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Predictors of residential environment stress during social distancing in the pandemic caused by the SARS-CoV-2 virus

Preditores de estresse ambiental domiciliar durante o distanciamento social na pandemia causada pelo vírus SARS-CoV-2

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Abstract

The Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-CoV-2) coronavirus pandemic and social distancing caused impacts on people's health, among them, environmental stress – a set of objective and subjective reactions that occur when people face negative environmental influences. The objective was to investigate variables associated with residential environment stress during the pandemic in Brazil. An online survey was carried out with 2000 Brazilians with a mean age of 38.7 years (*SD* = 14.55), 76.80% of whom were women. The results showed that 81.90% (*f* = 1,639) of the sample had some level of environmental stress, predicted by geographic region (Brazil's northern and northeastern

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regions), lower income, lower residential quality scores, and absence of a restorative environment. It is then concluded the identification of some negative and positive environmental factors associated with environmental stress, which may assist in the implementation of policies for coping with 2019 Coronavirus Disease (COVID-19) and promoting mental health in the pandemic context.

Keywords: Environmental psychology; Mental health; Psychological stress; Public health; Social isolation.

Resumo

A pandemia causada pelo Coronavírus da Síndrome Respiratória Aguda Grave 2 (SARS-CoV-2) e o distanciamento social causaram impactos sobre a saúde das pessoas. Dentre eles tem-se o estresse ambiental, compreendido como um conjunto de reações objetivas e subjetivas que ocorrem quando as pessoas enfrentam influências negativas presentes no ambiente. Objetivou-se investigar variáveis associadas ao estresse ambiental domiciliar durante a pandemia de coronavírus no Brasil. Para isso, realizou-se uma pesquisa online com 2000 brasileiros com idade média 38,7 anos (DP = 14,55), sendo que 76,80% eram mulheres. Os resultados mostraram que 81,90% (f = 1.639) da amostra apresentaram algum nível de estresse ambiental, que foi predito pela região geográfica (norte e nordeste brasileiro), menor renda, menor avaliação da qualidade residencial e a falta de um ambiente restaurador na casa. Conclui-se com a identificação de alguns fatores ambientais negativos e positivos associados ao estresse ambiental, que pode auxiliar na implementação de políticas para o enfrentamento da Doença por Coronavírus-19 (COVID-19) e promoção de saúde mental no contexto da pandemia.

Palavras-chave: *Psicologia ambiental; Saúde mental; Estresse psicológico; Saúde pública; Isolamento social.*

Starting in China, the 2019 Coronavirus Disease epidemic (COVID-19), caused by the new Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-CoV-2) rapidly advanced as an unprecedented pandemic, causing the World Health Organization (WHO) to declare it an international public health emergency on January 23, 2020. And just over a month later, on March 11, 2020, the COVID-19 epidemic was officially declared a pandemic (Mahase, 2020).

In a few weeks, most of the world's population found itself in a scenario of uncertainties and health – and life – threatening on a personal and collective level. In addition, there was an economic crisis in different countries, with an immediate drop in family income and an increase in unemployment rates (Fernandez-Urbano & Kulic, 2020). And, to contain the disease, governments and health institutions have implemented social distancing and isolation, which has caused changes in work and study organization, means of transport, leisure activities, and family life relationships (Faro et al., 2020).

At the end of 2020, Brazil surpassed the mark of 8 million confirmed cases of COVID-19 and more than 200,000 deaths (World Health Organization [WHO], 2020a). The national health and humanitarian crisis was exacerbated by the historical social inequality and the existence of inequities in public health services, added to the political and economic crisis (Garbois et al., 2017). The disclosure of contradictory information about the pandemic by public authorities also generated insecurity, confusion, and stress in the Brazilian population (Bavel et al., 2020; Naeem & Bhatti, 2020). Consequently, the lack of alignment between scientific knowledge and the public administration hampered adherence to health measures and influenced the number of contagions and deaths (The Lancet, 2020; WHO, 2020b, 2020c). Another obstacle is the lack of consensus between the executive branch at the federal, state, and local levels in various regions of the country, in addition to the lack of agile and effective social policies to ensure the people's income, physical integrity and dignity (Bavel et al., 2020; Do Bú et al., 2020; Usher et al., 2020).

