

Gender and healthcare environments: a proposal of gender-sensitive methodology for improving the environmental quality in the existing heritage

Rita Biancheri, Stefania Landi

Abstract

The influence of the healthcare environment on individual well-being has been object of great interest during the last decades, with the aim to identify the most proper design criteria, able to comply with the contemporary patient-centered vision of care and medicine.

The many typologies of hospital, which changed significantly over the centuries, usually were consistent with the coeval vision of care, but today this correspondence seems rarely to occur. This issue is particularly significant in Italy, where even the 66% of the



existing healthcare facilities was built before 1970. The improvement of these facilities in a patient-centered perspective, therefore, becomes a challenge to be faced necessarily.

A crucial issue that still need to be faced, moreover, is how the influence of the healthcare settings on individuals may change depending on their gender. Recent studies combining medicine and sociology, medicine and architectural design, and, finally, architecture and gender studies, were developed during the last thirty years. However, the intersection of the aforementioned disciplines hasn't yet been addressed.

For this reason, a multidisciplinary research has been recently undertaken in order to identify suitable design criteria for the humanization of the existing facilities, in a new and gender-sensitive perspective. The present article describes a first proposal of methodology aimed to achieve this objective.

KEY WORDS

Health, Gender, Health care environments, Humanization, Environmental quality

Genere e ambienti sanitari: una proposta di metodologia sensibile al genere per migliorare la qualità ambientale nel patrimonio esistente

L'influenza dell'ambiente sanitario sul benessere individuale è stato oggetto di grande interesse nel corso degli ultimi decenni, con l'obiettivo di individuare i criteri di progettazione più adatti, in grado di rispettare la visione contemporanea della cura e della medicina, centrata sul paziente. Le numerose tipologie di ospedale, che sono cambiate in modo significativo nel corso dei secoli, di solito erano coerenti con la coeva visione della cura, ma oggi questa corrispondenza sembra verificarsi raramente. Questo problema è particolarmente significativo in Italia, dove circa il 66% delle strutture sanitarie esistenti è stato costruito prima del 1970. Il miglioramento di questi servizi in una prospettiva centrata sul paziente, quindi, diventa una sfida da affrontare inevitabilmente. Una questione cruciale che deve ancora essere affrontata, inoltre, è come l'influenza degli ambienti sanitari sugli individui possono cambiare a seconda del loro genere. Recenti studi, che conciliano la medicina e la sociologia, la medicina e la progettazione architettonica, e, infine, l'architettura e gli studi di genere, sono stati sviluppati nel corso degli ultimi trent'anni. Tuttavia, l'intersezione delle suddette discipline non è ancora stata risolta. Per questo motivo, una ricerca multidisciplinare è stata recentemente intrapresa al fine di individuare criteri di progettazione adatti per l'umanizzazione delle strutture esistenti, in una prospettiva nuova e sensibile al genere. Il presente articolo descrive una prima proposta di metodologia finalizzata a raggiungere questo obiettivo.

PAROLE CHIAVE

Salute, Genere, Ambienti sanitari, Umanizzazione, Qualità Ambientale

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Introduction

The impact of healthcare environments on the physical and psychological well-being has been object of great interest during the last decades. At scientific level indeed, many studies focused on the influence of different environmental factors– such as light, colors, nature and art– with the aim to identify proper design features able to support the users' needs, and to comply with the contemporary patient-centered vision of care.

The different typologies of hospital, which evolved significantly over the centuries, have always corresponded to the coeval vision of care and medicine, but today this correspondence seems to occur very rarely: probably, this discrepancy is due, on the one hand, to the rapid evolution in technology and to the vision of medicine that took place over the 20th Century; and, on the other hand, to the use of facilities that were built many decades (or even centuries) ago, which in most cases seems to oppose a strong resistance to any change.

This issue is particularly evident in Italy, where, among the existing healthcare facilities, the 36% was built before 1940, the 30% was built between 1941 and 1970, and the 34% was built between 1971 and 2000 (data: Ministry of Health). The disposal of all these facilities is clearly inconceivable, therefore, their renovation and improvement

Fig. 1. Ospedale "Fate-bene-Sorelle" in Milan, first half of the 19th Century (Source: *Cosmorama Pittorico*, 1839)

Fig. 2. Ospedale Civile "Giuseppe Tabaracci" in Viareggio, 1920 (source: author)



in a patient-centered perspective became a challenge to be faced necessarily and in a more effective way. To date, indeed, even if the concept of “humanization of healthcare” is widely shared on the theoretical level, the concrete efforts to improve the existing structures - in Italy, as well as in many other European countries - are still too limited.

