Revista Nacional de
Gerenciamento de Cidades
ISSN eletrônico 2318-8472, volume 10, número 79, 2022

Conditions of pandemic social isolation in Popular Housing

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Revista Nacional de
Gerenciamento de Cidades
ISSN eletrônico 2318-8472, volume 10, número 79, 2022

ABSTRACT
In the current global context, where the population is facing Covid-19, a highly contagious respiratory disease, the main recommendation to avoid the transmission of the virus is to continue isolating oneself at home. Thus, every residence needs to have the necessary conditions to carry out social isolation and the initial treatment of Covid-19 in coordination with the family's daily activities. The issue is that not all housing can meet these new needs. The research aims to analyze whether the types of housing in the Gimenes Housing Complex, located in the city of Penápolis-SP, meet the socio-physical needs of residents in times of the Covid-19 pandemic. The method applied was the dialogic architecture, which relates the object of study (types of housing) to its context (Gimenes Housing Complex and Gimenes Neighbourhood), according to the dimensions of housing construction and users' perception. A questionnaire was applied to families, the results of which indicated that the types of housing at Gimenes do not meet most of the parameters of social isolation indicated by the Ministry of Health.

KEYWORDS: *Housing; Social isolation; Covid-19.*

1 INTRODUCTION

Housing is a place that should offer protection from the weather, comfort, peace, safety and be conditioned to the culture of the users (SALCEDO, 2007). Dwelling is a fundamental means for people to relate to the world. It is an exchange between inhabitant and space, where the space is situated in the inhabitant's consciousness, and the place becomes "externalization and extension of their being" (PALLASMAA, 2016, p. 08) be it mentally or physically. Therefore, housing must have the necessary conditions to enable the family's activities. In times of pandemic, housing is the place to undertake social isolation and the initial treatment of Covid.

Covid-19 is: "a respiratory disease, with the spectrum of infection with this virus ranging from people with very mild non-respiratory symptoms to severe acute respiratory illness, sepsis with organ dysfunction and death" (WHO, 2020); its contagiousness is high and it has global dissemination power (BRAZIL, 2020a).

The cases can range from asymptomatic to moderate, severe and critical cases. Hospitalization occurs when signs and symptoms indicate worsening of the clinical picture, requiring special attention. The contagion occurs from one sick person to another through the touch of contaminated hands; droplets of saliva, sneezing, coughing, phlegm, contaminated objects or surfaces (BRASIL, 2020a).

In view of this, among the responses of the Ministry of Health (MS) to confront covid-19 are respiratory etiquette (simple measures to minimize the transmission of infectious diseases) and hand hygiene, social distancing of 1.5m, use of masks, cleaning and disinfection of environments, isolation of suspected and confirmed cases, and quarantine of contacts related to the covid-19 cases (BRASIL, 2020a).

In Brazil, on March 22, 2020, the decree No. 64.881, determined quarantine throughout the state of São Paulo, with support from the Extraordinary Administrative Committee, in order to control covid-19, "consisting in restriction of activities in order to avoid the possible contamination or spread of coronavirus, under this decree" (SÃO PAULO, 2020, p.01).

To reduce the cases and the speed of transmission, it is essential to control close contact between infected people and others. This measure is significant, since there are infected individuals who are unaware of being carriers of the disease, called asymptomatic or oligosymptomatic, who do not isolate themselves (BRASIL, 2020a).

The isolation measure prescribed by medical act should be performed preferably at home, and can be done in public or private hospitals, according to medical recommendation,

depending on the patient's clinical condition (BRASIL, 2020b, p.185).

There are two types of isolation, the horizontal and vertical. The vertical isolation is performed only by people in the risk group. According to Teixeira (2020), horizontal isolation is when individuals " lock themselves up" in their homes for a certain amount of time. This isolation does not distinguish between age groups or pre-existing diseases; it is a measure that reduces contact between people, aiming to control the virus transmission. As for vertical isolation, only people in risk groups: the elderly over 60 and those with pre-existing diseases, such as diabetes, heart or respiratory problems, are isolated.

According to Schuchmann (2020), horizontal isolation is more effective, since it helps to avoid a crisis in the hospital system.

When a person presents symptoms such as fever, cough, sore throat and/or coryza, with or without shortness of breath, he/she should be isolated and seek healthcare units (BRASIL, 2020a).

