

## **Spatial quality evaluation of the elderly dormitory environment of two ILPIs located in Bauru and Marília (SP).**

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## SUMMARY

The life expectancy of the world population has increased gradually. At present, various researches seek to study elements or environments, above all, in residences that have a great impact on the quality of life and well being of this population. Dysfunctions associated with the biological-functional and cognitive system, intrinsic to the aging process, can leave the elderly susceptible to accidents (falls and bumps), due to the residential environments not offering safety to this age group. Given this context, this article aims to present the result of the evaluation of private use environments of the elderly, composed by the dormitory areas of two ILPIs located in the city of Bauru and Marília (SP), whose buildings were implanted in different periods, without the adoption of specific technical parameters for housing for the elderly. The Walkthrough technique associated with photographic record was adopted to identify the spatial quality, from positive and negative aspects, of the private environments used by elderly citizens. The results show that the spatial quality of the private environments of the analyzed institutions has more aspects considered negative than positive, especially those related to accessibility. Among the problems stand out: inadequate smooth floors, little contrast between floor plans, wall and furniture, type of frames, presence of constructive pathologies, among other problems.

**KEYWORDS:** Walkthrough. Elderly. Long-Term Care Institution (ILPI).

## INTRODUCTION

Long-term care institutions for the elderly (in Portuguese Instituição de Longa Permanência de Idosos - ILPIs) are collective residential environments that, in addition to housing, offer: food, hygiene and cleaning services, medical care and leisure activities, to independent or fragile elderly people who need long-term care, in situations of vulnerability, whether by income and / or family (CAMARANO; KANSO, 2010).

Data from IPEA (2011) show that in Brazil there is a gradual increase in these institutions, due to the changes generated in family arrangements, better convenience for this population, to solve generation conflicts and problems related to loneliness and isolation, in which the elderly are affected (BESTETTI, 2006; GARCIA; WATANABE, 2017; FREITAS, 2017).

As in residences, it is essential for the functioning of an ILPI to meet certain rules to ensure quality, safety, autonomy and the well-being of residents (CAMARANO; KANSO, 2010; MILANEZE, 2013; PORTO, 2014; TAVARES, 2015).

For Kowaltowski *et al.* (2006) home spaces have a greater impact on people's way of life, as it is the place where various daily activities are carried out, such as housework, leisure and rest. The authors state that older age groups need greater adaptation in the residential environment (KOWALTOWSKI *et al.*, 2006; YOSHIDA, 2017). Among the elements that improve the quality of life of the elderly are environmental comfort (natural lighting and ventilation, acoustics and temperature) and spatial accessibility (HUNT, 1991 apud RIBAS, 2001; MAGAGNIN; SILVA FILHO; ROSSETTO, 2017).

Iwarsson (2005), Perracini (2011), Faber and Shinkle (2011), Lopez, Felipe and Kuhnén (2012) and Barbosa and Araujo (2014) add that the autonomy of this population is associated with the qualitative and safety attributes provided by public and private spaces. Besides that, there are also elements related to spatial accessibility, and other factors, such as: adequate lighting, natural ventilation that promotes constant air renewal, acoustic comfort

through environments with good sound integration and architectural characteristics that refer to welcoming and affection help the elderly in this matter.

In the home environment of the elderly (houses or long-term institutions), there should be a concern with some elements that assist in the displacement and use of spaces, such as: comfortable and ergonomic furniture, which allows flexibility of use and the possibility of adapting to different layouts, direct and clear circulation, location and arrangement of well-planned household equipment. Other adaptations may be necessary and for that it is necessary to observe and analyze the routine of the residence or the host institution (FLORES, 2010; PISTORI; FERRÃO, 2014; YOSHIDA, 2017).

Milani (2004) considers that furniture is an important element for spatial quality, as it directly affects the functionality of the place and comfort when moving around. When there is inadequate furniture or in large quantities, they can disadvantage the usage and harm the comfort of the environment (MILANI, 2004; FLORES, 2010; YOSHIDA, 2017).

Bins Ely (2009) mentions that it is important that the home environments of the elderly are humanized and inserted in an inclusive layout, with elements that bring physical and psychological comfort, in addition to well-being.