Going beyond the limits of a physical health problem, during this pandemic, the international literature has shown a significant increase in negative feelings, perception of risk, and avoidance of social contact (Duan & Zhu, 2020), as well as an increased incidence of depression, stress, and anxiety (Enumo et al., 2020; Faro et al., 2020; Maia & Dias, 2020). The effects of stress tend to become chronic in public health crises,

even after hospital discharge, and an epidemic of Post-Traumatic Stress Disorder is also expected, especially among risk groups, health professionals, and those who witnessed people dying (Duan & Zhu, 2020; Usher et al, 2020; Webb, 2020).

The effects of the pandemic are the subject of a study in Health Psychology, which aims to understand how biological, behavioral, and social factors influence health and disease processes (Soares & Macedo, 2020). One of its topics of interest, health promotion, is also crossed by the interrelationships between people and the environment, which is an object of study in Environmental Psychology; an interdisciplinary area that dialogues with several other fields, such as Health, Education, Administration, Anthropology, Architecture, Law, Economics, Geography, History, Psychology, and Sociology (Elali, 1997; Elali & Peluso, 2017).

For Environmental Psychology, the concept of environment goes beyond the physical aspects and includes: socioeconomic, historical and political conditions, the cultural context, and the affective and symbolic fields. All these dimensions are present in the concept, they cross and constitute it. From a practical point of view, they are examples of environmental components; buildings, landscapes (natural and/or manmade); objects; people; emotions; affections; meanings and other symbolic elements that interest the researcher, both from an individual and collective point of view. All these elements form an inseparable unity and influence each other in a dynamic and dynamic way. Thus, the change in one part influences the others (Campos-de-Carvalho et al., 2017; Ittelson et al., 1974; Rivlin, 2003).

Residential environment was the theme of this research, due to its relevance during the period of social distancing; main strategy for controlling the COVID-19 pandemic. The "residence" concept was used in this research as a reference to the residential environment due to its popularity. In this way, the term is used regardless of the type of building. The residence is associated with the subjective construction of its inhabitants, as it is crossed by affections, social and biographical memories, very intimate identity constructions, linked to the understanding of oneself and one's place in the world (Altman, 1977; Carvalho & Cornejo, 2018). It has universal human relevance and is an important element in promoting health and dignity, in addition to its physical dimension (Carvalho & Cornejo, 2018).

The residence was assessed in terms of environmental stress, a concept that means the set of objective and subjective reactions that occur when people face negative influences present in the environment (Günther & Fragelli, 2017). The consequences of environmental stress are manifested in several ways, such as avoidance of social contact, irritability, the worsening of their academic performance, and damage to physical and mental health (Bilotta et al., 2018).

During the pandemic period, the residence became a multifunctional space, grouping several roles previously shared with other environments such as: working and studying or having leisure and resting. This accumulation of functions causes perceptual confusion and becomes a stressor. Likewise, the constant and simultaneous presence of all its residents generates the sensation of crowding, understood as an environmentally stressful experience, which arises when an individual's spatial preferences are frustrated, and he or she feels uncomfortable with the people present in the same place (Stokols, 1972). The sensation of crowding is related to the compromise of privacy: the person's condition to separate from others to regulate physical access and information about themselves (Altman, 1977). In the situation of social distancing, the fact that this sensation of crowding occurs in an important and intimate environment, such as the residence, makes its effects more intense, persistent, and difficult to adapt (Bilotta et al., 2018; Pinheiro & Elali, 2017).

One of the ways to relieve environmental tensions and stress is to have, in their residences, what Environmental Psychology calls restorative environments (Barreto et al., 2019; Bernardes & Vergara, 2017). These are opposed to the factors that produce environmental stress, as they provide pleasant, non-threatening stimuli and conditions, and the feeling of control to the individual, enabling recovery from stress at the physiological, emotional, and cognitive levels (Alves, 2011; Ulrich et al., 1991). In addition to an adequate

spatial arrangement, a restorative environment allows its occupant to regulate the sensation of crowding and privacy (Altman, 1977; Pinheiro & Elali, 2017).

Understanding the relationship between residential and environmental stress becomes even more relevant when sanitary guidelines during the pandemic tell people to stay in this environment as long as possible, and to keep it constantly sanitized. The adoption of these behaviors is an important factor to contain the pandemic, justifying the relevance of the dialogue between Health Psychology and Environmental Psychology to study the theme. Thus, this study aimed to identify and analyze the variables associated with and predictive of residential environment stress during social distancing in the pandemic. Its results can feed national and international scientific databases and subsidize government and health institutions in the planning of protection and care actions in mental health during social isolation and distancing.

