paranoá ORIGINAL ARTICLE
DESIGN AND PLANNING

2025
v.18, e58941

Perspectives of hospitalized elderly individuals: an analysis of perceptions and expectations for the hospitalization environment

Perspectivas da pessoa idosa hospitalizada: uma análise das percepções e expectativas para o ambiente de internação

Perspectivas de las personas mayores hospitalizadas: un análisis de las percepciones y expectativas para el ambiente de hospitalización

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Authorship contribution: Conceptualization; Data curation; Methodology; Writing – original draft; Writing – review & editing: CAMPOS, S. B. J; Conceptualization; Methodology; Supervision; Validation; Writing – review & editing: VERGARA, L. G. L.; FELIPPE, M. L.; Conceptualization; Methodology; Writing – revision and editing: POMPERMAIER, J. P. L.

Conflicts of interest: The authors certify that there is no conflict of interest.

Funding: Coordination for the Improvement of Higher Education Personnel (CAPES) – Funding Code 001.

Ethics approval: Human Research Ethics Committee (CEPSH) of the Federal University of Santa Catarina (UFSC), under Certificate of Presentation for Ethical Consideration (CAAE) n. 80061024.2.0000.0121.

Use of A.I.: The authors certify that there was no use of artificial intelligence in elaborating the work.

Editors: Daniel Sant'Ana (Editor-in-Chief); Luciana Saboia F. Cruz (Associate Editor); Leandro S. Cruz (Associate Editor); Paola Caliari F. Martins (Associate Editor); Pedro G. Cardoso (Editorial Assistant).

Submitted on: 14 July 2025 | Accepted on: 26 August 2025.

Abstract

Hospital architecture is essential for the well-being of patients, especially the elderly, who face serious physical and emotional challenges during hospitalization. With the IBGE projecting that the population over 60 will triple by 2030, it is urgent that this longevity be accompanied by significant improvements in health and quality of life. This study aimed to describe the needs and expectations of elderly patients regarding their hospital room. Data collection was conducted in a public hospital in Florianópolis, Santa Catarina, and involved two main techniques: the use of EmoCards, which helped participants express their emotions, and semi-structured interviews, which allowed for deeper exploration of their experiences. The results highlighted environmental attributes that favour the permanence and comfort of elderly patients, providing a broader understanding of their needs and expectations, emphasizing the importance of ensuring adequate circulation in the rooms and creating specific areas for storing belongings. Furthermore, the comfort of companions is an important factor, as those who accompany patients play a significant role in their overall well-being. These aspects emerged as fundamental to improving the experience of elderly people during hospitalization.

Keywords: Hospital; Hospitalization Environment; Elderly Person; Hospital Architecture.

Resumo

A arquitetura hospitalar é essencial para o bem-estar dos pacientes, especialmente dos idosos, que enfrentam sérios desafios físicos e emocionais durante a internação. Com a projeção do IBGE de que a população acima de 60 anos triplicará até 2030, torna-se urgente que essa longevidade seja acompanhada por significativas melhorias na saúde e na qualidade de vida. Este estudo teve como objetivo descrever as necessidades e expectativas do paciente idoso em relação ao quarto de internação hospitalar. A coleta de dados foi realizada em um hospital público de Florianópolis (SC) e envolveu duas técnicas principais: a aplicação de *EmoCards*, que auxiliaram na expressão emocional dos participantes, e entrevistas semiestruturadas, que permitiram aprofundar suas experiências. Os resultados evidenciaram atributos ambientais que favorecem a permanência e o conforto dos pacientes idosos, proporcionando uma compreensão mais ampla de suas necessidades e expectativas, enfatizando a importância de garantir uma circulação adequada nos ambientes e criar áreas específicas para o armazenamento de pertences. Além disso, o conforto dos acompanhantes é um fator importante, já que aqueles que acompanham os pacientes têm um papel significativo no bem-estar geral. Esses aspectos emergiram como fundamentais para melhorar a experiência da pessoa idosa durante a internação.

Palavras-chave: Hospital; Ambiente de Internação; Pessoa Idosa; Arquitetura Hospitalar.

Resumen

La arquitectura hospitalaria es esencial para el bienestar de los pacientes, especialmente de las personas mayores, quienes enfrentan graves desafíos físicos y emocionales durante la hospitalización. Dado que el IBGE proyecta que la población mayor de 60 años se triplicará para 2030, es urgente que esta longevidad se acompañe de mejoras significativas en la salud y la calidad de vida. Este estudio tuvo como objetivo describir las necesidades y expectativas de los pacientes mayores con respecto a su habitación de hospital. La recolección de datos se realizó en un hospital público de Florianópolis, Santa Catarina, e involucró dos técnicas principales: el uso de *EmoCards*, que ayudó a los participantes a expresar sus emociones, y entrevistas semiestructuradas, que permitieron una exploración más profunda de sus experiencias. Los resultados destacaron los atributos ambientales que favorecen la permanencia y la comodidad de los pacientes mayores, proporcionando una comprensión más amplia de sus necesidades y expectativas, enfatizando la importancia de asegurar una circulación adecuada en las habitaciones y de crear áreas específicas para el almacenamiento de pertenencias. Además, la comodidad de los acompañantes es un factor importante, ya que quienes acompañan a los pacientes desempeñan un papel fundamental en su bienestar general. Estos aspectos resultaron fundamentales para mejorar la experiencia de las personas mayores durante la hospitalización.