Among the most important adaptations in the home environments of the elderly, one can highlight the dimensioning of the environments and the workmanship's finishing materials. Some elements can be foreseen in the development of the project (environment dimension, type of frame and sill heights). Others, however, depend on the prior knowledge of the architect or engineer (adequate ceramic floors, types of handle, type of washbasins and faucet, socket location and switches, insertion of support bars in the appropriate places, color differentiation between the plans - floor, wall and furniture, among other aspects) that certainly make the life of the elderly more comfortable and safer (PERRACINI, 2011; LOPEZ; FELIPPE; KUHNEN, 2012; BARBOSA; ARAUJO, 2014). However, many ILPI's are located in old properties, which are not entirely adapted for the use of the elderly. They have problems related to the quality of the environment, such as: very steep ramps, high unevenness, lack of support bars and handrails, absence of tactile signs, lack of thermal and lighting comfort, inefficient ventilation, and a type of floor that negatively interferes with accessibility causing insecurity in displacements of the elderly (GONÇALVES; 2017; MAGAGNIN; SILVA FILHO; ROSSETTO, 2017; YOSHIDA; MAGAGNIN, 2016).

An environment that meets the needs of the elderly must have spaces that respect the individuality of the residents and other spaces that promote coexistence, because although the elderly need privacy, isolation is not favorable for their physical and mental health. The furniture must be thought from a concept of universal design or must be adapted to the conditions of this user, to provide safety and comfort in its use, in addition to the creation of humanized, cozy and pleasant spaces. And, it should still have environmental comfort, from an environment that offers good lighting and natural ventilation, green areas with adequate landscaping, an outdoor living area, to avoid using elements such as artificial air conditioning (PERRACINI, 2011; BARBOSA; ARAUJO, 2014; YOSHIDA, 2017).

The growing demand of long-term care institutions for the elderly to shelter people over 60 years of age has generated a significant increase in adapted architectural projects, especially in matters related to the spatial quality of the built environment. From this new reality, a concern arises from researchers from different areas of knowledge as engineers, architects and designers in relation to collective living spaces for the elderly (FLORES, 2010; MILANEZE, 2013; MILANEZE; VANZIN, 2016).

Most research related to housing for the elderly has addressed human factors from the study of ergonomic aspects of the built environment and spatial accessibility (PEREIRA, 2007; SÂMIA, 2008; BENVEGNÚ, 2009; AGNELLI, 2012; MILANEZE, 2013; YOSHIDA, 2017) with few works referring to the quality of spaces in a broader way. Thus, incorporating in addition to these previous concepts, other aspects associated with environmental quality, such as: luminous condition, acoustics, dimensional, colors, ventilation, space customization and absence of constructive pathologies. Given this context, this paper aims to contribute to the identification of positive and negative aspects; located in private areas, bedrooms and bathrooms, of two ILPI's; which can directly influence the quality of life of institutionalized elderly people.

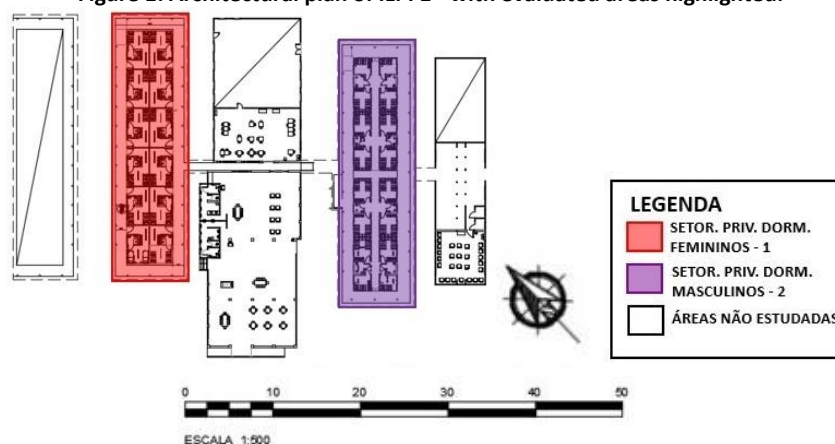
## OBJECT OF STUDY

In order to evaluate the positive and negative aspects of bedrooms and bathrooms in two Long Term Care Institutions for the Elderly (acronym in Portuguese ILPIs), it was defined to evaluate those that fit the following: (i) with Vincentian philosophy, (ii) that were in up to the 25th position in the rank of the Municipal Human Development Index - Longevity Dimension (acronym in Portuguese IDHM-L). From this definition, the ILPI's installed in the cities of Bauru and Marília were identified.