Within this context, social isolation was the main mitigating measure to combat the virus. Therefore, housing became the safest place for people to avoid contagion or to treat Covid-19. The house became a place to stay, rest, work, study, and play, all within the same space. But is all housing able to provide all these necessities?

"The discipline of those who can obey the "'stay home' imperative must also find and propose means for those who barely have a 'home' or none at all, so that they may nevertheless find a safe haven." (DAVIS, 2020, p. 36).

According to data from the João Pinheiro Foundation (2021), the housing deficit in 2019 was 5.876 million households, where 5.044 million are located in urban areas and 832 thousand in rural areas. This number represents 8.0% of the total number of households in the country. The Southeast was the region with the highest number in absolute terms, adding up to 2.287 million domiciles.

According to Heidegger (1951), the housing crisis is not related to a lack of housing, but to constructions that were not made for dwelling. In order for people/architects and builders to make livable buildings, they must first learn to inhabit. In face of the covid-19 pandemic, housing starts to contain new needs, since the infected person must isolate himself/herself at home. In addition to the physical conditions that housing must offer, it is also important that the equipments (health, education, leisure, basic commerce, and squares) and collective services (bus stops) are close to their homes.

Among the social housing programs implemented by the Housing and Urban Development Company of the State of São Paulo (CDHAU) is the Conjunto Habitacional Gimenes located in the Gimenes neighborhood of the city of Penápolis, inaugurated in April 2014.

2 OBJECTIVE

To analyze whether the housing types of Conjunto Habitacional Gimenes, located between the Benone Soares and Marco Guerrero Housing Complexes in the city of Penápolis SP, implemented by CDHU, meet the socio-physical needs of residents in times of pandemic Covid-19.

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3 METHODOLOGY

The dialogical architecture method, based on Bakthin (1997), Ricoeur (1989) and Muntañola (2006, 2011), relates the Text or Housing Types of the Gimenes Housing Estate to its context (Gimenes-Benone-Marco Guerrero Housing Estate of the city of Penapólis). The research comprises two stages: the Context (surroundings of the project) and Text, housing types and residents' perception. In the Context, the urban and environmental feasibilities are analyzed, as well as the proximity of the Gimenes Housing Estate to collective equipments and services. The Text analyzes the housing types of Conjunto Habitacional Gimenes and the perception of the residents.

3.1 Context: Gimenes-Benone-Marco Guerrero Housing Estate

The Context is also formed by the Benone Soares and Marco Guerrero Housing Complexes, both comprised within the one kilometer radius of influence stipulated from the Gimenes Housing Complex.

In this step, urban and environmental feasibility will be analyzed, using Pitts (2004) as reference (Chart 1).

Chart 1: Reference for urban equipment

Equipment	Radius of Influence
Education (Daycare centers, Schools)	300 m
Health (Basic Health Unit, Hospitals)	1000 m
Transportation (Bus stop)	500 m
Commerce (Market)	700 m
Squares and Parks	600 m

Source: Pitts (2004) organized by the authors

3.2 Text: housing types in Gimenes Housing Complex and residents' perception

3.2.1 Housing Configuration

In the Text, the Housing Types of Conjunto Habitacional Gimenes will be analyzed according to parameters established by the Ministry of Health (BRASIL, 2020b) for housing, measures to address the public health emergency (Chart 2), and number of inhabitants per bedroom.

Chart 2: Parameters of the Ministry of Health for each room

Rooms	Parameters
Kitchen	The patient should avoid this area, but if necessary, use a protection, covering the mouth and nose.
Bathroom	Private use.
Dormitory	Patients should not share the dormitory with other residents of the residence.
Rooms/ pantry/ office	Common living areas should be avoided, but in case of frequent use, disinfection with alcohol 70% must happen
Laundry and Hygienization	Personal objects have to be separated, same for the trash, which shall be later discarded.
Doors and Windows	Windows shall be open for air circulation and the doors shall be closed, its doorknob always clean.

Source: Brazil (2020b) organized by the authors

If the housing has only one bathroom, it must be disinfected by the patient themselves, who must always wash their hands with soap and water when using the bathroom and clean the toilet basin, keeping it with the lid closed. For disinfection of the sink and other surfaces, sanitize it with alcohol, bleach or any other product recommended by the National Agency for Sanitary Surveillance (Anvisa) (BRASIL, 2020b) (Chart 3).

