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THE STIGMA OF HOUSING FOR THE ELDERLY: USER PARTICIPATION FOR INCLUSIVE DESIGN

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ABSTRACT

The natural aging process can lead to changes in functionality, making it necessary to access different forms of support, such as Long-Term Care Institutions for the Elderly (LTCF). However, recent studies highlight the need for a deeper understanding of the stigmas surrounding these institutions, impacting their acceptance and the way they are perceived by society. This study explored the concept of user-centered design, highlighting the functionality of these organizations to meet the different needs of residents. This is an integrative review, using publications in national and international journals as a database. In this context, an inclusive and collaborative design should be considered, contributing to the product-user interaction, adjusting to the different degrees of dependence, and sustaining the aging process autonomously and independently for the maximum amount of time, and enabling the negative recharacterization linked to LTCFs.

Keywords: Design. Aging. LTCF. Residence. Elderly Person.

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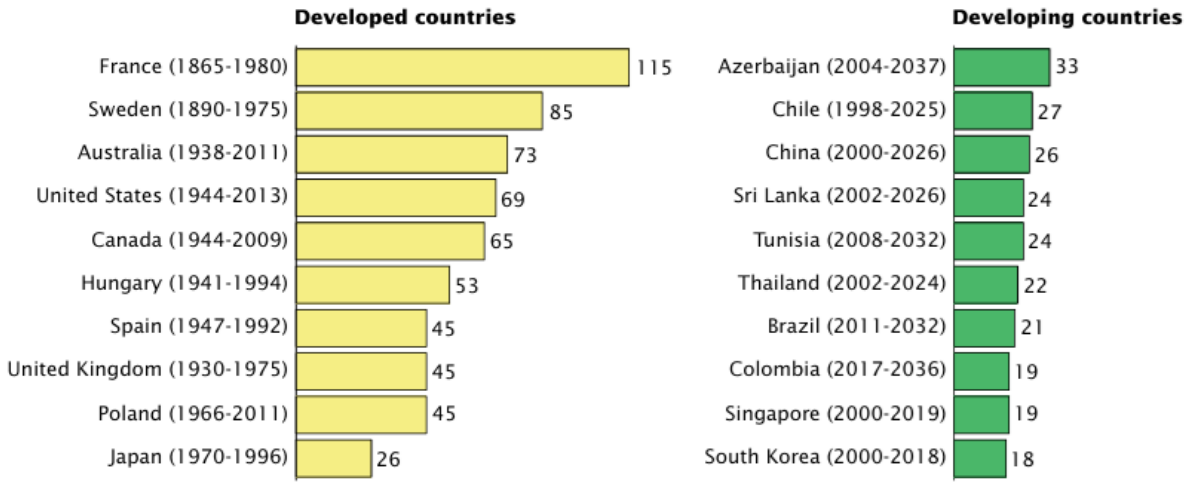
INTRODUCTION

The population aged 60 and over is growing at a faster rate than other age groups, currently representing about 13.5% of the world's population (UN, 2024). This demographic growth is expected to intensify in the coming decades, and, according to the Decade of Healthy Aging Report (PAHO, 2022), in 2030, one in six people will be 60 years old or older.

Long-term projections reinforce this trend of global aging. According to the World Health Organization (WHO, 2015), it is estimated that by 2050, the number of older people will reach 2 billion, with 80% of this population living in developing countries.

In Brazil, this demographic transition is no different, with the elderly population becoming predominant in a short period, which translates into a strong aggravating factor. In just two decades, the percentage of people aged 60 and over has doubled, in contrast to France which took more than 100 years to obtain the same rates, as indicated in the *Global Health and Aging Report* (WHO, 2011) and illustrated in Figure 1 below.

Figure 1: Number of years for the elderly population (65+) to go from 7% to 14% of the total



Source: https://www.census.gov/content/dam/Census/library/publications/2009/demo/p95-09-1.pdf

According to IBGE projections (2024), between 2000 and 2023, the elderly population in Brazil almost doubled, from 8.7% to 15.6%. Estimates indicate that, by 2070, this age group will represent 37.8% of the country's total population. This advance is directly linked to the increase in life expectancy, as well as driven by significant advances in medicine and technology, as pointed out by Kontis *et al.,* (2017).