**ILPI 1 – Bauru (SP)** - The first Long Term Care Institution for the Elderly (called ILPI 1), founded in 1940, is located in the eastern part of the city of Bauru (SP), implanted in an area of approximately 3 bushels. The number of elderly people assisted in 2017 was 50 permanent residents and 63 elderly people who participated in the state reception program called "Centro-dia". Figure 1 shows the sectors analyzed.



Figure 1: Architectural plan of ILPI 1 - with evaluated areas highlighted.



Source: THE AUTHORS, 2020.

**ILPI 2 – Marília (SP)** - The second Long Term Care Facility for the Elderly (called ILPI 2) was founded in 1936, is located in the eastern part of the city of Marília (SP), implanted in an area considered to be a noble region and its building has approximately 3.090,00 m<sup>2</sup> of built area. The number of elderly people assisted by the institution in 2017 was 83 residents. The sectors evaluated in this article are shown in Figure 2.

Figure 2: Architectural plan of the ILPI 2 - with highlighted evaluated areas.



Source: THE AUTHORS, 2020.

## METHODOLOGY

For the analysis of the private areas of the ILPI's, the method called “walkthrough” was applied, which consists of simultaneously observing a place associated with an interview. It allowed us to identify negative and positive aspects of a place and how the environment is used by the users (RHEINGANTZ *et al.*, 2009). The classic approach was adopted, with the researcher's critical distance from the environment.

The procedures for applying this method were divided into two stages: i) carrying out the tour accompanied by the person in charge of the institution (ILPI 1 - vice president and ILPI

2 - social worker), and ii) recognizing the analyzed place for updating the institution's architectural plan. The registration of the information was carried out by means of notes on the plant of each ILPI and by photographic records of all environments.

The purpose of applying this method was: i) to know and evaluate the private spaces of dormitories (bedrooms and bathrooms) of the ILPI's in relation to the safety of the elderly, ii) to identify if the building plan of the environments was up to date, iii) to observe the users' behavior in relation to space and vi) make a comparative analysis between the institutions on the positive and negative aspects of each evaluated location.

Seven themes were defined (dimensioning of the environment, constructive pathology, frames, natural and artificial lighting, natural ventilation, finishing material and color and furniture) to assess the positive and negative aspects of each ILPI, observed during the Walkthrough. Each theme was subdivided into subthemes, being differentiated for the positive aspects (bedrooms 18 sub-items and bathrooms 23 sub-items) and negative aspects (bedrooms 8 sub-items and bathrooms 7 sub-items). The result of this analysis is presented in percentage, to facilitate the comparison between the ILPI's.

The walkthrough was carried out through six visits previously scheduled between the months of October / 2017 to May / 2018, from 9 am to 5 pm, during the week, due to the possibility of monitoring the employees of the institutions. Subsequently, from the information collected, humanized ILPIs building plans were prepared.

## RESULTS

This item presents the results of the walkthrough of the bedroom and bathroom environments in the two ILPI's. For each environment, the positive and negative aspects and by sector (male and female) of ILPI 1 and ILPI 2 are presented respectively.