Palabras clave: Hospital; Entorno de Hospitalización; Persona Anciana; Arquitectura Hospitalaria.

1 Introduction

Understanding the elderly population's physical and cognitive limitations is essential, especially faced with the increasing demand for healthcare and hospitalization. Increase in this age group not only intensifies the need for adequate structures, but also reinforces the urgency to establish quality standards in hospitalization environment. Population aging is a complex phenomenon that imposes significant challenges, demanding special attention to new demands in health and hospital care (Lesley, 2014).

This reality invites reflection on the importance of hospital environments designed to promote the elderly person's well-being and dignity, contributing to improving quality in care. Aging can cause changes that impact physical and mental health, in addition to affecting elders' social affective relationships (Mendes; Côrte, 2009). In this context, Ulrich (1991) states that the stress generated by the hospital physical environment interferes with patients' recovery and treatment. Restorative, free of stressful stimuli environments can favor tranquility and well-being.

Architecture, in this sense, plays a determining role in the patient's experience and can facilitate or hinder interactions and actions in the hospital space. Matarazzo (2010) highlights that hospital stress represents an obstacle to health recovery and stresses the physical environment as a fundamental aspect. Verderber and Refuerzo (2019) highlight that the health spaces architecture directly influences patients' social perception and can both reduce and reinforce treatment-associated stigma. Finally, Falcão and Soares (2011) defend interdisciplinary approach that integrates Architecture, Ergonomics, and Environmental Psychology from the initial stages of projects, so that spaces are conceived with a focus on users' real needs.

Despite this, even in international literature, one observes a scarcity of studies specifically approaching the hospital environment restorative potentials for elderly patients. Although research aimed at pediatric hospitalization or psychiatric geriatric centers exists, few studies investigate the elderly person's perception relative to hospitalization environment. This gap compromises the development of spaces that answer in an effective way to this population's demands, making a more humanized and welcoming experience difficult during hospitalization.

In this scenario, the present study aims to describe the elderly patient's needs and expectations relative to hospitalization room. From this analysis, we propose to develop project guidance aimed at the creation of more adequate environments for elderly people, founded on principles of the Ergonomics of the Built Environment and of Environmental Perception. We hope that this guidance contributes to project solutions that minimize stress and promote autonomy, comfort, and well-being, of the patient and his companions, stressing the importance of accessible, safe, and welcoming spaces for the elderly population's hospitalization experience qualification It is important to stress that this project guidance rests both on the field research results and on the literature review, available in the full version of the dissertation (Campos, 2025).

2 Theoretical framework

2.1 Elderly person

The elderly person has biopsychosocial characteristics that distinguish him from the younger adult population, reflecting the complexity of the experience of aging. According to the National Policy for the Elderly (law n. 8.842, of January 2, 1994) and Statute of the Elderly Person (law n. 10.741, of October 1st, 2003), the elderly is that person 60 years old or more. This definition goes beyond simple counting of years and encompasses a series of aspects influencing this group's health, behavior, and social interaction.

Aging provokes transformations in the human organism, which are classified into different categories. Appearance of wrinkles and whitening of hair stand out among the morphological changes. These are visible evidence of the passing of time, changing skin structure and hair follicle. Physiological changes include modification in organic functions, which results in reduced body efficiency in performing activities such as digestion, circulation, and immunological function. These changes can increase vulnerability to disease and decrease recovery capacity after injury (Rodrigues *et al.*, 1996).

In addition to the biological changes, aging brings deep psychological transformations demanding adaptations in the environment. These adaptations are especially relevant to meet the needs of elderly persons and with disability, comprising accessibility issues. According to Vergara, Franz, and Barth (2023), those evolutionary needs demand special attention to ensure the creation of spaces that promote well-being and inclusion. As they age, people face the need to adapt to new realities and challenges, and deal with losses, routine changes, and the redefinition of social roles.

In this context, the elder often faces accessibility barriers, especially in hospital environment. Those barriers are not limited to physical issues and impact patients' autonomy and dignity. Therefore, by allying attention to health demands with accessible and welcoming infrastructure, we can offer more humane and effective care, contributing to the elderly person's long-lasting well-being. Furthermore, it is essential that the hospital environment is flexible and adaptable, taking into consideration each patient's particularities. It should be pointed out that an environment inadequate to the elderly persons' needs can harm both physical and mental health (Byrnes; Lichtenberg; Lysack, 2006).

In this sense, the NBR 9050/2020 offers guidance on size for spaces of movement of users using a stick, walker, wheelchair, crutches, and other types of support. Although the standard is not focused exclusively on elderly persons, it establishes criteria and technical parameters for project, building, installation, adaptation, and accessibility (ABNT, 2020). Thus, the implementation of guidance from this standard represents a significant advance toward a more inclusive environment for the elderly population.