Furthermore, a central issue that still needs to be faced, is how the influence of healthcare environments on the people may change depending on their gender. Recent studies, combining the knowledge in the fields of medicine and sociology, addressed the issue of health and well-being in a -sensitive perspective (Biancheri, 2014), while other studies, combining medicine and architectural design, were aimed to define more suitable healthcare design criteria but, nonetheless, they didn’t get to consider gender-dependent issues. Only the units dedicated to childbirth have obtained a higher attention, due to their gender-specific patients, but a discussion about the hospital facilities - conceived as a whole - hasn’t yet been developed. Even the architectural field and gender studies were finally combined in relevant international researches about city planning and urban spaces design (Sánchez de Madariaga and Roberts, 2013). However, the intersection of the three aforementioned disciplines – medicine, sociology and architecture – hasn’t yet been addressed.

For this reason, a multidisciplinary research has been recently undertaken, making the effort to cross the boundaries between these three fields – medicine, sociology and architecture – in order to identify the most suitable design criteria for the humanization of the existing facilities, for the first time in a gender-sensitive perspective. The first reflections and results of this research are described below, focusing in particular on the gender differences in the perception of the hospital environmental quality.

1. Healthcare environments, health and well-being

A first useful reference at national level was undoubtedly the work of the Commission directed by the Minister Umberto Veronesi and the architect Renzo Piano, established at the Ministry of Health between July and October 2000, with the aim to develop the model for a new hospital (Ministero della Salute, Piano R., 2001). This commission, in particular, stressed the importance of some basic principles:

- *humanization*, to be reached through the introduction of unusual typological elements, designed to promote the livability of the healthcare environments, considering the comfort of patients, staff and visitors;
- *flexibility*, not only at the architectural level, in terms of functional and constructive characteristics, but also towards the urban structure, considering possible expansions or modifications.
- *urbanity*, specifying that the hospital should not be detached from the city center, but rather should become an extension of the city, for instance through public green areas, accessible both to the healthcare facility users and to the inhabitants.

In Italy, the issue of “humanization”, from the programmatic and financial points of view, was considered for the first time within the so-called “Nuovo Patto per la Salute 2014-2016” (New Pact for Health 2014-2016) between the National Government, the Regions and the Autonomous Provinces. In this document, it is stated that “nel rispetto della centralità della persona nella sua interezza fisica, psicologica e sociale, le Regioni e le Province Autonome si impegnano ad attuare interventi di umanizzazione in ambito sanitario che coinvolgano aspetti strutturali, organizzativi e relazionali dell’assistenza” (transl¹: in respect of the importance of the individual in its physical, psychological and social entirety, the Regions and Autonomous Provinces are committed to implement interventions of healthcare humanization, involving structural, organizational and relational assistance).

The level of “humanization” of the Italian healthcare facilities, has been analyzed in 2012 within an innovative research project² which has promoted, for the first time in Europe, the evaluation of the healthcare facilities over all a national territory. A checklist consisting of 144 items, divided into four main areas, has been used, and the second group of items, named “*Accessibilità fisica, vivibilità e comfort dei luoghi di cura*” (transl³: Physical accessibility, livability and comfort of healthcare environments)⁴ constitutes undoubtedly a useful reference, to be deepened and extended in a gender-sensitive perspective.

Beyond the Italian panorama and the concept of humanization, it was useful to refer to the increasing scientific evidences that, since the 1980s onwards, have been showing how the aforementioned elements – as light, colors, natural and artistic elements – affect the physical and psychological well-being. In particular, in the early 1990s, the Ulrich’s Theory of Supportive Design (Ulrich, et al. 2004) was the first one to underline the influence of the hospital rooms on patients, and the role of the hospital environments in increasing or reducing the level of stress: according to the Ulrich’s theory, in particular, the hospital environment would be able to reduce stress levels, if it fosters the perceptions of control, if it provides social support, and if it includes elements of positive distraction.

Still looking at the international scene, the awareness of the built environment’s impact on the individuals, led to decode in the mid-2000s a new design approach, the so-called Evidence-based Design (Hamilton, 2004). In parallel, the increasing awareness of the health care environment’s effects even on the patient outcomes (Devlin and Arneil, 2003) increased the interest towards the definition of methods for measuring, quantitatively and qualitatively, the influence of different environmental features.