**Bedrooms** – The analysis of the positive aspects shows that, in the bedrooms, the elements that fully contributed to this assessment in the two ILPI's were items 01, 06 and 08. It is observed that in the ILPI 1, 56% of the items contribute to the quality of the dormitory space and, that there is no difference between the male and female sectors of this ILPI. In both ILPI's the paintings on the walls of the bedrooms were generally in good condition and in suitable colors, with light or pastel tones. The color helps to achieve a uniform distribution of the lighting, making the environments lighter and with less glare; helps the elderly to see plans (walls, floors and doors) more easily. Sector 2 (ILPI 1) is the only building (in the two ILPIs) that has a non-slip floor, however, the presence of a three-dimensional pattern on the floor makes it harmful to the vision of the elderly, as it can confuse the vision or cause vertigo, and thus causing accidents and falls. It is recommended that the environments ceramic tiles have clear and neutral colors that will also assist in the lighting of the environment.

Likewise, at ILPI 2, 78% of sectors 1, 3 and 5 and 56% of sectors 2 and 4 have positive aspects in relation to finishing materials. The presence of switches in parallel to activate the

central lighting of the dormitories provides security for the elderly, as it can assist the elderly who needs to go to the bathroom during the night, for example, making the night route safer, thus avoiding falls by stumbling in carpets, objects on the floor or collision against furniture.

**Table 1: Positive aspects identified in the walkthrough - Bedrooms.**

POSITIVE ASPECTS									
THEME	ITEM	SUBTHEME	ILPI 1		ILPI 2				
			Sector 1	Sector 2	Sector 1	Sector 2	Sector 3	Sector 4	Sector 5
Dimension of the environment	---	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Constructive pathology	---	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Frames	01	Doors with suitable widths and lever handle.							
	02	Presence of shutter windows in good condition and dimensioning.							
	03	Presence of anti-mosquito net window screens.							
Natural and artificial lighting	04	Presence of a switch in parallel to the side of the bed to turn on the central light.							
Natural ventilation	---	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Finishing materials	05	Floor with non-slip ceramic coating.							
Color and Furniture	06	Painted walls in good condition, in light or pastel colors.							
	07	Contrast between floors, walls and furniture.							
	08	Contrast in the color of the doors and walls.							
	09	Standardized furniture.							
Percentages of positive aspects identified by sector			56%	56%	78%	56%	78%	56%	78%
Sector identification					Male Dorm.			Female Dorm.	

Source: THE AUTHORS, 2020.

Regarding the negative aspects observed in the bedrooms (Table 2), it can be seen that items 8, 9 and 10 appeared in 100% of the bedrooms; and items 12 and 17 were present in 90% of the dormitory sectors.

When analyzing only the female sectors, it is observed that the similar elements in the two ILPIs refer to: constructive pathologies (infiltration or mold) in some walls (Figure 3) or in the lining and absence of contrast between the environment and the furniture. As for the male sectors, the most identified problems were: insufficient or poorly adapted closet area or

with disorganized exposed objects, insufficient size for the number of residents (Figure 6), constructive pathologies (infiltration or mold) on the walls or ceiling and stuffy environment and / or with the presence of unpleasant odor.

The analysis by ILPI revealed that the sector 1 (female dormitory) of the ILPI 1, is the one that needs less adjustments (44% of identified problems), while sector 2 (male bedrooms), 72.2% of elements are unsatisfactory, that is, there are many elements that influence the safety and comfort of elderly residents.

**Table 2: Negative aspects identified in the walkthrough - Bedrooms.**

NEGATIVE ASPECTS									
THEME	ITEM	SUBTHEME	ILPI 1		ILPI 2				
			Sector 1	Sector 2	Sector 1	Sector 2	Sector 3	Sector 4	Sector 5
Dimension of the environment	01	Dimension of the environment.							
	02	Accommodation-style dorms, with dividing walls, jeopardize the resident's privacy.							
Constructive pathology	03	Constructive pathologies on the walls or ceiling.							
Frames	04	Narrow doors or windows that are inadequately sized for the environment.							
	05	Doors with maintenance problems.							
	06	Sliding windows type vitro (does not attenuate the natural lighting).							
	07	Window type (slide only on the glass) does not allow air to circulate in the environment.							
	08	Windows with inadequate opening devices or maintenance problems in their opening devices.							
Natural and artificial lighting	09	Unsatisfactory artificial lighting of the environment with the presence of a central lighting point.							
	10	Absence of emergency lighting							
Natural ventilation	11	Muffled environment and / or presence of unpleasant odor.							
Finishing materials	12	Floor with smooth ceramic coating, without non-slip treatment.							
	13	Floor with maintenance problems.							
Color and	14	Absence of contrast between							