Furthermore, the demographic transformation that the country is experiencing generates an increasing demand for health services in public networks, especially due to an increase in the elderly population. This group requires specialized and complex care over time, which includes a variety of medical services, such as hospitalization, medication administration, and collaboration between health professionals (Both *et al.*, 2014). Therefore, it is fundamental to develop strategies that meet effectively those needs,

ensuring comprehensive and high-quality care for this significant proportion of the population.

2.2 Ergonomics of the built environment

The Regulatory Standard n. 17 (Brasil, 1990) establishes essential guidelines for guaranteeing adequate work conditions, addressing aspects such as use of compatible furniture, implementation of regular breaks during work, and control of environmental variables. In this context, ergonomics emerges as a fundamental discipline that investigates interaction between human beings and the elements of a system, aiming at improving both users' well-being and the efficiency in performing tasks (Dul; Weerdmeester, 1995).

Currently, the ergonomic concerns focus on understanding users' needs and desires, aiming at developing project solutions that meet not only physical, dimensional and environmental comfort demands but also emotional and psychological needs relative to the built space (Maciel, 2023). In this sense, the application of ergonomics principles in architecture is essential to create environments that go beyond functional needs, promoting, simultaneously, comfort, safety, and well-being. Those principles involve physical, cognitive, social, organizational, and environmental aspects, which allows developing spaces that actually meet diverse demands of daily life (Ilda, 2005).

Ergonomics is fundamental when elaborating architectural projects because it analyzes dynamically the interaction between human beings and environmental conditions. According to Villarouco and Costa (2020), it is necessary to ensure that the design meets users' individual needs, establishing effective connection between research and development strategies and those persons' expectations. Thus, by understanding the relationship between architectural elements and performance of activities that those spaces comprise, it is possible to deepen the understanding of users' satisfactions and dissatisfactions.

Ilda (2005) complements this analysis by stating that the furniture adequacy and space organization directly impact indices of collaborators' productivity and health. In this way, the ergonomic principles integration in the architectural design is not limited to promoting physical comfort.

2.3 Environmental Psychology and its relevance in health environments

Environmental Psychology studies how the environment influences human behavior and in what way users interact with space, considering the stimuli perceived from architectural elements (Okamoto, 2002). In this context, we explore socioenvironmental behavior phenomena, such as personal space, privacy, territoriality, and gathering, which are fundamental to understanding interactions between the individual and his environment. Although linked in the space use and occupation, each concept addresses different aspects of this relationship.

Personal space is understood as a conception unique to each individual about territory, shaped by cultural, social, and contextual factors. For Felippe (2015), the personalization of this space acts as an effective mechanism of control and reduction of stress, allowing the environment to adapt to each individual's characteristics and preferences, which, in turn, strengthens personal identity and connection with space. The author stresses that

respect for this personal zone is essential to promote social interaction and ensure individual comfort.

Privacy is an important element for psychological well-being because it provides safety and freedom of expression. The absence of this privacy, especially in hospital environments, becomes a significant challenge, generating concerns for patients during hospitalization and contributing to a stressing environment (Gainsborough; Gainsborough, 1964). In contexts such as collective rooms, where unknown patients share the same space, the environment setting and size play a significant role in defining the level of available privacy. Thus, smaller environments offer less control over personal space, which leads to frequent invasions to privacy and, consequently, intensifies individuals' discomfort (Gifford, 1987).

Territoriality, in turn, refers to the behavior of marking out and defending a physical space considered and controlled by an individual or group. This manifests through appropriation, occupation, defense, and demarcation of social limits. In Institutional contexts, it may include rules for the use of environments and specific schedules for activities (Gifford, 1987).

Finally, gathering impacts the perception of personal space and privacy, leading to a feeling of invasion or discomfort in very crowded environments. This perception is influenced by individual and contextual factors, resulting in emotional overload. In intimate situations, the presence of strangers intensifies this discomfort, rising privacy-related concerns. The perception of crowding varies not only by the number of people but also by aspects such as mood and personality (Gifford, 1987). Thus, as Gifford (1987) highlights, environmental psychology offers findings for creating health environments that respect and meet users' needs. Understanding phenomena such as personal space, privacy, territoriality, and gathering is essential to designing spaces that promote patients' well-being and satisfaction, contributing to a more humane and efficient experience in the hospital contexts.

3 Methodological procedure

This is an applied exploratory study, which aims to describe the elderly patient's needs and expectations relative to hospitalization room. The research seeks to generate practical knowledge for specific problems (Gil, 2008) and contribute to the investigation of situations, exploration of alternatives, and discovery of new ideas (Zikmund, 2000).

The research adopted a qualitative and quantitative approach founded on the Ergonomics of the Built Environment and on Environmental Perspective. This perspective stresses the importance of individuals' experience relative to the environments in which they live, as per Gil (2022).