Method

This is a descriptive, cross-sectional study, with a quantitative approach and a national survey. Through this type of research, the phenomenon can be described from direct questioning, covering a range of participants.

Participants

A non-probabilistic convenience sample composed of 2,000 participants, representative of the Brazilian population, with a 95% confidence level, a sampling error of 5%, and an 80/20 degree of homogeneity. Inclusion criteria were: being Brazilian and over 18 years of age. About the exclusion criteria: no internet access, and/or being illiterate, or not having support for reading and answering the questionnaire.

Among the biodemographic data, it was observed that most of the participants were women (*f* = 1,538; 76.80), with a mean age of 38.69 years of age (*SD* = 14.55). There were participants from different regions of the country: Northeasterners (*f* = 1,078; 53.90%), Southeasterners (*f* = 453; 22.65%), Southerners (*f* = 350; 17.50%), Northerners (*f* = 81; 4.05%) and Midwesterners (*f* = 38; 01.90%). Regarding education, most had graduate degrees (master's, doctorate or specialization) (*f* = 941; 47.10%) and lived with 3 to 4 people (*f* = 946; 47.40%). In addition, the highest percentage of income reported by the participants was in the "above 5,000 reais" option (*f* = 718; 35.90%).

Instruments

Two instruments were used. The first was a sociodemographic questionnaire, which addressed questions about sex, age, education, family income, and adherence to the request for social distancing to contain the pandemic. The second instrument was a questionnaire to assess people's interpersonal relationships within their residences. This was composed of four closed questions that addressed: 1) the number of people with whom the participant lived in the context of social isolation, with three possibilities of response – 1 to 2 people, 3 to 4 people, or more than 4 people; 2) the residential quality assessment in terms of meeting the needs generated by the social isolation, which can be rated as very bad, bad, satisfactory, or excellent; 3) the level of environmental stress, which could be classified among three options – no stress, little stress, and a lot of stress; and 4) the existence of restorative environments in the residence, questioning whether there was a space in the residence that is special and that helps to face the situation of social isolation, such as a place of prayer, meditation, a garden, or a yard, in which could be answered with the presence or absence of these environments.

Procedures

With respect to ethical aspects for research involving human beings, the present research was approved by the Research Ethics Committee of the Universidade de Fortaleza (University of Fortaleza), opinion nº 4.014.996. Then, the instrument was made available on the internet, together with the Informed Consent Form, through a specific page and in the private domain. The study was promoted in social networks, newspaper reports, and digital portals for 15 days (8-22 May/2020). After the publication of the study, people who follow the posts in these media were able to autonomously enter the questionnaire and answer it individually, which is self-administered and anonymous, with a mean duration of 15 minutes. It is noteworthy that the ethical aspects required by Resolution nº 466/12 and nº 510/16 of the National Health Council were respected.

The data were analyzed in four stages with the aid of the SPSS software (version 25). First, the profile of the sample was drawn by means of descriptive statistics (frequency, percentage and measures of central tendency, and dispersion). Then, for the presentation of the results, a descriptive analysis of the closed questions was carried out.

In the third stage, comparisons were made using the means of the environmental stress scores between different groups based on data on the number of people in the same residence, residential quality assessment, existence of restorative environments and different bio-demographic data: sex, age, education, income, and adherence to social isolation. Comparisons were also made from the mean scores of the residential quality assessment as a result of the existence of restorative environments and different bio-demographic data: sex, age, education, income, and adherence to social isolation. It is noteworthy that all variables were not normal, from the Shapiro-Wilk test: number of people in the residence ($W = 0.79$; $p < 0.05$), residential quality ($W = 0.28$; $p < 0.05$), environmental stress ($W = 0.79$; $p < 0.05$), existence of a restorative environment in the residence ($W = 0.78$; $p < 0.05$). Therefore, Mann-Whitney and Kruskal-Wallis non-parametric tests were used.

In the fourth stage of the analysis, to investigate whether there would be predictors of environmental stress, two analyzes of binary logistic regression were performed. Initially, environmental stress was taken as a dependent variable, rated with three response options (no stress, little stress, and a lot of stress), later being treated as a binary variable, indicating the absence of environmental stress or the presence of environmental stress. In a second step, the independent variables considered in both analyzes were: educational level, regions of the country, monthly income, sex (male or female), residential assessment (negative or positive), and special space (restorative environment). It is noteworthy that, in order to make the analysis possible, there was a reconfiguration of the educational level variable, which considered "basic education (Elementary – High School)" and "professional education (higher education and graduate programs)". In the same way, the region of the country variable, in which the participant could choose one of the five geographic regions of Brazil, Northern and Northeastern regions were grouped together, with the other regions of the country in a second group. The monthly income variable was also reconfigured, being divided into "monthly income up to BRL 1,000" and "monthly income above BRL 1,000". These reconfigurations were made based on the sample profile.