NEGATIVE ASPECTS									
THEME	ITEM	SUBTHEME	ILPI 1		ILPI 2				
			Sector 1	Sector 2	Sector 1	Sector 2	Sector 3	Sector 4	Sector 5
Furniture		doors, windows and walls.							
	15	Absence of contrast between the environment and the furniture.							
	16	Decayed or poorly maintained furniture.							
	17	Insufficient closet space or poorly adapted or with disorganized exposed objects.							
	18	Furniture without standardization, or excess of furniture.							
Percentages of positive aspects identified by sector			44%	72 %	39%	67%	28%	44%	39%
Sector identification				Male Dorm.				Female Dorm.	

Source: THE AUTHORS, 2020.

It was observed that the windows of sector 2 (ILPI 1), are not suitable for bedrooms environments (glass window with sliding opening device, vitro type) this opening model does not allow constant air renewal in the environment and natural lighting in this space (Figure 4). It also does not allow the environment to darken during the day (many elderly people sleep during the day in these institutions). In some bedrooms, improvised curtains with sheets were found to give privacy to the environment (Figure 4). The absence of a shutter window contributes to the feeling of stuffiness and an unpleasant odor in the environment.

Regarding the furniture of the male bedrooms (ILPI 1), due to the lack of standardization and the fact that many come from donations, there was an excess of furniture in relation to the size of the room. This can contribute to the occurrence of accidents in that space. Some furniture was in poor condition or broken. There is a lack of space for organizing personal objects, which leaves the environment poorly organized and makes cleaning difficult (Figure 6).

**Figure 3: Constructive pathology in some walls (on the left) and in the ceiling (on the right) - ILPI 1 bedrooms.**



**Figure 4: ILPI 1 sector 2 window - lighting and privacy.**



**Figure 5: Example of organization in male and female bedrooms at the ILPI 2.**



**Figure 6: ILPI 1 male bedroom's lockers (Sector 2) (left)**



**Figure 7: Single lighting spot in the bedrooms (ILPI 2).**



Source: THE AUTHORS, 2020.

The analysis of the ILPI 2 dormitories revealed that sectors 4 and 5 (female dormitories) have 44.4% and 38.8%, respectively, of aspects considered negative. The subthemes that contribute negatively to this analysis refer to items 8 to 11 and 16. Regarding male dormitories (ILPI 2), sectors 1, 2 and 3 received the worst evaluations, respectively (38.8%, 66, 6% and 27.7%), and sector 2 obtained a greater number of subthemes that can impair the elderly's spatial quality.

Likewise, in all sectors of the ILPI 2 there were many furniture that were not suitable for the area of these dormitories, as they are small for two people sharing. Many cabinets were adapted with shelves and hangers whose clothes were disorganized or piled up (Figure 5).

Regarding artificial lighting, although specific equipment was not used, it can be seen that the analyzed dormitories were dark, especially in the late afternoon, even with the bedroom lights on. It was observed that the furniture and objects cast shadows on the floor. There was only one central lighting point in each bedroom, in both ILPIs (Figure 7).

**Bathrooms** – The data shows that the positive aspects in the bathrooms at the two ILPIs are related to the presence of grab bars in the toilet and in the bathing area, also the presence of doors with suitable widths and a lever handle. In ILPI 1 43% of the subthemes evaluated in sector 1 and 57% of sector 2 are considered positive aspects and in ILPI 2, sectors 1, 3, 5 have 43% and sectors 2 and 4 have 57% and 86%, respectively aspects considered positive.