The sample was composed of 30 participants, equally distributed between two medical clinics of a public hospital in Florianópolis (SC), with 15 patients in each clinic. To reflect a representative sample of the elderly population served in the clinics, we selected the participants considering diversity in gender, level of education, and socioeconomic conditions. For data collection, the EmoCard technique was used, complemented by semistructured interviews. This combination provided a richer and more comprehensive analysis, capturing both emotional perceptions and relevant qualitative information about the patients' experiences in hospital environment.

Patients were contacted directly and invited to collaborate in a voluntary and confidential manner. The elders selected were in the 60-to 85-year-old age group, hospitalized in the clinics for more than two days and in stable clinical conditions. The choice of this age group rested on the pilot study observations, which indicated that patients over 85 years old showed difficulty of adequate understanding and expression for the instruments used.

The research was submitted to and approved by the Human Research Ethics Committee (CEPSH) of the Federal University of Santa Catarina (UFSC) (CAAE protocol n. 80061024.2.0000.0121), being approved under the opinion n. 7.020.881. The project structure followed Resolutions n. 466/2012 and 510/2016 of the National Health Council (CNS) of the Ministry of Health, which establish guidelines for research involving human beings in Brazil. Before the beginning of the research, Informed Consent Form (TCLE) was presented to participants, addressing ethical and legal aspects of the research, an essential requirement for continuing the study. The study was carried out from February to March 2025, with each participant dedicating, on average, 45 minutes to the process.

Images of different hospitals showing characteristics considered relevant for the hospital environment qualification were selected. The photographs, numbered randomly, were used as visual stimuli, and participants were encouraged to express their perception about the spaces presented. This procedure allowed recording the frequency with which each image was chosen.

According to Desmet and Hekkert (2007), the EmoCards technique is characterized as a gamification style, which facilitates data collection, making it more engaging than conventional objective questions. The EmoCards consist of illustrative cards with color facial expressions and were used in this study to evaluate five different levels of satisfaction, which vary from “like a lot” to “don’t like it at all”, as illustrated in Figure 1.

Figure 1: EmoCards.

Source: Authors, 2025.

Participants were invited to evaluate a series of 11 images representative of hospital environments. We used those images as visual stimuli to which participants shared their perceptions on the environments presented.

To facilitate interaction, the images and five cards with facial expressions were printed on color photographic paper laminated with transparent stickers. This ensured durability and attractive visual presentation, and allowed easy cleaning after use. The images and cards were attached with magnets on a magnetic blackboard, allowing participants to handle them freely. Each elder could choose up to five images and classify them according with his preference. After this classification, the participants sorted out the images and attributed an Emocard to each one, reflecting their emotions in a scale.

Participants were encouraged to choose the card best representing their emotional state relative to each image presented, which portrayed different environments, including

collective rooms, individual rooms, and bathrooms. After the selection, the resulting board was photographed, and then an interview was carried out[1].

For Gil (2008), the interview can be defined as a technique in which the investigator presents himself to the interviewee and formulates questions aiming to obtain relevant data for his investigation. This approach offers flexibility, allowing the interviewer to repeat, elucidate, word differently questions, and assure understanding on the part of the interviewee. Furthermore, the interview allows obtaining data not available in physical sources but equally relevant for a study and enables evaluating the interviewee's attitudes by observing how he expresses himself. Thus, semi-structured interviews were carried out, which have a pre-established script but allow deepening in a more flexible way questions in the informal conversation (Lakatos; Marconi, 2003).

The answers were noted on a spreadsheet and recorded in a cell phone to ensure the precision of the collected information. The first question to the participants was: "Why did you choose these images?". The subsequent questions were elaborated to explore specific matters related to patients' hospitalization room and addressed aspects such as comfort, privacy, and perception on the environment where they were.

The hospitalized elder may have difficulty in communicating his preferences. This method allows him to reveal his emotions and is especially useful for this population, who often finds itself in health conditions that make it more vulnerable.

The choice of this method is justified by the difficulty of communication that the hospitalized elderly population may have in expressing its preferences, allowing them to reveal their emotions relative to the hospital environment. This method is especially useful for elders, who frequently find themselves in health conditions that make them more vulnerable.

For data analysis, we used the MACQDA software (2024 edition), a program designed to support content analysis. It offers tools facilitating the organization, coding, and interpretation of qualitative and quantitative data, which allows an integrated approach of those aspects. Recordings of interviews were carefully transcribed to ensure the faithfulness of statements. The Emocards images classification and organization was also carried out with the support of MAXQDA.

Interviews were analyzed through the content analysis technique proposed by Bardin (2016), in which data were organized into categories and subcategories. This process enabled the identification of relevant textual excerpts. Finally, we obtained a quantitative set of codes and subcodes, which reinforced the importance of elements highlighted in the interviews and underlay the project guidance, aimed at the elderly person's needs.

[1] The interview contained eight questions: (1) Why did you choose these images?; (2) What would you like to change in your current room to make it more comfortable and safe?; (3) How do you feel with regard to the room temperature?; (4) What do you think about the noise level in the hospital? Is there anything that could be made to improve that?; (5) Is the room lighting adequate for you?; (6) What do you think about the furniture? Is there any piece that you would like to add or change?; (7) How do you feel with regard to privacy and personal space in the room?; (8) Is there any activity or hobby that you would like to have access to while you are hospitalized?.