Chart 3: Scale of values of inhabitants per bathroom

Number of inhabitants	Scale
1 inhabitant	Great
2 inhabitants	Regular
3 inhabitants	Bad
More than 3 inhabitants	Very bad

Source: Authors (2021)

In the housing types, the quality of lighting and ventilation, the number of inhabitants per residence, the number of inhabitants per bedroom, and the degree of satisfaction with the dwelling will be analyzed.

For the analysis of the number of inhabitants per room, the parameters proposed by Salcedo (2007) will be used (Chart 4).

Chart 4: Scale of values of inhabitants per dormitory

Number of inhabitants	Scale
1 inhabitant	Great
2 inhabitants	Good
3 inhabitants	Regular
More than 3 inhabitants	Bad

Source: Salcedo (2007) organized by the authors

3.2.2 Residents' perception of housing

In order to know the social characteristics and the residents´ perception about housing, a questionnaire was applied in the presence of the researcher.

For the sampling, ten families were randomly selected; the number was sufficient since according to Rheingants (et al. 2009), a sufficient number of people should be interviewed to get a pattern of what they do. As the answers kept repeating themselves, it was found that this number was sufficient. The survey was conducted in May 2021, when only 10% of the Brazilian population had taken the second dose of the covid-19 vaccine, including the researcher who had not yet been vaccinated at all. Thus, respecting the isolation norms and with sufficient results, the researcher chose to interview only these families.

4 RESULTS AND DISCUSSION

4.1 Context: Gimenes-Benone-Marco Guerrero Housing Complex

The context studied is the region comprised by the Benone Soares and Marco Guerrero housing complexes in Penápolis-SP (Figure 1).

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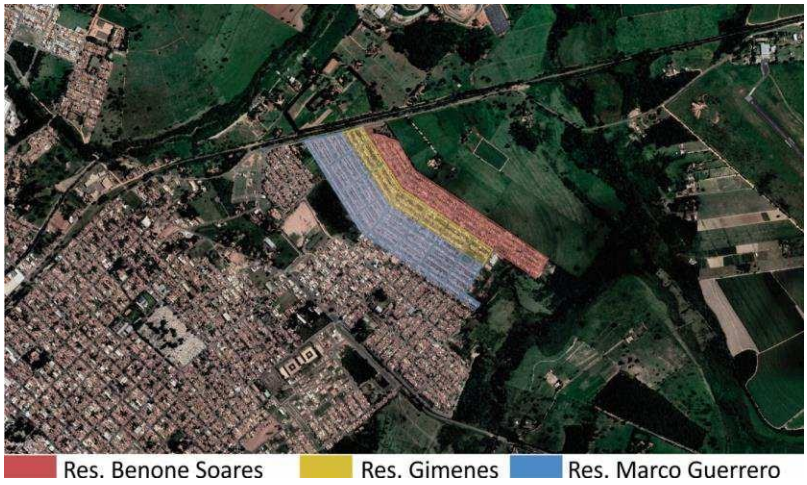
Figure 1: Location of each of the housing complexes