**Table 3: Positive aspects identified in the walkthrough - Bathrooms.**

POSITIVE ASPECTS									
THEME	ITEM	SUBTHEME	ILPI 1		ILPI 2				
			Sector 1	Sector 2	Sector 1	Sector 2	Sector 3	Sector 4	Sector 5
Dimension of the environment	---	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Constructive pathology	---	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Frames	01	Doors with suitable widths and a lever handle.							
Natural and artificial lighting	02	Presence of more than one lighting spot in the bathroom.							
Natural ventilation	---	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Finishing materials	03	Floor with non-slip ceramic coating.							
Color and Furniture	04	Presence of contrast between the floor, walls and sanitary pieces.							
	05	Bath and toilet area cabins - adequate width.							
	06	Washbasin with suspended column, or washbasin fixed with wall brackets.							
	07	Presence of support bars in the toilet and bath area.							
Percentages of positive aspects identified by sector			43%	57%	43%	57%	43%	86%	43%
Sector identification					Male Dorm.			Female Dorm.	

Source: THE AUTHORS, 2020.

It can be seen that in the two ILPIs, there was the presence of support bars in all bathrooms, especially in toilets and bathroom spaces. These elements are important, as they offer safety and autonomy in the use of the toilets, they assist as support for the use of the toilet, and in the shower area they serve as support to reach soap, shampoo, sponges and other hygiene items, in this way, can mitigate accidents caused by imbalances and falls.

In most bathrooms, in both ILPIs the doors were adequate (with a minimum width of 0.80 m, opening device with 90° turn, and a lever handle, in good conditions of use and conservation), however, in some sectors, doors had their opening direction towards the interior of the bathroom, which can make it difficult to help an elderly person in the event of a fall and to be used by people on wheelchairs. It is recommended that in environments

intended for the elderly, that the doors have a minimum clearance that allows the passage of people with mobility equipment (wheelchair, walker, crutches), with an opening to the outside of the environment, to prevent the person to be accidentally locked up or have difficulty using it comfortably. It is important that the handles are of the lever type, as they are the most comfortable for the elderly to use.

Regarding the negative aspects, it was observed that the elements that contributed to this assessment in the two ILPIs were: the absence of emergency lighting, a floor with a smooth ceramic coating, without anti-slip treatment and absence of contrast in the bathroom, with the sanitary pieces and the wall coverings being of the same shade (Table 4).

**Table 4: Negative aspects identified in the walkthrough - Bathrooms.**

NEGATIVE ASPECTS									
THEME	ITEM	SUBTHEME	ILPI 1		ILPI 2				
			Sector 1	Sector 2	Sector 1	Sector 2	Sector 3	Sector 4	Sector 5
Dimension of the environment	01	Bathroom for collective use (only for the bedroom sector).							
	02	Bathrooms with inadequate width and travel space for wheelchair rotation.							
Constructive pathology	03	Constructive pathologies on the walls or ceiling.							
Frames	04	Doors with maintenance problems.							
	05	Doors with inadequate opening device or without handle.							
	06	Doors with dimension or type of opening inadequate.							
	07	Window with inaccessible opening device (high sill) or with maintenance problem.							
Natural and artificial lighting	08	Absence of emergency lighting							
	09	Poor artificial lighting.							
Natural ventilation	10	Typology of window or opening gap does not allow air to circulate in the environment - natural lighting and ventilation problem.							
	11	Stuffy and humid environment and / or with the presence of unpleasant odor.							
Finishing materials	12	Smooth ceramic floor, without non-slip treatment.							
	13	Floor with maintenance problems.							
Color and Furniture	14	Absence of contrast of the sanitary pieces and the wall covering.							
	15	Absence of contrast between doors and walls.							
	16	Toilet cabins with inadequate sizing / or							



NEGATIVE ASPECTS									
THEME	ITEM	SUBTHEME	ILPI 1		ILPI 2				
			Sector 1	Sector 2	Sector 1	Sector 2	Sector 3	Sector 4	Sector 5
		toilets with inadequate heights.							
	17	Washbasin with central column, without support bar and with an inadequate tap opening type (swivel or crosshead).							
	18	Wall-mounted column type washbasin, or fixed by metal wall brackets, without a support bar, with an inadequate tap opening type (swivel or crosshead).							
	19	Broken, lose or missing toilet seat (maintenance).							
	20	Presence of deteriorated furniture, or in poor condition.							
Others	21	Presence of hygiene products on the window sill or objects hanging from the toilet support bars.							
	22	Presence of cleaning and maintenance equipment arranged in the environment, obstructing free access.							
	23	Environment with accumulation of dirt or disorganized.							
Percentages of positive aspects identified by sector			30%	56%	35%	83%	30%	30%	52%
Sector identification					Male			Female	

Source: THE AUTHORS, 2020.