4 Results of interviews and use of EmoCard

The participants, for the most part, had chronic health conditions, such as hypertension and diabetes, and received treatment for cancer, submitting them to therapies such as chemotherapy and radiotherapy. Those interventions frequently resulted in a compromised immunological system, increasing vulnerability to infections and complications.

As illustrated in Figure 2 as follows, we present the EmoCard application resulting board image. The focus on each patient's individuality was fundamental to understanding their specific needs and factors influencing their well-being during hospitalization.

Figure 2: Results of the EmoCard application.

Source: Authors, 2025.

Results obtained with the methods proved consistent; their combination was fundamental to validating collected data and filling the gaps that a method in isolation could leave. Overall, data presented in the theoretical framework were confirmed in field research, being, in some cases, enriched by observations carried out in the clinics studied.

The analysis of the EmoCard application between hospitalization rooms showed that the image 04 of Figure 3 stood out as the most well-evaluated, receiving the "Like a Lot" classification by the blue card on ten occasions. Participants attributed this preference to different attributes making the space welcoming. The private room provides a feeling of comfort and intimacy, and the absence of the need for sharing the bathroom was considered by many as an essential element for elderly patients' experience. The wide space, allied to the presence of a bed intended for the companion instead of an armchair, favors a welcoming and support environment, creating a familiar atmosphere. The view of the window is an essential element for recovery because it provides a connection with the outside, significantly contributing to patients' emotional well-being. Furthermore, the

earthy colors used in decoration help create a calm and harmonious environment, which contributes to improving patients' quality of life during hospitalization.

The room in the image 06 of Figure 4 received a positive evaluation, being classified as "Like" by the green card on six occasions. Patients highlighted the pleasant colors of the environment, the presence of a side table to store objects and medication, in addition to the generous space and wide window providing connection with the outside, elements which significantly contributed to emotional well-being. However, despite those positive characteristics, the very image 06 was chosen as "neutral" on five occasions. The main justification for this choice was the difficulty of finding such a well-structured environment in a public hospital, although we did not mention in the question that the study would focus on public contexts.

Figures 3 and 4: Like a Lot (04) and Like (06).

Source: Aarhus University Hospital, 2019; and image selection from Google Images, 2025.

The images corresponding to the rooms 05, 06 and 10, presented in Figures 5, 6 and 7, were evaluated as "Neutral" by the yellow card, with five mentions each. In questioning participants about their choices, their answers revealed important aspects. Rooms 05 and 10 were criticized for their lack of privacy. These portrayed collective spaces, which can compromise elderly patients' feeling of comfort and safety. Conversely, the image 06 of Figure 5 was mentioned as similar to a hotel room, but the perception that an environment like this is not viable in the public network led to its "neutral" classification by the yellow card.

Figures 5, 6, and 7: Neutral (05, 06, and 10).

Source: Image selection from Pinterest, 2025.

The image 02 of Figure 8 was classified as "Don't Like", accumulating eight mentions. This negative evaluation is due to the number of beds, which results in little space, to the lack of privacy, even with the curtains, and to the impossibility of accommodating companions.

The image 10 of Figure 9 received eight mentions, being classified as "Don't Like At All" by the red card. This negative perception is attributed to the absence of partitions, which

compromises patients' privacy and makes the environment less welcoming. The lack of natural lighting also contributed to this evaluation, together with the limitation of space for companions. Furthermore, participants reported that the room appeared to be small, with limited circulation, which can generate discomfort and feelings of claustrophobia, especially among elderly patients. Another highlighted aspect was the arrangement in the space, with beds organized in a foot-to-foot position, which can create a feeling of crampedness in the environment.

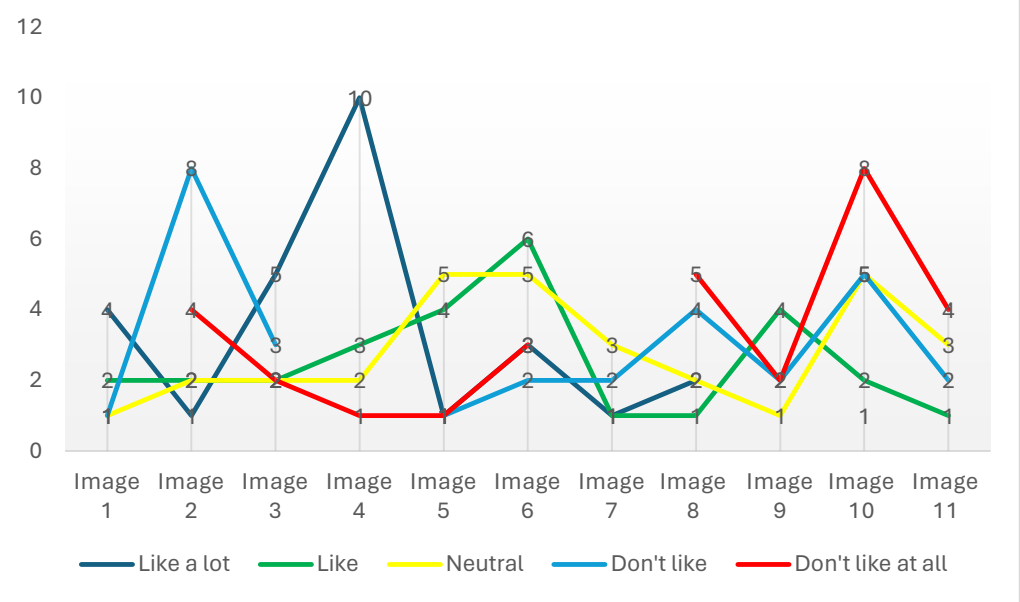
Figures 8 and 9: Don't Like (02) and Don't Like At All (10).