This rapid transformation in the Brazilian demographic pattern has not been accompanied by the same pace of advances in innovations aimed at the design of

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products for the elderly population. When analyzing the growth in demand for care resulting from this projection, a stagnation in the development of adequate solutions is observed. In this context, according to Camarano and Mello (2010, p. 13), the "provision of health services and formal care is still an issue that has not been addressed", especially about housing models, which need to be adapted to meet the needs of this expanding public.

Studies aimed at improving habitability to meet the specific needs related to aging are still scarce (Alcântara; Camarano; Giacomin, 2016). Among the existing housing modalities, Long-Term Care Institutions for the Elderly (LTCF) are one of the oldest shelter alternatives, however, they remain shrouded in stigmas, often associated with abandonment, segregation, and loss of autonomy. This negative view contributes to the resistance towards these institutions and reinforces the need to rethink the spaces intended for the housing of the elderly population.

The adoption of an inclusive design, oriented towards welcoming and adaptability to the different degrees of dependence, is essential to resignify these dwellings. In addition to providing essential care and health care, a well-designed environment can offer a higher quality of life and well-being to residents. In this sense, the active participation of older people in the process of designing institutional spaces becomes a key element in transforming the perception of these places. This approach not only promotes solutions that are more aligned with the expectations and needs of users but also contributes to positively modifying society's view of these homes, especially in a scenario of growing demand for housing alternatives for aging.

METHODOLOGY

This research adopted the integrative review approach, a method that allows the synthesis and analysis of theoretical and empirical studies on the subject, providing a comprehensive view of the available scientific production. In addition, this approach subsidizes critical reflections that contribute to the construction of new knowledge and practices in the field studied.

For the construction of this review, the six steps recommended by Souza, Silva, and Carvalho (2010) were followed: (i) identification of the research problem; (ii) definition of the inclusion and exclusion criteria of the studies; (iii) categorization of the information extracted from the selected articles; (iv) critical analysis and interpretation of the findings;

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(v) discussion of the results in the light of the theoretical framework; and (vi) presentation of the synthesis of the knowledge produced.

The bibliographic search was carried out in recognized scientific databases, namely: BMC Geriatrics, ResearchGate, PubMed, Semantic Scholar, The Lancet, and Google Scholar. The descriptors *long-term care, including design and aging*, were used, and combined through specific search syntaxes in Portuguese and English. Based on these criteria, 16 publications were selected to compose the analysis.

The inclusion criteria used for the analysis of the articles were: online, free journals, in Portuguese, English, or Spanish, original articles, complete, and published between the years 2000 and 2023. The articles found in the searches that were incompatible with the scope of the search were excluded.

RESULTS

The studies selected for this research are listed in detail in Chart 1, which presents the complete references and the main approaches in each study.

Table 1: Surveyed works

Year	Author	Title	Thematic
2001	Hodgson, G.	The evolution of institutions: An agenda for future theoretical research.	Evolution of institutions from a theoretical perspective, highlighting their role in structuring social and economic interactions.
2003	Keates, S.; Clarkson, J.	Countering design exclusion.	Strategies to combat exclusion in design highlight the importance of accessible and inclusive projects.
2003	Coleman, R; Lebbon, A	A designer-centered approach.	Designer-centered approach, creating accessible and inclusive solutions, considering the needs of users from the early stages of the project.
2005	Von Hippel, E.	Democratizing innovation: The evolving phenomenon of user innovation.	It explores the concept of democratized innovation, highlighting how users themselves develop and improve products and services, influencing innovation in a decentralized and collaborative way.
2006	Wang, C-H.; Kuo, N-W.	Zeitgeists and development trends in long-term care facility design.	It analyzes development trends in the design of long-term care facilities, highlighting how sociocultural changes influence the design of these spaces.
2010	Eriksson, B. G.	Studying aging: Experiences, description, variation, prediction, and explanation.	It explores how experiences and variations in aging influence needs.
2013	Bianchi, S. A.	Quality of Placement in Long-Term Care Institutions for the Elderly	It investigates the quality of LTCF environments, analyzing how environmental, architectural, and social