In particular, the so-called Perceived Hospital Environmental Quality was formulated as a theoretical construct aimed to describe the relationship among the users and the hospital environments. Moreover, a significant research developed the PHEQIs Perceived Hospital Environment Quality Indicators (Fornara, et al. 2006) for rating the hospital environments. In this research, the orthopedic units of three Italian hospitals, in three different big cities, were selected to represent low, moderate and high levels of environmental humanization and, in each unit, patients, visitors and staff completed

questionnaires about the physical and social environments. The PHEQIs indeed, were divided into the groups: (1) *external hospital spaces*, (2) *hospital care unit*, (3) *in-patient/waiting area*, (4) *social-functional features*.

Recent research works, instead, focused on the validation of Ulrich's Theory (Andrade and Devlin, 2015) and on the adaptation of the Perceived Hospital Environment Quality Indicators in a different context (orthopedic units in Portuguese hospitals) (Andrade, et al. 2015).

As for the Perceived Environmental Quality, in the Italian context, it is also worth to mention a research that was developed at the Molinette Hospital of Turin, in the unit of oncologic surgery, where a technique involving the use of images was employed for measuring the PEQ in the Hospital (Montacchini and Tedesco, 2015).

As for the healthcare staff, instead, a recent study was aimed to explore the perspective of the staff on the hospitals environments (Mourshed and Zhao 2012). A questionnaire was used to understand the points of view of nursing staff, doctors and administrative staff in two Chinese hospitals. The results indicated that the staff wellbeing, productivity and satisfaction were linked with the hospital's physical environment. Moreover, some gender differences were evidenced: female healthcare providers were found to be more perceptive about factors related to sensory environments - such as visual, acoustic and olfactory features - if compared to their male colleagues.

As for the healthcare staff, moreover, some gender studies highlighted interesting differences in the psychological effects of various working space layouts, and in the personalization of the own working space (Bodin, et al. 2015).

2. From territorial distribution to private spaces for patients: which are the gender-dependent issues in hospitals?

The impact of healthcare environments on the individual wellbeing has been widely discussed, but in Italy – as well as in many other European countries – the real effects of these studies are still limited: undoubtedly, the improvement of the existing facilities is not simple, however, the concrete interventions of humanization are yet too circumscribed. This is why it is crucial to address the humanization of existing structures searching for feasible technical and design solutions. However, there is a crucial issue that still need to be faced, namely, how the relationship between healthcare environments and people changes according to their gender belonging.

To this end, first of all it is necessary to observe how the territorial distribution of these facilities, and their localization within the urban settlements, may affect their accessibility. The hospitals localization, in particular, evolved significantly over time (Li Calzi, 2010): it is evident, for instance, if we consider the cross-shape hospital in the Renaissance, placed in the city centers, or the 19th Century hospital with pavilions, placed towards the edge of the urban settlements, or even the mono-block and poli-block hospitals of the 20th Century, which were gradually moved toward the suburban areas.

To date, the localization of hospitals is characterized even by a greater complexity, because they are, in the meantime, a healthcare facility, a work place, a research center and, last but not least, a company.

Moreover, the hospital area should be always easily accessible to all the following subjects: the users and their visitors, the staff, the emergency vehicles, and clearly the healthcare materials suppliers.

Reflecting about gender issues, it is useful to note that, in the first two groups – users and staff – the female component is the most important one⁵. It is widely demonstrated that the gender belonging is able to influence the mobility dynamics of the population (Di Bartolo and Uccelli, 2015). These differences depend on the status of women in the labor market, on their role in the family, on demographic factors (as the aging of the population), and relate mainly to the distances, the means of transport and the reasons for moving: women usually move less than men for work, but more for family-related activities (even if the trend is toward a more equitable sharing), therefore their trips are characterized by a greater dispersion of origins and destinations, and are held also outside of peak times. The data show that, on an average weekday, the women travel shorter distances than men. However, women move more than men on foot or by bicycle, and use public transport a little more than men. For this reason, the hospital accessibility should be read necessarily from a gender perspective (Landi, Casini and Giordno, 2016).

On the basis of these preliminary considerations about distribution, localization and accessibility of hospitals, it is useful to shift from the territorial level to the architectural scale, and to deal with some specific areas of these facilities.

The first crucial space is undoubtedly the entrance hall. The current trend is to qualify this area as a “filter space” (Capolongo, 2006), with a high level of permeability towards the outside, which allows the users to gradually enter in contact with the facility. A first way to reach high permeability would be, for instance, to put there commercial and dining spaces or green areas, that should be accessible to everyone, and not only

to the hospital users; a further way, would be to enhance the visual connection with the urban context and the natural lighting through the use of wide glazing.