When analyzing only the female sectors of the two ILPIs, it was observed that the elements that had similarity were items 12 and 14, thus, although the bathrooms analyzed have different architectural types, they all had the same conditions of finishing materials and conservation state.

The negative elements of all bathroom sectors of the two ILPIs (with the exception of sector 2) have smooth ceramic floors, there is no box or gap in the bathroom area, (to facilitate the use of assistive equipment for the elderly with special needs). Due to the type of floor being smooth and because this area has more humidity or gets wet after bathing, it can make the elderly more susceptible to falls and slips (Figure 8).

**Figure 8: Smooth ceramic floor (male bathroom - Sector C), on the right, and (Sector 2 - ILPI 2), on the left.**



**Figure 9: Absence of contrast between the bathroom plans (ILPI 1).**



**Figure 10: Women's bathroom doors (Sector 5) without a handle.**



**Figure 11: Inadequate access doors to toilets (sectors 2 and 3 of ILPI 2).**



Source: THE AUTHORS, 2020.

It was noted that there was an absence of contrasts between the planes of the wall, floor and sanitary pieces, being entirely in light shades (Figures 8 and 9). There was no contrast in the colors of doors and jambs, which is very unfavorable to the perception of the elderly, as many have problems with visual acuity typical of the aging process. The lack of contrast can contribute for the elderly to feel insecure when using these spaces, which contributes to their loss of autonomy (Figures 8 and 9).

Regarding safety, it was observed that there is no emergency lighting or any type of beacon lighting. Although it is an element that will only be used occasionally, in the event of a lack of lighting, this equipment can make the movement of the elderly to the dormitory or to common areas easier, especially at night.

It was also noted that there was an absence of a handle on some doors of the ILPI 2 (Figure 10), which can make it difficult for the elderly to handle the door. The toilets in sectors 2 and 3 of the ILPI 2, have doors with a sliding opening device with a small handle (Figure 11). Although they have an adequate dimension (width) and are in good conditions of use (aligned and easy to use) this type of door is not suitable for the elderly, as it can make handling difficult, especially for the elderly who use mobility equipment such as walkers, crutches and canes.

In summary, many of the problems identified in the two ILPIs were also detected in other research on the same theme (LEITE, 2010; PAIVA; SANTOS, 2012; MILANEZE, 2013; PORTO, 2015; GONÇALVES, 2017; YOSHIDA, 2017). These results show that it is necessary that housing projects aimed at the elderly incorporate the following aspects related to spatial

quality: space dimension, ventilation, lighting, accessibility, color as essential elements to provide a better quality of life for the elderly.

## CONCLUSION

The world is undergoing a demographic change, with an increase in people's life expectancy. Although this phenomenon is accompanied by a better quality of life, at some point there will be a decline in the functional capabilities, and with that, the physical environment must be adequate. Currently, there have been many changes and transformations in the family nuclei, and with this, more and more the elderly are living in long-term institutions.

In view of this reality, this article seeks to contribute to the result of an exploratory diagnosis that identified the main positive and negative aspects related to private environments, which are widely used by elderly people in ILPIs, and which can interfere with their quality of life. The results show that in both institutions the buildings were constructed without using any technical standards regarding spatial accessibility, and for this reason they need some adaptations to meet the current standards.

The use of the walkthrough technique allowed the identification of technical aspects such as constructive pathologies, finishing materials, dimensioning of environments, among others, like parameters considered subjective, such as the sensation of the use of space, odors and aesthetic issues.

These two parameters made it possible to identify the degree of spatial quality, based on positive and negative aspects of the private areas of these institutions. These results can assist researchers and designers of housing for the elderly as well as the managers of these institutions to understand which environments need priority interventions and may contribute to the elaboration of reform schedules in the short and medium term to offer greater quality of life to the elderly of these institutions.

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