SOCIAL HEALTH: THE CHALLENGES FOR HEALTHCARE FACILITIES' DESIGN

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Preface
Social aspects and well-being for improving healing processes' effectiveness

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Access to healthcare is deeply conditioned by several social factors such as health policies and economic conditions, that vary from country to country. Undoubtedly, hospitals are recognized worldwide as the symbol of the healthcare system in its maximum complexity and they are services that will never decay. As Christine Nickl-Weller and Hans Nickl state: "sooner or later, all of us will enter in a hospital: to give birth to a child, to visit a sick relative, to receive treatment for an acute medical emergency or, indeed to say farewell to a loved one. Everyone will have to enter a hospital at some point in their lives" [1].

Since its origins, the hospital represents the social community and, in the socio-cultural context, the original values of interdependence and solidarity. Moreover, it embodies the permeability and availability of entertainment and cultural activities in order to respond to the community's needs [2].

Public health is a right that must be preserved and improved. However several analysis have demonstrated how existing hospitals, theoreticall born for preserving public health, have indirect negative effects on the population, the community and the context. These impacts on the environment are increasingly more over upsetting the delicate balance between man and nature with direct consequences on health [3]. According to the World Health Organization (WHO), the environment is defined as "an integrated system of human and physical factors exercising a significant effect on health, considered not only the absence of disease but as a complete physical, mental and social state" [4].

The public awareness and interest towards ecosystem's issues have underlined the great attention to the environmental sustainability's approach and, since hospitals were born as systems supposed to preserve people's health, they must minimize negative impacts on the community [5, 6]. Currently, there are several tools that measure hospitals' environmental sustainability and patients comfort and safety. These evaluation systems are respectively focused on energy aspects and clinical processes, totally neglecting users' perception [7]. On the contrary, the existing tools that evaluate social aspects are specific for urban contexts and their issues are related to public wellness, access and transportation, air and water quality, policies and administrations, but they totally lack of citizens' point of view [8]. Despite it is difficult to obtain objective information about users' perception, these data might be useful to support hospital design and management processes.

Healthcare facilities, as healing places, require specific consideration in the project design and planning to mitigate the sense of isolation and disorientation, to ease concerns and promote the recovery.

The quality and efficiency perceived as well as the reliability of the provided services are indeed closely related both to health, technological and innovative aspects in the care processes and to several indirect factors. Meanwhile, they are important as social aspects, just like the ability to ensure environments with high levels of comfort. Humanisation and environmental quality become key points and up to date issues, whose effects closely influence people's health [1, 5, 6].

In the last years, the approaches of medical knowledge have changed from the scenario of *treating the disease* to *treating the person* [9], with reference to a holistic perspective focused on users. The previous approach, based more on a functional point of view than on a social one, met the operators' needs (such as doctors, nurses, technicians, managers, economists, etc.). Hospitals were considered as machines to heal and cure the sick [10].

The current approach is completely different. Healthcare facilities are spaces for care, research, education, workplaces and health promotion for healthy people.

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Stakeholders involved in the process are several with different needs to be satisfied in synergy in order to have an user-centred system in terms of comfort, efficiency, organizational and operational effectiveness [11].

Nowadays the quality of spaces plays an important role in the medical processes, contributing on one hand to improve the experience and comfort perceived by users and, on the other one, to improve the efficiency of hospital staff [12]. Moreover, several aspects are involved in this process such as humanisation, welcoming, soft qualities (colours, finishing, furniture, views, artificial and natural lighting) [13], the relationship with the green areas and the surrounding urban context, security, privacy and sociability, orientation, appropriateness and clear spaces' distribution and localization, presence of services and commercial activities and, more generally, the quality of service.

Regarding hospital design and services' management, it is relevant to define design solutions and management strategies focused on social, psychological and perceptive aspects for improving the comfort of patients, visitors, administrative and technical staff. In addition, it is necessary to consider the concept of ergonomics, the proper interrelationship between man, machine and environment. It represents a key feature and permits a greater ease and reliability in the use of mechanical and engineering plants, in the daily activities for citizens and medical staff [13].