Source: iStock – Credit: Ninon, 2024; and image selection from Pinterest, 2025.

The present research highlights the importance of space layout, presence of windows with natural lighting, and use of earthy colors, showing that these factors are essential for the well-being of hospitalized elders. Ensuring environmental comfort by elements such as cladding material and space organization is one of the principles of ergonomics in the built environment. In this way, although the colors play a relevant role, it is the disposition of the environment that most significantly affects the well-being of elders.

The graph of Figure 10 shows the number of mentions for each one of the images utilized and chosen by participants, showing their preferences and highlighting visual elements that most drew the elderly person's attention during the Emocards application.

Figure 10: Graph with the EmoCard result



Source: Authors, 2025.

The analysis of answers to question number 1, "Why did you choose these images?", identified five main categories reflecting elderly patients' perception on hospitalization environment. Figure 11 shows a word cloud illustrating elders' preferences relative to hospitalization rooms, making reference to the image most chosen by the "Like A Lot" card. This visual representation stresses the aspects most valued by those patients, evidencing their needs and desires for a more welcoming and functional hospital environment.

Figure 11: Word cloud.

Source: Authors, 2025). Elaborated in WordArt.com.

Results for content analysis revealed the categorization of different environmental attributes, as evidenced by the blue card, which indicates "Like A Lot", and reflect patients' preferences relative to environment and hospitalization room. The "space" and "comfort" categories stood out as the most mentioned, totaling nineteen citations and emphasizing the importance of comfort and spaciousness for patients. Many expressed dissatisfaction with the armchair currently available for companions, suggesting its exchange for a bed. Sizing was frequently approached in the Emocards technique application.

The analysis of data revealed that the "color" category stood out as an important aspect, with eleven mentions, indicating that the choice of color in hospital environments can positively influence patients' spirit and tranquility. Earthy colors were especially stressed between cited shades, suggesting that environments with this palette can contribute to a more welcoming and relaxing atmosphere.

Similarly, the "window" category recorded eleven occurrences, which shows patients' appreciation for openings allowing the entry of natural light and offering outside views. These elements are essential for creating visual and physical connections with nature, fundamental aspects in forming restorative environments (Aripin, 2017), reinforcing the importance of natural lighting and integration with the outside in the emotional well-being of those hospitalized.

Privacy, mentioned by nine participants, was identified as a relevant factor for comfort during hospitalization, highlighting the need for spaces that ensure this aspect. A report exemplifies this perception: "Neither the room nor the bathroom offers the minimum of

privacy". The "liked the bed" category, cited four times, shows that the quality of the bed is also a relevant concern, which is directly related to the perception of comfort.

In general terms, the importance of environments providing comfort and adequate space stands out. Soft colors can reduce stress while windows favor connection with the outside environment, benefiting patients' mental health. Privacy is important for ensuring safety and dignity, promoting a more humanized hospital experience. These results emphasize the urgency of designing hospitalization environments/rooms that consider the elderly person's needs and preferences, aiming at providing a more welcoming and positive experience.

Some "neutral" classifications relative to the images for hospitalization rooms indicate that it is necessary to explore in more depth what really makes a space welcoming. Furthermore, negative evaluations of certain images indicate the need for reviewing aspects such as color and lighting, and help to better understand the emotions that those environments evoke in patients, as presented in Table 1.

Table 1: Summary table of participants' perceptions on images.

N.	Image	Total of mentions	Participants' answers	
			Positive Attributes:	**Negative Attributes:**
01		Like a lot = 4 Like = 2 Neutral = 1 Don't like = 1 Don't like at all = 0	• Like the colors.	• Limited space. • Lack of privacy. • Doesn't have a place for the companion.
02		Like a lot = 0 Like = 3 Neutral = 0 Don't like = 8 Don't like at all = 4	• Pleasant colors. • Decoration. • Privacy. • Looks like a homely environment. • Natural lighting.	• Not enough space for companions.
03		Like a lot = 5 Like = 3 Neutral = 5 Don't like = 0 Don't like at all = 2	• Looks very comfortable. • Size of the window. • In privacy. • Circulation space. • Space for the companion. • Likes the colors	• Thought the room dark.
04		Like a lot = 10 Like = 4 Neutral = 3 Don't like = 0 Don't like at all = 1	• Television. • View of the window. • Natural lighting. • Earthy colors. • Private room. • Ample space. • Bed for companion.	• Didn't like the bed.
05		Like a lot = 3 Like = 4 Neutral = 5 Don't like = 1 Don't like at all = 3	• Prefers a collective room. • Natural lighting. • Armchair, not to sit on the bed.	• The colors bear a resemblance to a school. • No privacy. • Doesn't have space for the companion. • Thought ugly.