Results

In assessing the level of environmental stress caused by spending so long without leaving the residence while in social distancing, it was found that 18% ($f = 361$) of the respondents were not stressed, 56.30% ($f = 1,127$) had little stress and 25.60% ($f = 512$) had a lot of stress. In assessing the residential quality where the participants were during the COVID-19 pandemic, regarding aspects of size, ventilation, room divisions, green and open spaces, and security, 93% ($f = 1,860$) of the sample gave it positive ratings (adding the "Satisfactory" and "Excellent" answers) and 7% ($f = 140$) gave it negative ratings (adding the "Very Bad"

and "Bad" answers). When rating the existence of restorative environments (place of prayer, meditation, a garden, a yard...), it was found that 68.80% (f = 1,375) of the participants had it and 31.20% (f = 652) claimed not to have such space.

Subsequently, comparisons of the environmental stress score indices between groups were performed based on data on the number of people in the same residence, the residential quality assessment, and the existence of restorative environments in the residence. It was found that there is a statistically significant difference in the level of environmental stress related to the number of people in isolation in the same residence ([$\chi^2(2) = 37.05$; $p < 0.001$]). Participants who had the least number of people in isolation with them in the residence (1 or 2 people) had less stress than those who were with more people (Table 1).

There is a statistically significant difference in the levels of environmental stress due to the residential quality (U = 76622, 500; $p < 0.001$). The group that gave it positive ratings had a lower rate of environmental stress. There was also a statistically significant difference in the levels of environmental stress due to the existence of a restorative environment (U = 379557,500; $p < 0.001$). Participants who had these environments in their residences also had lower levels of environmental stress than participants who did not have them (Table 1).

In addition, it was possible to make comparisons of the level of environmental stress from some sociodemographic variables. There were no significant differences in the comparisons by groups according to sex, educational level, and level of social distancing. However, there was a statistically significant difference in comparisons by region of the country and income. It was observed that environmental stress was greater in the Northeastern region and that individuals with no income or income below BRL 1,000 tend to have greater environmental stress (Table 1).

Table 1
Comparison of environmental stress scores as a function of biodemographic data

Variable	Distribution			
	M	*SD*	*Mdn*	IR
Comparison of ES* rates by the number of people in the same residence [$\chi^2(2) = 37.05$; $p < 0.001$]				
1 or 2 people	1.96	0.63	2.00	0.00
3 or 4 people	2.14	0.66	2.00	1.00
4 or more people	2.15	0.65	2.00	1.00
Comparison of ES* rates by residential quality scores (U = 76622.500; $p < 0.001$)				
Positive assessment	2.03	0.54	2.00	0.00
Negative assessment	2.55	0.65	3.00	1.00
Comparison of ES rates by the existence of a restorative environment (U = 379557.500; $p < 0.001$)				
The person has a restorative environment	2.02	0.67	2.00	0.00
The person does not have a restorative environment	2.17	0.64	2.00	1.00
Comparison of ES rates by region of Brazil [$\chi^2(4) = 14,193$; $p < 0,001$]				
Northeastern	2.12	0.65	2.00	1.00
Northern	2.11	0.78	2.00	1.75
Midwestern	2.00	0.72	2.00	1.50
Southeastern	2.00	0.66	2.00	0.00
Southern	2.03	0.62	2.00	0.00
Comparison of ES rates by monthly income [$\chi^2(6) = 48.979$; $p < 0.001$]				
The person has no income	2.29	0.04	2.00	1.00
Up to BRL 1000	2.16	0.05	2.00	1.00
From BRL 1001 to BRL 2000	2.10	0.03	2.00	1.00
From BRL 2001 to BRL 3000	2.09	0.03	2.00	2.00
From BRL 3001 to BRL 4000	2.04	0.04	2.00	1.00
From BRL 4001 to BRL 5000	2.06	0.05	2.00	1.00
Above BRL 5000	1.97	0.02	2.00	0.00

Note: BRL: Brazilian Real; ES: Environmental Stress; IR: Interquartile Range; Mdn: Median; U: Mann-Whitney Statistic.