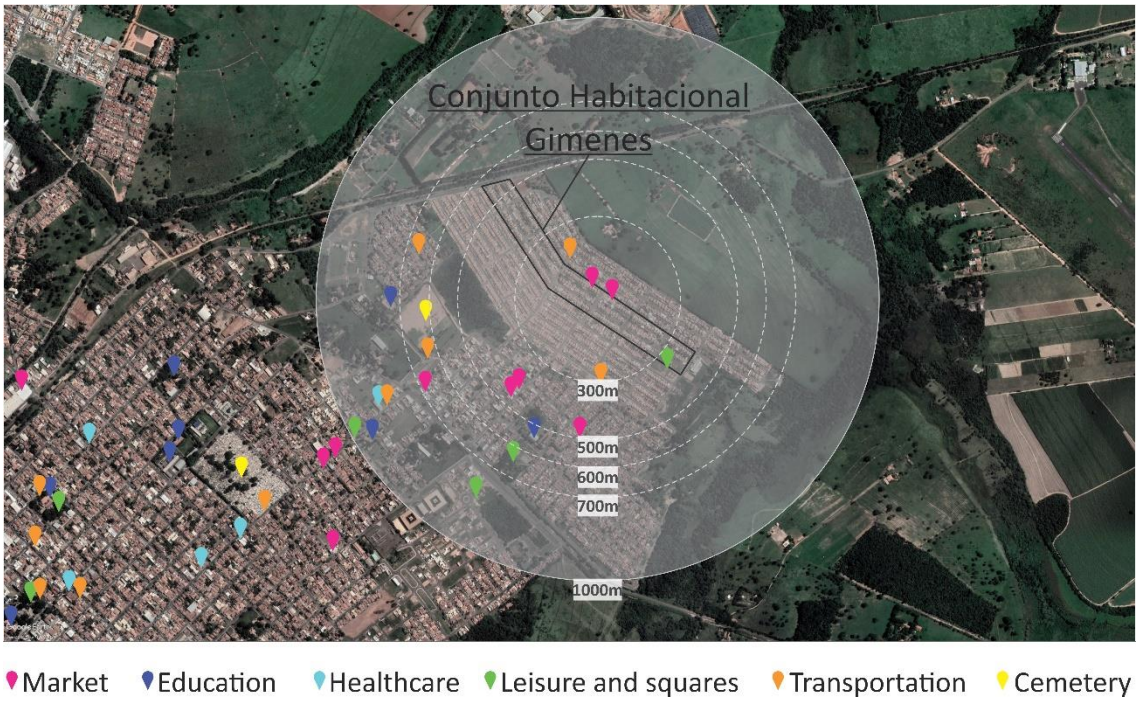


Source: Google Maps, organized by the authors (2021)

The analysis of the urban and environmental viability of Gimenes Housing Complex was performed according to the radius of influence of the equipment defined by Pitts (2004).

Urban viability: Gimenes Housing Complex is located 3.1 km from the commercial center and 4.6 km from the industrial center, which makes it unfeasible for residents to walk to these areas. Through this study, it is possible to notice that there is a great demand for local markets and grocery stores. As for pharmacies, there are none; the only health equipment in this radius was the local Basic Health Unit (UBS). The only two cemeteries in the city are located near the neighborhood, one of them within the radius. There are no schools in the neighborhood, but within 1km there are three public institutions, namely daycare centers and state schools. With in the neighborhood there is one bus stop, but along the radius there are others (Figure 02) (Chart 5).

Figure 2: Rays of influence



Source: Google Maps, organized by the authors

Table 5: Analysis of urban equipment

Criterion for Analysis	Neighborhood Ambience
Equipment for Education in 300m	Does not meet
Public transport in 500 m	Okay.
Health equipment in 1000m	Okay.
Market and grocery store in 700m	Okay.
Pharmacy in 700 m	Does not meet

Environmental feasibility: There is almost no presence of green spaces, which damages the air quality in the neighborhood. The only square located in the neighborhood does not have the presence of vegetation, and the equipment is exposed to the sun (Figure 3), driving the population away and leading them to attend parks and squares in central areas of the city, generating agglomerations in these spaces, which in pandemic periods becomes a high-risk area (Chart 6).

Figure 3: Rays of influence

Source: Authors (2021)

Chart 6: Environmental feasibility analysis

Criterion for Analysis	Neighborhood Ambience
Squares, parks in 600 m of quallity	Does not meet

Public spaces can contribute to the population' s well-being in face of the pandemic. However, they should not be agglomerative. Neca & Rechia (2020), certify that the unbridled concentration in central public spaces can generate agglomerations. The ideal would be to provide good local public spaces so that the population will again frequent spaces in the proximity of their homes, thus avoiding agglomerations.

4.2 Text: Housing types in the Gimenes Housing Complex and residents' perception

Gimenes Housing Complex was inaugurated in 2014 during the administration of Mayor Célio de Oliveira, meeting a demand of 234 families. Initially, the area was not consolidated, being completely remote from the city.

4.2.1 Housing Configuration

The housing types in Gimenes Housing Complex were analyzed according to the parameters established according to the Ministry of Health (Brazil, 2020) for each room and the number of inhabitants per bedroom (SALCEDO, 2007).