Moreover, considering the entrance hall from a gender-sensitive point of view, it would be useful to consider the interaction with this wide and complex space, taking into account possible differences in the global perception as well as in the perception of its details, and the different strategies of spatial orientation.

A further crucial space is clearly the patient room, which represents the private sphere of the user, and the only space that can be (to some ex-

Fig.3. Ospedale “Versilia” in Lido Di Camaiore, Tuscany (source: author)





Fig.4 and 5. Orientation System, Ospedale "Versilia" in Lido Di Camaiore, Tuscany (source: author)

tent) independently managed. In this regard, it was highlighted the importance of the process of acquisition of the own space (Capolongo, 2006), as it is able to influence positively the individual healing process itself. The acquisition of the own space, indeed, allows to overcome the feeling of estrangement towards the hospital facility, and to acquire a greater perception of control. It is therefore advisable that the patients that are hospitalized in multiple rooms, may still benefit from (at least partially) private spaces. Moreover, from a gender-sensitive point of view, it should be considered how the process of acquisition and personalization of the own space usually take place, and, consequently, which are the specific needs in terms of design and distribution of furniture, and dimension and flexibility of spaces.

The best examples of healthcare design may be the basis for further developments in a gender-sensitive perspective, and focusing in particular on the possibilities of improvement for the existing facilities.

3. A proposal of methodology

As mentioned above, the influence of gender in the interaction with the built environment has already been discussed for some specific issues, such as: (1) the tendencies in the appropriation and personalization of spaces (Dinç, 2009); (2) the sensitivity to the environmental comfort⁶; (3) the spatial orientation ability (Coluccia, et al., 2001).

On the other hand, among the many aspects that are usually considered in evaluating the environmental quality of healthcare facilities, there are: (1) the availability of private spaces for patients; (2) the environmental comfort; (3) the presence of appropriate signage systems.

As a result, these three aspects of the healthcare environments could be investigated

from a gender perspective, in order to draw useful criteria for improving the existing structures.

In Italy, as said, the vast majority of hospitals was built long before the principle of “humanization” was widespread. Some rehabilitation works have been made, but they are still a few, and far from including gender-sensitive evaluations. For this reason, the aim of this research is to focus attention on the existing facilities, pursuing the following objectives:

- (1) to reconceive the Perceived Hospital Environmental Quality Indicators in a gender-sensitive perspective;
- (2) to define gender-sensitive guidelines for a better territorial accessibility of existing facilities;
- (3) to define gender-sensitive guidelines for the humanization of existing facilities;
- (4) to develop gender-sensitive design proposal for a number of cases studies;

In particular, as for the first objective, a new survey methodology is being conceived. The subjects involved in the survey will be:

1. patients;
2. visitors, including the patients’ family and friends;
3. staff, including both the doctors and the nursing staff.

The different hospital’s spaces, that will be the object of the survey, will be divided in indoor and outdoor spaces. Outdoor spaces will be distinguished in green areas, parking areas, waiting areas for the public transport, and so on. Similarly, the indoor spaces will be distinguished in entrance hall, corridors, surgery rooms, patient rooms, common areas, etc.

Different types of instruments will be used to carry out the survey, including questionnaires, perception tests, and qualitative methodologies such as focus groups, all of these suitably targeted at the three defined categories of subjects.

Firstly, perception questionnaires with closed and open answers will be used – i.e. “What would you change in this space?”, “Which spatial features would you prefer?”, “Which items might be more useful in your opinion?” – as they may provide useful insights for creating new indicators, or for the selection of some indicators among the existing ones (PHEQIs) to be used, and eventually reconceived, in a gender-sensitive perspective. As for the existing indicators, indeed, an important novelty is that, whereas in previous studies only two alternative options were available (Yes or No), in the new survey instrument it will be possible to give more “refined answers” through a scale from 1 to 4, that will better interpret any differences related to gender belonging: in particular, it will be possible to understand the level of sensitivity to different spatial features, and the importance of these features for the interviewees.

The indicators will be clearly conceived and grouped according to the type and length of hospitalization.

Among the survey instruments, moreover, a further check list of indicators, to be evaluated objectively by an expert of healthcare design, will be defined: those indicators will

refer to those spatial, technical and material features that are required by the national legislation.