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			factors influence the well-being and quality of life of residents.
2016	Porto, C. F.; Rezende, E. J. C.	The third age, universal design, and *aging-in-place.*	It addresses the relationship between aging, universal design, and aging-in-place, and the importance of accessible and adaptable environments to promote the autonomy of older people.
2016	Deng, Y.; Dong, T.; Zheng, G.	Theoretical Model of Special Product Design for the Elderly.	It proposes a theoretical model for the design of products for older people, addressing the specific needs of this age group and how products can be designed to improve their quality of life and independence.
2017	Burzynska, A. Z.; Malinin, L. H.	Enriched Environments for Healthy Aging: Qualities of Seniors Housing Designs Promoting Brain and Cognitive Health.	It addresses how the design of housing for older people can create environments that favor cognitive health.
2017	Tesch-Römer, C.; Wahl, H-W.	Toward a more comprehensive concept of successful aging: disability and care needs.	It proposes a more comprehensive concept of successful aging, considering the needs of care and their limitations.
2018	Aride, A.; Couto, R.	Design mediating interdisciplinary co-creation processes with a focus on Alzheimer's Disease.	It addresses the role of design in mediating interdisciplinary co-creation processes, emphasizing collaboration between different areas to develop innovative solutions.
2020	De Medeiros, M. M. D. *et al*.	Does institutionalization influence the elderly's quality of life? A systematic review and meta-analysis	It investigates the impacts of long-term care institutions on the lives of residents.
2020	Quezada, G. D.; Damazio, V. M. M.	Design and Long-Term: Considerations for the Development of Projects for Adults Who Involve Technologies in the Family.	It addresses design and longevity, and its importance for the development of projects aimed at elderly people.
2022	De Souza, T. C.; Wanderley, M. C. A.; Duarte Neto, J. M. W.	Perception of the elderly in the new cycle of living in a long-term care institution in the city of Jaboatão dos Guararapes-PE.	It investigates the perception of the elderly and the coexistence in a long-term care institution in the city of Jaboatão dos Guararapes-PE.
2023	Ardinghi, M. B.; Aunbertoldi, C.	Design for requalification: a study on the second life of objects in the domestic environment.	It addresses design for requalification, with an emphasis on adapting spaces for older people, promoting sustainability and safety by reusing items to meet the needs of aging.

Source: Prepared by the authors (2023)

DISCUSSION

From the survey carried out, it was possible to identify that population aging is related to a context of major transformations, such as social, cultural, economic, and institutional, in the system of values and family arrangements (Camarano; Kanso, 2010).

In Brazil, the Statute of the Elderly Person (2003) defines an elderly person as any person aged 60 years or older, regardless of their psychological, social, or physical health state. The document establishes that the family, society, and the State must guarantee the protection and support of this population. However, the increase in longevity, combined with

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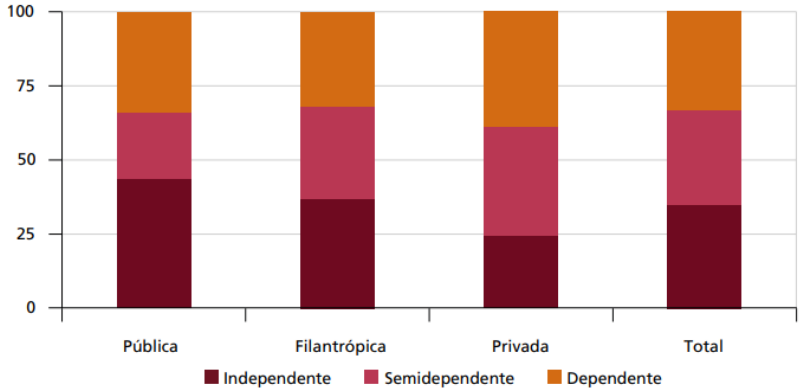
the reduction in the ability of families to provide continuous care, has significantly increased the demand for Long-Term Care Institutions for the Elderly (LTCF).