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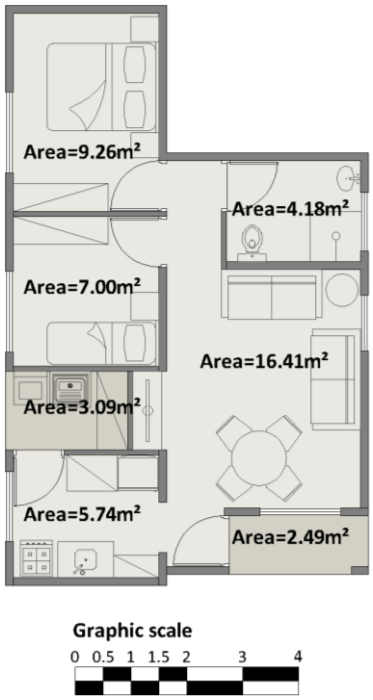
ISSN eletrônico 2318-8472, volume 10, número 79, 2022

Figure 4: Housing type of the Gimenes Housing Complex



Family composition by dwelling

Family composition is another indicator to analyze whether the dwelling meets the conditions for home isolation proposed by the Ministry of Health (BRASIL, 2020). A considerable percentage of the houses, 30%, are inhabited by families with 5 or 6 members. In the case of two-bedroom houses, the housing becomes bad, since the person with covid19 occupies one bedroom and the other 4 or 5 people are confined to one bedroom.

Chart 7: Composition family

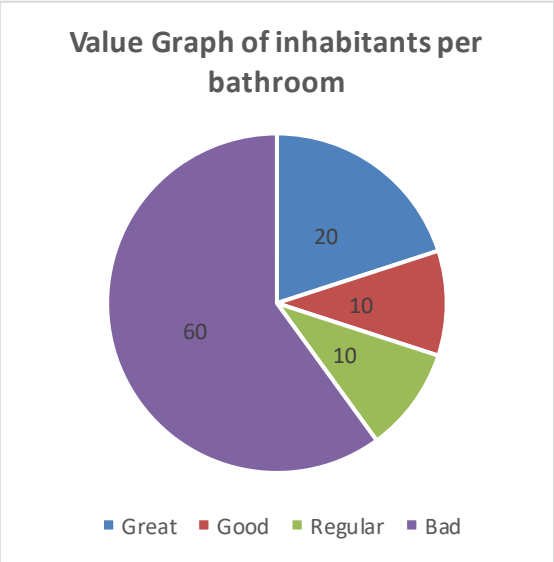
Number of Inhabitants	Percentage of households
01 inhabitant	20% of households
02 inhabitants	10% of households
03 inhabitants	10% of households
04 inhabitants	30% of households
05 inhabitants	10% of households
06 inhabitants	20% of households

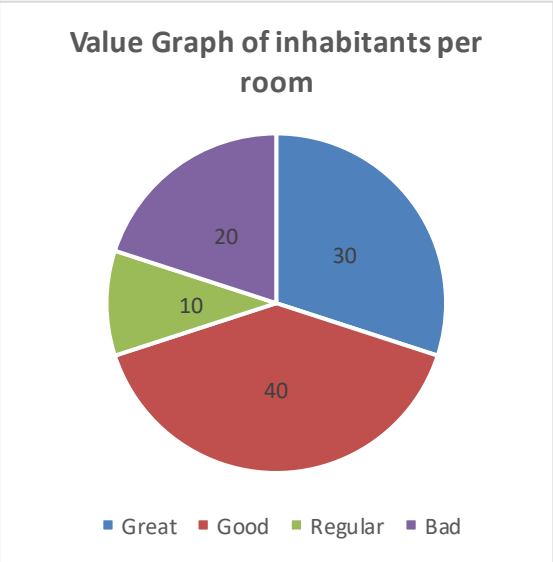
The recommendations of the Ministry of Health regarding kitchen, living room, laundry room and other rooms are only for sanitation of these environments. Therefore, regardless of the number of inhabitants, they meet the recommendations, since the Covid-19 patient will only use the bedroom and bathroom, the critical environments in this analysis.

The bathroom and bedrooms were the environments considered critical, thus, they were analyzed separately. Most of the bedrooms (40%) are good, as they accommodate up to 2 people; equally important are the bad bedrooms (20%) that accommodate more than 5 people. On the other hand, 60% of the bathrooms are bad, since a single bathroom is shared by more than 4 people.

As for the level of satisfaction with the housing, 70% consider it good, and 10% excellent.