N.	Image	Total of mentions	Participants' answers	
			Positive Attributes:	Negative Attributes:
06		Like a lot = 3 Like = 6 Neutral = 5 Don't like = 1 Don't like at all = 1	• Earthy colors are pleasant. • Bedside table. • Ample space. • View of the window. • Bears a resemblance to his house. • Natural lighting.	• Similar to a hotel room. • Doesn't have space for the companion.
07		Like a lot =1 Like = 1 Neutral = 1 Don't like = 4 Don't like at all = 0	• Rather accessible. • Wanted a bathroom like that. • Rather safe.	• Thought ugly. • Cold color.
08		Like a lot = 2 Like = 1 Neutral = 1 Don't like = 4 Don't like at all = 5	• Natural lighting. • Liked the combination of colors. • Individual windows for each bed.	• Doesn't have privacy. • Doesn't have a curtain. • Didn't like the pouffes. • Collective room. • Doesn't like the colors. • Not enough space for the companion.
09		Like a lot = 0 Like = 4 Neutral = 1 Don't like = 3 Don't like at all = 4	• Liked the colors. • Liked the armchair. • The view of the window. • Wide windows. • Liked the green of the plant in an all-white room.	• Cold environment.
10		Like a lot = 1 Like = 2 Neutral = 5 Don't like = 0 Don't like at all = 8	• Colors. • Space to store belongings.	• Lack of privacy. • Little circulation. • Doesn't have space for the companion. • Absence of partitions. • Lack of natural lighting. • Limitation of space for companions. • Limited circulation. • Feelings of claustrophobia. • Bad disposition of layout.
11		Like a lot = 0 Like = 1 Neutral = 3 Don't like = 2 Don't like at all = 4	• Accessibility.	• Doesn't like the colors. • Shower. • I like yellow but didn't like this bathroom. • I didn't like. • Doesn't look safe.

Finally, the research reveals preferences of the elderly population and highlights the urgency of humanizing hospital care. The most relevant and recurring aspects for the elderly person in the hospitalization environment include: privacy, adequate space to accommodate companions with comfort, efficient circulation, safe storing of their belongings, and appropriate room size. Furthermore, contact with the outside is essential for their well-being. Integrating principles of ergonomics and considering

patients' perception of the environment are fundamental to improving hospital experience and making recovery more effective.

4.1 Analysis of interviews

The conjoint analysis of the questions 2, 6, 7, and 8, totaling 120 answers, revealed five main categories reflecting the elderly persons' perception on hospitalization environments. Feelings were stated 65 times, which comprised elements such as sadness, happiness, and calmness. Furthermore, privacy and the presence of companions were indicated as fundamental for recovery and comfort, highlighting the importance of an adequate personal space. Within this classification, the most recurring mentions indicated the desire for having a bigger room, ideally with at the most two beds, since many patients feel that there are many people in a reduced space. The proposal of private rooms or with at most two patients reflects a desire for more tranquility and autonomy.

Architectural/ ergonomic characteristics were mentioned 93 times by participants, who discussed aspects related to their current room, including furniture, personal space, and distractions. This theme was central in discussions, which emphasized the need for comfort and functionality in the environments. The participants highlighted the importance of "mattresses of better quality and adequate beds", which are fundamental for good recovery. Furthermore, the need for "space for storing belongings" was often mentioned, suggesting that furniture, organizers, and resting areas should be planned to favor both comfort and convenience.

Safety was also a recurring point in the conversations. Many expressed concerns relative to bathrooms, reporting a feeling of insecurity. Two participants experienced fall in quad-room bathrooms at one of the clinics, attributed to the excess of accumulated water. Inadequate position of the drain, located close to the door, often resulted in water flowing into the room, increasing accident risk. These issues demonstrate the need for architectural planning prioritizing not only comfort but also the safety of users in hospital environments.

Those reports stress the urgent need for architectural planning prioritizing better circulation and the creation of adequate bathrooms, thus ensuring not only comfort but also the safety of users.

Positive distraction/social support received a total of 35 mentions, which shows a need for space favoring socialization and diversified activity. One participant recalled that, in previous years, nurses circulated through the rooms with book carts, allowing for patients to read during hospitalization. Another one suggested the creation of a space to receive pets and an adequate environment for visits from grandchildren. Those ideas stress positive impact of affective support on patients' recovery, showing that a safe and comfortable environment is essential to promote users' well-being. Rooms for reading, games, and contact with animals highlight the importance of social interaction and entertainment in health environments.