Although LTCFs are one of the oldest care alternatives for older people, they still face strong social stigma. Often associated with the old "asylums", these institutions are, in many cases, seen as spaces of abandonment, poverty, and social exclusion (Born; Boechat, 2016). This prejudice reinforces challenges in the acceptance and improvement of these homes, highlighting the need for new approaches that promote a more inclusive and dignified look at institutionalized aging.

A survey conducted by IPEA (Camarano *et al.,* 2011) aimed to analyze the operating conditions of Long-Term Care Institutions for the Elderly (LTCF) in Brazil, in addition to carrying out the first national survey on the number of institutions existing until then. Data collection took place between 2007 and 2010, and, at the end, an overview of LTCFs in the country was presented, covering aspects such as operating characteristics, infrastructure, and services offered.

An extremely relevant piece of data that emerged in the IPEA survey (Camarano et al., 2011) was the significant difference between public, philanthropic, and private institutions in terms of the residents' dependency profile (Figure 2). In public and philanthropic institutions, a considerably higher percentage of independent elderly people was observed, while in private institutions the most common Degree of Dependence[3] was III, which characterizes a greater need for care.

Figure 2: Residents in LTCFs by degree of dependence in Brazil (2007-2009)



Source: https://repositorio.ipea.gov.br/handle/11058/7253

[3] Degree of Dependence of the Elderly – RDC/ ANVISA No. 502 of 05/27/2021:
Degree of Dependence I - independent elderly people, even if they require the use of self-help equipment. Degree of Dependence II - elderly people with dependence on up to three self-care activities for daily living, such as: feeding, mobility, hygiene; without cognitive impairment or with controlled cognitive alteration. Degree of Dependence III - elderly people with dependence who require assistance in all self-care activities for daily living and/or with cognitive impairment.

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This result shows a situation in which many elderly people who resort to public or philanthropic institutions face difficulties related to lack of family support, scarcity of financial resources, or inadequate housing, which leads them to seek this type of service. Thus, as Silva and Yamaguchi (2017, p. 118) point out, where "Institutionalization can be understood as an alternative for those who want or need a place of residence for the elderly".

This data highlights the urgency of adapting Long-Term Care Institutions for the Elderly (LTCF) to the various conditions of dependence and the specific needs of this population, in the context of growing demand for these services in the face of heterogeneous aging. The scarcity of adequate alternatives and the limitation of resources means that many elderly people are forced to resort to these institutions, which reinforces the need to develop a more inclusive and flexible care model, capable of effectively meeting the different realities of this population.

Given this scenario, Long-Term Care Institutions for the Elderly (LTCF) must integrate hybrid characteristics in their functions and structure (Kane, Kane, 1987) to comprehensively meet the needs of health, well-being, and autonomy of residents. The creation of adaptable environments, based on an inclusive design that takes into account the various conditions of dependence, not only helps to overcome existing needs but also promotes the improvement of the quality of life and dignity of residents.

This aspect becomes even more relevant in the face of the continuous increase in demand and is deeply linked to the stigma associated with these spaces. In this context, the inclusion of older people in the design process of products aimed at them emerges as a relevant strategy, as it contributes to a better adaptation to their needs and, at the same time, helps to combat the stigma that still surrounds housing solutions and products aimed at this audience.

DESIGN AS A TOOL AIMED AT THE ELDERLY

New technologies, supported by design, have promoted significant usability improvements, as is the case of smartphones, increasingly used by older people. These innovations also play a key role in solving social challenges, through an empathetic approach that seeks to understand the needs and desires of this population (Quezada; Damazio, 2020).

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In this context, Manzini (2017) defines social innovation as the creation of new ideas — products, services, and models — that meet social needs and generate new relationships or collaborations. When we are faced with a scenario of new demands, where there is pressure for quick and urgent actions, it becomes essential to change from the conventional mode to a more agile design aimed at solving these problems.