The 20% who consider it bad or very bad, state that it is due to the residence´s size, which they consider too small. In relation to the number of inhabitants per room, in 80% of the houses sleep 01 or 02 people, including couples and siblings, so, according to Salcedo's (2007) Table 3, it should be considered excellent or good. One family has 3 people and another has more than 3 people, which are regular and bad, respectively.





4.2.2 Users' perceptions

During the horizontal isolation many people started to do home office work and students started to take online classes. The Brazilian Association of Technical Standards (ABNT) requires that in areas for study, reading, and work there should be at least 1/5 of the floor area of natural lighting and ventilation with half of that area. When asked about the lighting and ventilation in each room, the answers were (Charts 4 and 5). All the room types in the dwelling have between excellent and good lighting, as well as excellent, good, and regular ventilation, necessary for ventilation and air circulation in covid19.

Chart 8: Illumination by type of room

Type of room	Responses to the lighting			
	Great	Good	Regular	Bad
Kitchen	30%	70%	—	—
Living Room	20%	80%	—	—
Dormitories	30%	70%	—	—
Bathroom	30%	70%	—	—
Laundry	30%	70%	—	—

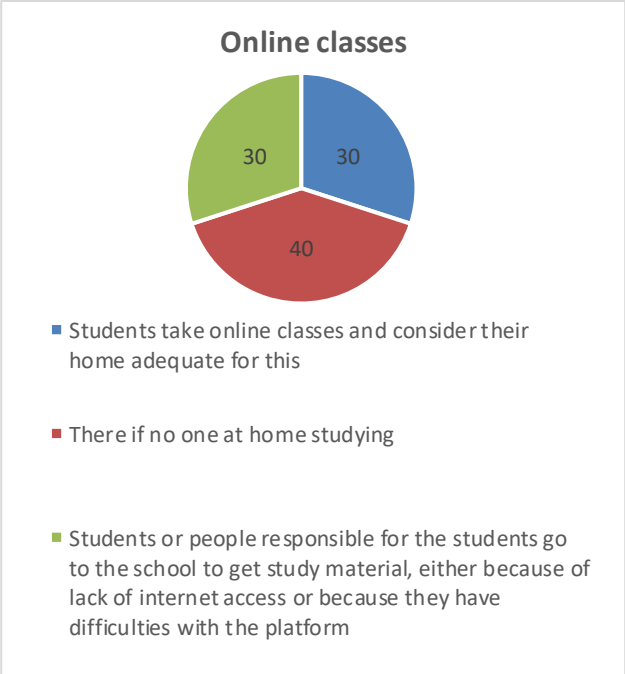
Chart 9: Ventilation by type of room

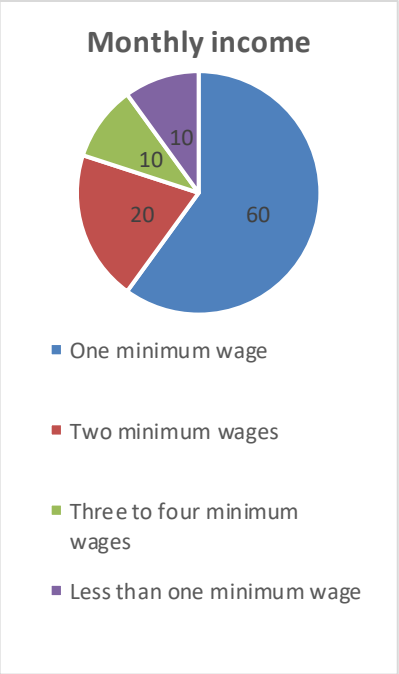
Type of room	Responses to the ventilation			
	Great	Good	Regular	Bad
Kitchen	20%	50%	30%	—
Living Room	20%	50%	30%	—
Dormitories	20%	40%	20%	20%
Bathroom	10%	40%	50%	—
Laundry	10%	40%	40%	10%

Social Viability: All the families interviewed affirmed that they isolate socially, leaving home only to work and do basic shopping (groceries and medicine). Only 10% of the interviewed families worked in a home office model, and from this experience, they found that the residence does not have adequate space for this function.

Among the families interviewed, 10% had some case of Covid-19 infection. Even without the isolation of patients per room made possible, there was no contamination among residents.

Regarding online classes, be they regular or higher education, most of the interviewees did not study, as indicated in the graph below.