Finally, the indicators will be divided not only in relation to the subject interviewed, to the hospital's spaces and to the type of hospitalization, but they will also be qualified according to the three factors identified by Ulrich Theory - perception of control, social support, positive distraction - considered as able to influence the patient's stress level.

Some examples of indicators, associated with the three aforementioned factors, are listed below:

1. *Perception of control* = free setting of lighting, natural and artificial ventilation, possibility to personalize the private room with personal items, possibility to personalize the position of furniture in the private room;
2. *Social support* = space and furniture for family and friends; differentiation among private rooms through colors, furniture, finishing (this characteristic reduces the sense of alienation of being a "number");
3. *Positive distractions* = pictures, art objects, plants; garden with vegetation and outdoor furniture.

Clearly, after the first application of the new indicators on a suitable number of case studies, the representativeness of the indicators should be verified.

Going into detail with the indicators, since in recent studies about healthcare environments women were found to be more perceptive to sensory aspects (Mourshed and Zhao, 2012), special attention should be given to the indicators that are more related with those aspects, such as:

1. *for the sight*: artificial and natural lighting (quality and free setting), colors of walls and furniture, view on outdoor and indoor common spaces (quality and free setting), aesthetic qualities of space and furnishings;
2. *for the hearing*: noise from the inside and from the outside;
3. *for the smell*: air quality, good and bad smells;
4. *for the touch*: warm or cold materials for furnishing, air humidity rate.

Furthermore, considering the different dynamics in the personalization of spaces, discovered in other recent studies (Dinç, 2009), it would be advisable to analyze the needs of personalization in the patients, and the level of adaptability of the private rooms.

Finally, since it was observed how the age and gender have an impact on the spatial orientation ability (in particular, as regards the identification of the direction of a not visible reference point) (Campbell, et al., 2014), the following issues deserve a careful study: (1) intuitiveness of plan layout, (2) position of key areas, (3) existence of landmarks, (4) spatial orientation strategies (Coluccia and Louse, 2004) and spatial cues (Picucci, et al. 2011).

Shifting the attention from the indicators to the identification of the case studies, the selected hospitals should vary in terms of time of construction, and should be both facilities which have been subject to renovations, as well as cases which have never been renovated (Andrade, et al. 2015). Therefore, it may be appropriate to select: (1) 19th Century hospitals – (1a) renovated/ (1b) not renovated; (2) First half of 20th Century

hospitals – (2a) renovated / (2b) not renovated; (3) Second half of 20th Century hospitals - (3a) renovated / (3b) not renovated.

Clearly, depending on the singular regional contexts, it may be advisable to choose more ancient cases, or even more cases from the 20th Century if they show substantial typological differences.

Once the survey results are obtained, and once the design criteria and the following interventions are defined, their “feasibility” should be assessed.

The term “feasibility” includes: (1) structural compatibility; (2) formal and aesthetic compatibility; (3) economic sustainability.

Different interventions, which could result from different needs, are listed below:

1. Need for new spaces and/or a different distribution of functions:

- minor intervention: change of internal partitions;
- major intervention: realize additions or new volumes.

2. Need for new furniture:

- minor intervention: replacing mobile original furniture;
- major intervention: replacing fix original furniture.

3. Outdoor:

- minor intervention: need for new furniture (seating, lighting, signage, etc.);
- major intervention: need for new structures (shelters, marquees, etc.).

The overall feasibility should be assessed for each of the defined interventions, checking the structural compatibility, the formal compatibility and economic sustainability.

ENDNOTES

1 Translation by the authors.

2 “Ricerca Corrente 2012”, funded by Ministero della Salute, promoted by Agenas (Agenzia Nazionale per i servizi sanitari Regionali)

3 Translation by the authors.

4 Elimination of architectural and sensory barriers; accessibility for pedestrians and vehicles; orientation and signage; internal pathways; equipment and characteristics of hospital wards; Children wards; hotel comfort; comfort of the common services; comfort of waiting rooms.

5 Ministero della Salute, Dir. Gen. del Sistema Informativo e Statistico Sanitario Ufficio e Direzione Statistica (2015), *Monografia personale ASL e istituti di ricovero pubblici ed equiparati. Anno 2012*

6 The issue is currently being examined within the activities of the European Project “TRIGGER Transforming Institutions by Gendering contents and Gaining Equality in Re-search” (2014-2017), in which the University of Pisa participates (Department of Political Science, Resp. Scient. Rita Biancheri), along with other research groups in London, Paris, Madrid and Prague. For further information: www.triggerproject.eu.

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