However, the perception of population aging is still limited. According to Deng, Dong, and Zheng (2016), the study of the design of products aimed at elderly people is urgent and necessary. An innovative design must be directed and applied, taking into account the physiological characteristics and the explicit or implicit demands for the quality of life of this population.

The democratization of innovation, as presented by Von Hippel (2005), highlights the importance of user-centered design, reflecting benefits by involving older people in the process. Their absence can result in unattractive solutions and limited proposals for significant needs, as pointed out by Östlund (2015).

The stereotypical scenario of aging as a homogeneous process characterized by physical and social losses has been transformed. Currently, there is a greater appreciation of a more individualized approach, recognizing the particularities of each elderly person. Although there are common characteristics among them, research shows that individual differences increase with age (Eriksson, 2010). This change in perspective becomes extremely relevant for the development of design solutions that more effectively meet the diverse needs of this population.

The protagonism of older people as active innovators, rather than being seen only as passive users, and their synergy with designers can significantly accelerate changes in the stigma surrounding these people, both about the role they play as users and to society's perception. However, for this transformation to occur effectively, it is relevant to understand the factors related to macro-environmental characteristics, which involve society and the market, as well as the specific aspects of older people.

In this sense, Aride and Couto (2018) argue that objects intended for this population, in the context of institutionalization, should have an open design, allowing for personalization. This not only favors protagonism but also offers a sense of usefulness, allowing residents to materialize their thoughts and rescue elements of their memory, especially in the case of those who are in the dementia process.

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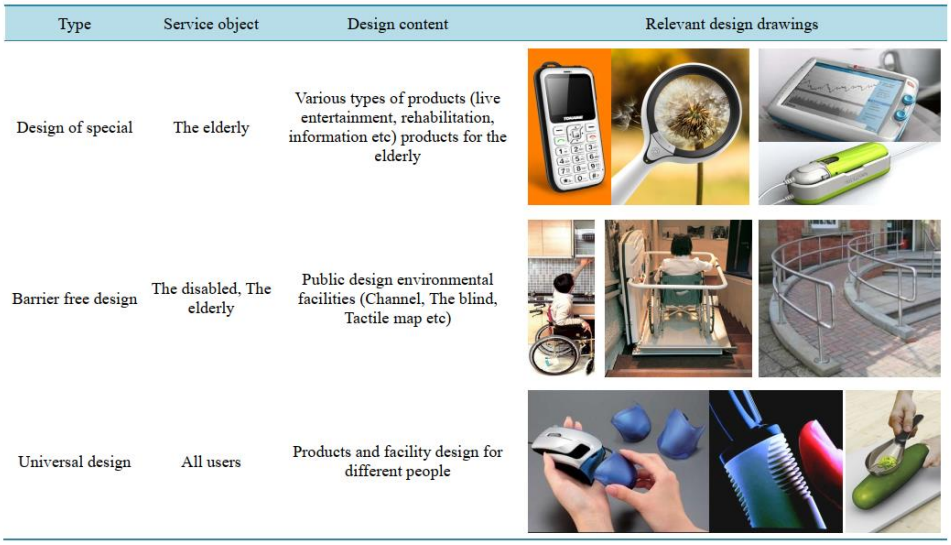
Deng, Dong, and Zheng (2016) address factors that can provide support for the construction of a theory focused on design directed to the elderly, which are divided into three categories:

- Macroscopic factors: related to the aging of the population and the characteristics of social development. The characteristics of modern society are becoming increasingly diverse, requiring developments that meet the real needs of this population.
- Mesoscopic factors: which involve differences in market demand for products for older people, influenced by regional, cultural, and economic aspects.
- Microscopic factors: refer to the contradiction between the demands of the elderly and reality, where the specific impacts need to be analyzed in the light of the psychological needs of this population, confronting the discrepancies with the objective reality.

In addition, the similarities and differences between product design for older people, barrier-free design, and universal design must be taken into account (Figure 3).