All these issues can determinate a significant influence both on the care process and the efficiency of operators, as several studies on Evidence-based Design have demonstrated. Moreover, these factors affect the efficiency, attractiveness and competitiveness of healthcare facilities [9]. Therefore the design should consider users for each hospital ward, analysing and trying to satisfy their multiple needs.

Starting from these concepts, the hospital is both no longer a place from which to escape and be afraid and no more a container of the sick: "the boundaries between 'ill' and 'well' are being redefined" [1]. Social aspects can be defined as the possibility to guarantee the central role of the patient through specific design solutions taking into consideration also workers and the high stress they undergo. The functional complexity of hospital wards depends essentially on the fact that these are two categories of users whose objectives, expectations and perception do not always coincide. For some of them they are considered as a workplace, for others a place to care: a space, on one hand, for health workers who work constantly day by day and, on the other hand, a temporary place for health recovery [11].

Hospital planners are called to act. Nowadays, there are several regulations to design technically and functionally architectures for health, but the indoor environmental quality is still a vague and insufficiently regulated topic, with the notable exception of aspects that can more easily fit within technical and quantitative specifications. However, there is no a systematic and scientifically shared approach that defines and guides design and management choices according to social aspects of a healthcare facility. The evolution of the know-how towards hospital planning has led most designers to study autonomously how to increase social aspects and soft qualities in order to improve the quality of environments [14-16].

As previously stated, some specific results were quantified by innovative studies of Roger Ulrich in the 80s about Evidence Based Design, focused on the principle that built environment produces psychological effects and influences the users' behaviour through measurable clinical results [17-19]. It is scientifically proven that among all the well-being's parameters the visual one is crucial. The view is responsible of the highest number of sensations and perceptual stimuli, is the sense that permits to comprehend the situations and contexts and that affects the human being through the central nervous system [20]. It is well established that internal and external perspective views to the green areas improve the therapeutic process of patients [21].

This vision has led to the realization of current hospitals and health care centres, whose settings and layouts are more functional and stimulating than those of the past ones, based on hospital technological functionalism. Nevertheless, users' perception of those spaces remains doubtful and might easily diverge from the designers' goal, thus making investments useless and hospital spaces inadequate.

Currently, it is necessary a multidisciplinary approach to design and manage healthcare structures in order to link different skills and needs. It is fundamental that several disciplines (medicine, architecture, engineering, technology, design, etc.) should be adapted to take into account the comfort, meant as the perception and quality of the spaces [15], for the user, who is recognized both in-patient, visitor or worker [11].

Among the social aspects, if they coexist in a health facility, it is important to consider the following issues:
- *Relationship with the surrounding urban context and presence of services*

Healthcare facilities must be considered as urban institutions within a process of urban phenomenon. The concept of integrating the hospital in the daily life of each citizen and thinking of it as the patient's care and not as a medicine, leads to inevitable consequence. This allows to rethink the hospitals' versatility for other functions, thus enhancing also their economic value, but it is important to consider these large complexes as "small towns" instead of "large buildings" [22, 23]. The presence of services, cultural events and commercial activities within the public spaces of the hospital or in its surrounding permits also to limit the sense of isolation and disease as well as providing a pleasant places for patients and hospital staff [1, 24].
- *Spatial orientation and wayfinding*

The spatial orientation is the ability of an individual to understand its location, a relationship between user and environment; otherwise, wayfinding means the ability to elaborate an itinerary and follow a way, without getting lost. Both aspects are particularly important for the well-being perceived by users, in particular patients. It is commonly known that feeling disoriented and lost in a stranger environment increases the sense of awkwardness and oppression [25]. It is possible to improve significantly the spatial orientation and way-

finding through a careful design, finishing materials and signage, consistently with colours and materials' choices [13]. These strategies can affect directly the psychological and emotional components of users' health status, as well as optimize routes and waiting time [26]. Several studies on spatial perception show that every distinguishing feature is useful to process mentally a path and move safely within the hospital spaces.