Most families (60%) have a monthly income of one minimum wage. For the prevention and treatment of covid, it is necessary to constantly use alcohol to disinfect the products that arrive at home, constantly wash hands with soap and wear a mask when leaving the house or receiving people who are not part of the family. The minimum wage is only enough to buy food to support the family, and there is no money left over to buy soap, masks, and alcohol.

Urban Viability: When asked about the viability of access to workplaces and public services, all the interviewed families claimed to go to the Basic Health Unit of the neighborhood, on foot. In contrast, 60% of the interviewees do not work near their homes, most of them commuting to work by bus or bicycle.

Despite the significant number of grocery stores nearby, 60% of the interviewees are unable to make their monthly grocery purchases in the neighborhood, depending mostly on the use of private cars to commute.

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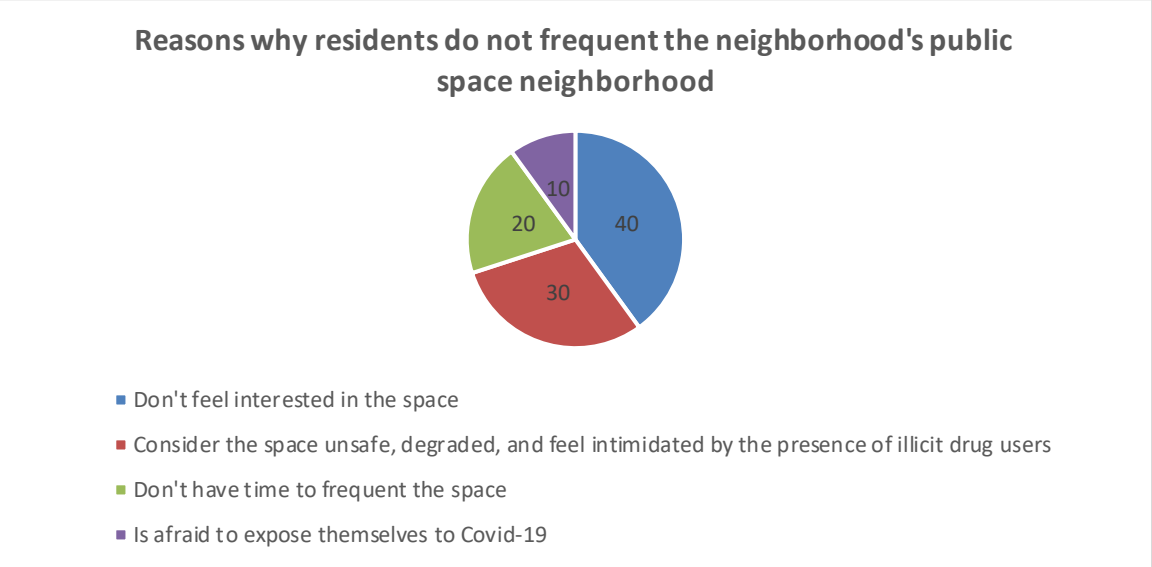
Environmental Viability: 100% of the interviewees do not make use of the neighborhood public space, 30% say it is an unsafe place, depredated and that there is the presence of drug users. 40% say they have no interest in frequenting it or have never attended. 20% don't frequent it because of lack of time and 10% don't go for fear of infection from Covid-19.

All the families interviewed affirmed that they don't frequent the neighborhood's public spaces. Although a small portion attributes this to fear of infection from Covid-19, most of the population feels unsafe or uninterested in the space.



5 CONCLUSIONS

After the analysis of Gimenes Housing Complex according to the types of housing, perception of residents and their relationship with their Context, we identified that in the Context there is no urban viability due to insufficient equipment and collective services

necessary for housing quality and urban quality. The health center is located more than 700m away and the schools are more than 500m away, there are few squares and no pharmacy. In addition, the only public space is not used by the residents because it is not of good quality, not meeting the criteria for environmental viability.

Regarding the Text, the type of housing (residence with two bedrooms, one bathroom, living room, kitchen, laundry room) does not meet the recommendations of the Ministry of Health for social isolation for most families. Since most families have four members, in case of contagion by covid-19, it is not possible to isolate the person meeting the recommendations of the Ministry of Health. Therefore, the text does not meet the parameters of social viability.

The types of social housing should be in function of the family composition. There is a necessity for residences with three bedrooms and/or two bathrooms, and the spaces must be flexible and easy to adapt to exceptional conditions, such as a pandemic.

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