In the humanization context, 14 mentions related to colors, textures, and contrasts in the environments were made, with special mention to patients' perception on the hygiene of rooms and bathrooms. Cleaning and visual contact with nature were highlighted, indicating that the environment must be well-lit and welcoming to promote patients' well-

being. This combination of elements enriches the user's experience and favors recovery, providing a feeling of comfort.

The analysis of answers to the questions 3, 4, and 5 about ergonomics/environmental comfort resulted in a total of 90 mentions, which demonstrates that these aspects are essential for participants' quality of life. The patients' perceptions as to environmental comfort in the temperature, noise, and lighting categories reveal clear preferences, highlighting areas that need improvement. The data underline the importance of creating more pleasant and satisfactory environments and hospitalization rooms.

Table 2 shows a detailed analysis about patients' perception relative to different aspects influencing comfort and ergonomics in the hospital environments. The approached categories include temperature, noise, and lighting, providing a clear view of what participants consider positive or negative relative to those conditions.

Table 2: Ergonomics/ Environmental Comfort.

Categories	Good	Bad	Total
Temperature	70%	30%	100%
Noise	26.67%	73.33%	100%
Lighting	56.67%	43.33%	100%

Source: Authors, 2025.

In the temperature category, we observe that 70% of participants evaluated as "good" while 30% considered it as "bad". This datum shows that most are satisfied with heating or cooling conditions in the environment. However, the proportion of negative answers, although smaller, cannot be ignored, as it indicates that there is a group that does not feel satisfied. It is important to remember that, for being in collective rooms, patients do not have control over the air conditioning temperature, which can contribute to this dissatisfaction.

Results on level of noise show very different opinions: only 26.67% of participants considered the sound environment "good" while 73.33% evaluated it as "bad". This difference indicates significant dissatisfaction with sound aspect. The high noise, especially caused by the cleaning and food carts in the corridors, is a relevant problem that affects comfort.

The lighting category shows mixed scenery, with 56.67% of participants evaluating lighting as "good" and 43.33% as "bad". Although the number of positive answers is higher, the presence of negative evaluations suggests that some areas can still be improved. The following report of a patient emphasizes this need of improvement: "I'd like the current room to be more ventilated and more lighted". Inadequate lighting can directly affect the perception of comfort, productivity, and well-being of users.

Those categories are not only indicators of the current environment state but also reflect users' needs and expectations. The predominance of negative answers in some areas, especially as to noise, indicates the urgency of corrective actions to create a more comfortable and satisfactory space. We recommend, thus, a more in-depth diagnosis and the implementation of practical solutions aimed at improving environmental comfort, taking into consideration the participants' answers.

Furthermore, some patients expressed liking the view provided by the windows in their rooms (see Figure 12) and that privacy and excessive noise affected this experience.

Many reported not being able to keep the curtains open, especially for not being alone in their rooms. This suggests the need for strategies that promote both the contemplation of the view and the feeling of safety and privacy, reinforcing the need of a project that considers not only aesthetics but also patients' comfort and individual experiences. These results are aligned with existing literature (Aripin, 2010; Felippe, 2019; Ulrich, 1984) emphasizing the importance of balancing connection with the outside world and protection of privacy. By considering that outside views minimize the feeling of institutionalization, it is necessary and fundamental to establish a dialogue with what occurs on the outside to ensure users' well-being.

A classic and widely-known study in the field of environmental psychology, conducted by Ulrich (1984) in a hospital, revealed that patients who were in beds with a view for nature through the window, showed, in general, shorter postoperative hospital stay, and required a smaller number of analgesics compared to those who did not have this perspective.

Figure 12: View of the hospital window during data collection.

Source: Authors, 2025.

This analysis not only provides a clear view of the situations lived by the users, but also serves as a basis for future interventions that aim at optimizing the environment according with patients' real expectations and needs.

5 Conclusion

In the present paper, we sought to describe elderly patients' needs and expectations relative to hospitalization room, aiming at contributing to the qualification of hospital spaces aimed at elders. The analysis of data allowed identifying the most valued environmental attributes, evidencing aspects fundamental to well-being and recovery during hospitalization.

Results indicate strong appreciation of the private rooms and of the use of colors in earthy shades, which promote feeling of welcoming and tranquility. The importance of fluid circulation in the room, spaces adequate for storing personal belongings, and environments favoring comfort and privacy, which are essential for a positive hospital experience, also stood out.

The dissatisfaction with armchairs intended for companions was also recurring, being suggested their replacement by beds to make hospitalization less wearing, evidencing the role of the companion in the elder's well-being.

Patients' reports reinforce that privacy, natural lighting, and adequate furniture are central to the perception of comfort and quality. Preference for individual rooms expresses the desire for tranquility, while presence of windows and the earthy shades contribute to connection with the outside, emotional balance, and circadian rhythm regulation.

We recognize that the study, carried out in a single public hospital, limits results generalization. We recommend that future research evaluate the efficacy of proposed interventions in different contexts and investigate, longitudinally, the environmental changes impact on elderly patients' recovery and well-being, deepening the understanding of the relationship between physical space and mental health.

Acknowledgements

The present research was carried out with the support of Coordination for the Improvement of Higher Education Personnel (CAPES) – Funding Code 001.

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