According to Deng, Dong, and Zheng (2016), all these approaches converge toward the same goal: to improve the user's quality of life. Universal Design, based on seven principles that meet the needs of individuals with different anthropometric characteristics, serves to evaluate the usability of a product or space, also considering factors such as economic, cultural, gender, and environmental aspects (Porto; Rezende, 2016).

Figure 3: Comparison between product design especially for older people, barrier-free design, and universal design.



Source: https://www.scirp.org/journal/paperinformation?paperid=63297

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However, when the design is specifically aimed at older people, it is necessary to consider some singularities, such as the development of a functional design (intuitive, simple, and easy to use), the design of the form (which meets psychological and aesthetic needs), the ergonomic design (focused on safety, comfort and applicability), the design of the structure (ensuring feasibility, firmness and durability) and the design of value (considering economic characteristics, sustainability and cultural connotation). Thus, it is perceived that this design goes beyond the concept of barrier-free design, often applied to public environments, or universal design, which is directed to all users without a specific target audience (Deng; Dong; Zheng, 2016).

Porto and Rezende (2016, p. 162) reinforce this perspective, stating that it is necessary to consider "the personality of each individual and their difficulties in the environment, which goes beyond the simple use of a checklist of what to do or not" since housing must guarantee safety, comfort, and independence for residents.

THE ROLE OF INCLUSIVE DESIGN AND THE ELDERLY PERSON

According to Steinfeld and Tauke (2002), inclusive design is closely related to the concept of barrier-free design, having its origins in the field of rehabilitation. In turn, Asmervik (2002) points out that designing without barriers solves basic difficulties imposed by disabilities, often generating solutions aimed at people with disabilities. In this sense, the barrier-free solutions approach can contribute to the stigma associated with the elderly population, associating the term with users with disabilities. The concern with this stigma is addressed by Coleman and Lebbon (2003), who observe the importance of realizing that people with disabilities do not wish to be seen as users of special products and, consequently, segregated from society.

When we analyze inclusive design, we can understand that it is not directed to a specific niche, but rather benefits the largest possible number of people, regardless of their characteristics, as Keates and Clarkson (2003) argue.

However, Steinfeld and Tauke (2002) state that inclusive design must go beyond functional capacity and also be attractive. This allows a greater number of people to benefit from the improvements, contributing to the elimination of social discrimination about design. This social acceptance occurs when the product design meets the expectations of users, generating desire and adoption.

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In addition, Coleman and Lebbon (2003) highlight the growth in the number of elderly people, who, with the increase in experience and enlightenment, develop new expectations about the design of products and services, compared to previous generations.

Jordan (1999) classifies the emotional responses triggered by the use of a product into different types of pleasure, which can be identified as:

- Physical pleasure: related to sensory factors, such as the touch when using a product or the aroma it gives off.
- Social pleasure: includes the status or social role that the product's image can represent, in addition to the social interaction it promotes, such as environments that facilitate meetings and relationships.
- Psychological pleasure: involves the satisfaction that the product offers when used, making the experience pleasant, about cognitive functions and emotional responses.
- Pleasure of ideas: it is related to personal values, where the aesthetics of the product combine with the symbolic value it represents.

In the context of housing, Bestetti (2014) argues that ambiance goes beyond physical space, being composed of emotional elements, such as objects and people, which generate positive or negative conditions. According to the author, "When we talk about ambiance, we think of humanization through the balance of elements that make up the spaces, considering factors that allow protagonism and participation" (Bestetti, 2014, p. 602).

Based on this reasoning, Bianchi (2013) states that the functional decline of elderly people can be aggravated by environments that do not favor balance and adaptation. In this sense, Tesch-Römer and Wahl (2017, p. 315) advocate the implementation of "compensatory and optimizing devices" in the living environment, to preserve the autonomy and well-being of older people, highlighting them as fundamental strategies for successful aging.

