major stress factor that must necessarily be avoided. Moreover, the patient admitted to a room with several beds has no control over the moments of tranquility and privacy needed for recovery, because each patient in that room needs different types of medical care at different times, receives visits from family, talking on the phone or watching TV, etc. The most important design measure in order to reduce this stress factor is to provide layouts with single-bed rooms. Private rooms reduce infections and stress for the patient and family members.

e) The hospitalized patient is often in need of the support and presence of his family. In most hospitals this meeting is going after a well-established program, at fixed hours of sightseeing. The patient is not in good condition at the time visitation is allowed, he has not rested or he is in need of more time spent with his family. By designing rooms with a single bed and an area to comprise family members, it can be ensured that his family is unconditionally around him, when he needs it and as long as he needs it (Fig. 2).
4 Design to provide the healing environment

Generally, healing environments are considered to be:
- A place to heal the mind, body, and soul.
- A place where respect and dignity are embedded into everything
- A place where life, illness, and healing define the moment and the building supports those events or situations [6].

Healthcare interiors are famously difficult to design because one must fully understand the ins and outs of medicine and technology to truly grasp the needs of patients and medical staff. The patient room, the waiting room, and the physician’s office each have a specific purpose where the design and use must be complementary and durable. Although functionality should be at the forefront of the designer’s mind, interiors do not have to look “functional” – just because a space needs to be functional does not mean it needs to look institutional. Comfort and aesthetics need to play a large part in the functionality of a room and need to be considered equally important. The function of a patient room is to provide a healing space. If the interiors and aesthetics promote healing, then the architect and the interior designer has succeeded in providing an aesthetic that complements the function of the space [9].

Layout, elimination of environmental stressors, positive distraction, use of art, connection to nature, lightning, colour, finishing materials, furniture are some of the key design elements that define how comfort and aesthetics can contribute to the overall hospital aesthetics.

When the project starts how a healing environment is going to be achieved must be defined from the beginning.

There are some important factors to be considered when defining the project goals for a healing environment:
- The age of patients – age generates different needs, different diseases, different approaches and protocols for treatment and diagnosis
- The pathology to be treated in the hospital – hospitals which include many specialties (cardiology, neurology, gastroenterology, orthopaedics, gynaecology, etc.) or hospitals that provide diagnosis and treatment for a single specialty
- The culture – demographics and culture play a significant role in defining what a healing environment might be for a given population.
- The theme – a theme or a story can help define the hospital and make it unique and memorable [6].
Aesthetics – it is critical to determine how the project owner wants its facility to be perceived by the public. Should the facility be sleek and contemporary? Or cozy and friendly? [6].

Technology - the design team must find the most aesthetic and flexible option, at the same time to include medical equipment that is in a continuous and accelerated process of evolution.

Evidence-based design – the degree to which the evidence-based design will impact the project decisions needs to be identified early in the process.

Hours of operation – will it be a 24/7 hospital or a day time clinic?

5 Conclusion

Just as retail stores or hospitality environments are designed to create a message to the consumers, healthcare settings can benefit by having a clear direction for the physical environment. A well-designed environment conveys an experience that can differentiate one brand from another in consumers’ minds [10].

The healthcare setting should provide a clear message about the organization to all who enter the building, and preferably from the moment they first see the campus.

Creating a healing environment for the patient is the driver in any new health care facility plan. Consumers and staff have an expectation that a new healthcare building will not only cure but also help heal the patient [6].

A healing environment is a holistic entity and not merely a set of separate components. It is as simple, and as complicated, as that [11].

Future hospitals will have to meet the citizens’ requirements, expectations, but especially their increasingly higher and more diverse needs. In this context, in order to gain the citizens’ confidence, hospitals need to become a safety landmark for the community, where quality care and effective care spaces should be designed and developed so that they provide a positive contribution to the healing process.

References

2. B. Ashley and K. O’Rourke, Ethics of Healthcare (Washington, DC, 2002)
4. D.K. Hamilton, Evidence is found in many domains (United States of America, 2008 ), pp. 5-6.