• *Soft qualities*

The term "soft qualities" includes all those "soft" design aspects that can significantly influence the perception and quality of spaces directly affecting the care's processes and service's efficiency. They can be embodied by lighting, internal and external views, furniture, colours, materials' quality, temperature, cleanliness and hygiene, etc. [13]. All of them become factors that create more or less welcoming, harmonious and reassuring spaces. In particular, the presence of natural light and views to the outside have a key role in the creation of conditions of physical, psychological and visual-perceptual wellness, especially if designed in synergy with the colours and materials finishing [9, 27]. An inpatient room with reassuring colours and domestic furniture improves the therapeutic process reducing the healing time [28]. According to the colour therapy's studies [29], it is therefore important to make several considerations on natural and artificial light in all the environments. Many scholars have demonstrated that colours act directly on the nervous system determining different variable intensity's influences and closely related to several properties of the same system [30, 31] .

• *Security and privacy*

High reliability means to trust in the hospital system and its processes. It implies real diagnostic and therapeutic capabilities. Reliability in healthcare includes also environmental safety, technical construction, engineering plants, medical equipment, hygienic conditions related to air, water, food, furniture, etc. [26, 32].

Moreover, simultaneous users need to guarantee their privacy and security [13]. The person must be in a safe and comfortable condition, where is guaranteed his privacy, without an excessive promiscuity with other users and receiving relatives without any unjustified constraints [15, 33]. On the contrary, safety and security are fundamental for psycho-physical well-being of patients, on one hand, for their vulnerable condition and hospital staff, on the other one, who must be concentrated only on their activities, without any other concerns [10, 34].

• *Flexibility, layout and spaces' appropriateness*

The new trends in hospital planning require to ensure to respond to the constantly changing needs of a healthcare organization (hospital system, services and assets): flexibility in hospitals should include a multi-scale vision of all the building, ensuring real efficiency

of the services provided. All layers should be structured with respect to organizational and managerial levels in an adaptive and resilient way. In particular, a modular system permits to transform the layout and distribution during the time, both at the building scale and at the environmental units' one [35, 36].

Fundamental aspects that can influence the healthcare process are the distribution and functional layout. Only trough a deep study of mobility inside the hospital it is possible to guarantee a good paths and spaces' organization for any user, meanwhile an adequate location of the functions and appropriateness of spaces allow to have a high efficacy of the processes [37, 38].

• *Management aspects*

The hospital must achieve a high level of quality to satisfy the legitimate expectations of individuals and the community, starting from the staff's professionalism that means effective and proper management that determines efficiency. In addition, the kindness, hospitality, comfort and security mean well-being [39].

Therefore the hospital system must constantly achieve high quality levels, based on criteria that aim to create processes with continuous improvements of offered services [10].

Multidisciplinary and interdisciplinary solutions able to protect the health must be applied guaranteeing a strong integration with a proper organization, greater specializations and a fragmentation of processes.

All these aspects are even more important in the case of children's or specialized hospitals that treat chronic diseases [40].

The research of factors that define the health, shifts the attention from a medical model, focused on the individual, to a social model, where health is the result of socio-economic, cultural and environmental aspects or indirectly related to the specific characteristics of the urban settlement. Well-being is not anymore related only to the field of the health, but it is an important aim, strongly influenced by the context in which people live. The choice to deal with social aspects related to healthcare facilities through multidisciplinary research aims to fill the contemporary lack of the state of the art [8, 26]. Currently there are no works that take into consideration the improvement of the user's experience inside the hospital. The issues considered regards the perception of users, qualitative and quantitative studies and space's analysis, ad hoc questionnaires for users and workers, etc. in order to underline and understand benefits that users and works can achieve.

It is clear that nationally and internationally many scholars are developing several research works on social-health issues in different forms and at different scales, but the topic is very complex and broad. It is necessary to apply multidisciplinary approaches to overcome the current and future challenges in health promotion.

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MONOGRAPHIC SECTION