Subsequently, comparisons of the differences in the residential assessment scores between groups were performed, according to different data: existence of restorative environments in the residence and some sociodemographic variables. The differences in comparisons between sex, region of the country, and level of isolation are not significant.

It was found that there is a statistically significant difference in the scores of the residential quality assessment between the participants who had or not a restorative environment in their residences (U = 323840,000; $p < 0.001$). Participants who claimed to have a "special place" in their residences had better scores in the residential quality assessment (Table 2).

It was observed that there is a statistically significant difference in the residential quality assessment between the groups of participants of different educational levels ([$\chi^2(9) = 47.648$; $p < 0.001$]). Participants with a higher educational level had better scores in the residential assessment (Table 2).

Table 2
Comparison of residential quality assessment scores between groups of different sociodemographic variables

Variable	Distribution			
	M	*SD*	*Mdn*	IR
Comparison of residential assessment scores according to the existence of a restorative environment (U = 323840.000; $p < 0.001$)				
The person has a restorative environment	3.47	0.70	4.00	1.00
The person does not have a restorative environment	3.15	0.58	3.00	1.00
Comparison of residential quality assessment scores by educational level [$\chi^2(9) = 47.648$; $p < 0.001$]				
Graduate degree	3.45	0.20	4.00	1.00
College degree	3.36	0.26	3.00	1.00
High school degree	3.19	0.06	3.00	1.00
Comparison of residential quality scores by income [$\chi^2(6) = 48.979$; $p < 0.001$]				
Up to BRL 1000	3.14	0.06	3.00	1.00
From BRL 1001 to BRL 2000	3.22	0.04	3.00	1.00
From BRL 2001 to BRL 3000	3.31	0.03	3.00	1.00
From BRL 3001 to BRL 4000	3.41	0.04	3.00	1.00
From BRL 4001 to BRL 5000	3.34	0.04	3.00	1.00
Above BRL 5000	3.52	0.02	4.00	1.00

Note: BRL: Brazilian Real; IR: Interquartile range; Mdn: Median; U: Mann-Whitney Statistic.

It was also found that there is a statistically significant difference in the residential quality assessment between the groups with different incomes ([$\chi^2(9) = 47.648$; $p < 0.001$]). It was possible to verify that the participants with a higher family income had a better residential quality assessment.

To investigate whether there would be predictors of environmental stress, two binary logistic regression analyzes were performed. In the first logistic regression analysis, we sought to verify which are the predictors of environmental stress, considering the absence or presence of environmental stress. The model found was rated as statistically significant [$\chi^2(6) = 55.118$; $p < 0.001$, R^2 Nagelkerke = 0.044]. In relation to the others, the region of the country variable was a significant predictor variable ($p < 0.05$; Odds Ratio (OR) = 0.771; 95% CI = 0.611 –0.974), as well as income ($p < 0.05$; OR = 0.620; 95% CI = 0.442 -0.871) and residential assessment ($p < 0.001$; OR = 0.103; 95% CI = 0.032 – 0.326). The independent variables referring to sex, educational level, and special space were excluded from the analysis. Based on the results of the analysis, it can be inferred that participants living in the Northern and Northeastern regions had a 22.90% higher chance of having environmental stress than those in other regions, and participants with an income below BRL 1,000 had 38.00% more chance of having environmental stress than those who had higher incomes. Participants who gave negative ratings to their residences were 89.70% more likely to experience environmental stress than participants who gave positive ratings to their residences (Table 3).

The second logistic regression was performed to verify which were the specific predictors of the presence of environmental stress considering its low or high level. The model was rated as statistically significant [$\chi^2(6) = 92.907$; $p < 0.001$, R^2 Nagelkerke = 0.077]. The region of the country was a significant predictor variable ($p < 0.001$; (OR) = 0.726; 95% CI = 0.581 – 0.907), as well as income ($p < 0.001$; OR = 0.605; 95% CI = 0.466 – 0.786), residential assessment ($p < 0.001$; OR = 0.328; 95% CI = 0.277 – 0.476) and, specifically in this analysis, special space ($p < 0.001$; OR = 1.532; CI 95% = 1.217 – 1.929) (Table 4). The independent variables referring to sex and educational level were excluded from the analysis. Through the results, it was found that Northerners and Northeasterners had 27.40% more chance of having high environmental stress than participants from other regions, and participants who had an income below BRL 1,000 had 39.50% more chance of having high environmental stress than those who had higher incomes. It was found that participants who gave positive ratings to their residences had 67.20% more chance of having low environmental stress than participants who gave negative ratings to their residences. As for having a special space (restorative environment), it was found that the participants who had this place in their residences were 53.20% more likely to have low stress than the participants who did not have a special space (Table 4).