Hodgson (2001) suggests a route of investigation by analyzing the role of institutions in the formation of individual purposes and preferences, identifying them as contributors to the formation of habits that shape and restrict behaviors. He also highlights marriage, the market, and property as examples of institutions.

Reports from LTCF residents, related to the lack of independence and privacy, are addressed by De Souza, Wanderley, and Neto (2022). These authors defend the need for

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adaptations in the institutions both in the physical structure and in the human resources, highlighting the architectural barriers as the greatest difficulties reported by the residents to fully exercise their right to freedom.

De Medeiros *et al.*, (2020) report the low quality of life of institutionalized older people, arguing that infrastructure conditions should guarantee an integrated quality of life, considering physical, psychological, social, and environmental aspects, to enable a dignified life, with protagonism and autonomy.

Wang and Kuo (2006) conclude that it is necessary to rethink the concepts present in LTCFs, replacing the traditional hospital image with a more "homely" environment, which prioritizes the physical and psychological needs of residents. This trend reflects a shift in concepts from long-term care facilities to modern long-term care facilities that emphasize human needs in addition to medical functionality.

The therapeutic potential involved in the environmental complexity of a housing project for the elderly, which favors the cognitive performance of residents, is pointed out by Burzynska (2017). Environments designed to promote the spontaneous exploration of spaces stimulate autonomy, positively impact quality of life, and favor mental health and cognitive functions. However, the author also highlights the challenges of this balance, as design guidelines aimed at the elderly often do not consider individual differences and preferences, which can generate opportunities for social interaction through well-designed spaces and a pleasant design. Aspects such as the use of technologies are also essential, generating smart housing that caters to declining skills as care needs increase, creating a hybrid and adaptable environment.

Adaptation to current standards is necessary but often does not fully meet the user's needs. A design that favors autonomy and independence in daily activities significantly improves the quality of life, going beyond the simple assistance provided by institutions. In this sense, developing common spaces with an appropriate design, in collaboration with the users themselves, values coexistence and promotes a sense of belonging (Bianchi, 2013).

According to Östlund (2015), the involvement of users in the development of models aimed at the elderly population makes them co-responsible for the results. This results in a better understanding of the space they occupy and contributes to improvements in the process, making the design more suited to their expectations, functionality, and aesthetics. For Pedroso (2018, p. 227), only with the involvement of users will it be possible to work on

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the stigmas that exist "between the individual in old age and housing, and between this and the institution".

Finally, Ardinghi and Aunbertoldi (2023) argue that the personalization of objects creates affective bonds, promoting attachment and emotional sustainability. They suggest that the requalification of objects that make up the universe of institutionalized residents "develops a meaningful personal association through the employment of personal energy," bringing together individuals who share different ideas to transform them (Ardinghi; Aunbertoldi, 2023, p. 19).

CONCLUSION

The data presented in this study show the urgent and essential need for innovative design in the conception of facilities and environments aimed at elderly people in Long-Term Care Institutions (LTCFs). A user-centered design, which considers the characteristics and different degrees of dependence of older people, not only creates more attractive environments but also encourages the autonomy and participation of residents. This type of design has the potential to transform the social perception of LTCFs, breaking negative stereotypes both about residents and about the institutions themselves, and about society.

The results point to the importance of bringing the resident closer to the institution (user design), recognizing and respecting individual differences, and the changes that occur throughout aging. This approach enables the development of new ways of living, appropriate to the needs of contemporary aging, employing design as an important tool in solving current challenges.

This user-centered view, which considers the needs and specificities of this heterogeneous aging, not only improves the quality of spaces in LTCFs but also contributes to breaking the existing stigmas about these institutions. By creating more welcoming, functional environments adapted to the reality of aging, a more positive perception of society about LTCFs is promoted, challenging the view traditionally associated with places of abandonment or degradation.

There is also a need for an expansion of research in the field of LTCFs, to contrast traditional care practices with innovative, comprehensive, and hybrid design approaches, capable of meeting the growing population demand. The focus of this research should be not only on compliance with legislation but also on promoting the autonomy and quality of life of residents, ensuring more humane, effective, and diverse care.

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