Table 3
Logistic regression considering the absence or presence of environmental stress as a dependent variable

Variables	*P*	*OR*	95% CI
Region of Brazil	0.029	0.771	0.611 – 0.974
Monthly income	0.006	0.620	0.442 – 0.871
Residential quality scores	0.000	0.103	0.032 – 0.326

Note: 95% CI: Confidence Interval; OR: Odds Ratio; P: Significance level.

Table 4
Logistic regression considering little or a lot of environmental stress as a dependent variable

Variables	*P*	*OR*	95% CI
Region of Brazil	0.005	0.726	0.581 – 0.907
Monthly income	0.000	0.605	0.466 – 0.786
Residential quality scores	0.000	0.328	0.227 – 0.476
Special space	0.000	1.532	1.217 – 1.929

Note: 95% CI: Confidence Interval; OR: Odds Ratio; P: Significance level.

Discussion

The present study presents contributions by identifying and analyzing variables associated with and predicting residential environment stress during social distancing in the COVID-19 pandemic.

In general, it was observed that there is a direct relationship between the level of environmental stress and the number of residents in the same household. In residences with a larger number of people, experiences were observed of limiting the possibility of distancing themselves from other residents when necessary. This event is related to the loss of privacy and generates the sensation of crowding (Altman, 1977). Furthermore, the need to reconcile the different routines, which causes a psychological burden for all residents and increases the level of environmental stress. Thus, it was identified that the residence has, in some cases, become a stressful environment (Günther & Fragelli, 2017).

There was an inverse relationship between environmental stress and three variables: residential quality perception, educational level, and monthly income of the participants. The more negative were their own perceptions of residential satisfaction, their income levels, and educational level, the greater the presence of environmental stress. Being a resident of the Northern and Northeastern regions of the country was also a factor associated with greater environmental stress. Thus, it is understood that residential satisfaction is greater when individual needs and characteristics of the physical environment are addressed, reducing the levels of pressure and environmental stress (Günther, 2017; Günther & Fragelli, 2017). This analysis reveals that the people who lived in residences assessed as precarious, a factor linked to a lower income and educational level, had worse conditions in the different social determinants of health, being more vulnerable to environmental stress and psychic illness (Garbois et al., 2017).

It was found that the existence of restorative environments in the residences is directly related to greater residential satisfaction and less environmental stress. The presence existence of restorative environments in the residences during social distancing reduces feelings of loss of autonomy and confinement (Bomfim et al., 2018; Felippe et al., 2020).

Conclusion

This study aimed to identify and analyze the variables associated with and predictive of residential environment stress during social distancing in the pandemic of COVID-19. Some aspects were evident when discussing the relationship between the individual and the residential environment in a situation of social distancing in Brazil during the pandemic: social distancing, with a long period of time inside the household, was a source of stress for most participants. It is assumed that stress occurs primarily due to mobility restrictions, the intensification of family life, caused by the experience of being confined for months at a time. The study data showed that the fewer people living in the residence, the less the environmental stress, suggesting that there is a greater possibility of managing personal space and privacy. It was also noticed that residential quality satisfaction is mainly defined by the existence of restorative environments and that having this type of residential environment reduces the level of environmental stress.

However, some limits have been identified in this study, with the most important one being the characteristics of the sample, since it is primarily composed of northeastern women with a college degree, which can lead to interpretive biases especially with regard to the aspect of income and the region. geography as predictors of environmental stress. However, it is noteworthy that the study innovates by trying to relate environmental stress and the residential environment during the pandemic. The continental dimension of Brazil and its social, economic, and environmental diversity makes it imperative to investigate the quality of the residential environment but requires different types of strategies for data collection and analysis. The present study presents an initial perspective for future research to address environmental stress.

It is highlighted the need for public health policies that take into account the regional context in the implementation of social assistance and health programs, giving importance to the physical and environmental condition of the residences. Policies that consider Brazil in a homogeneous way do not contemplate the different contexts of the country. Finally, it reinforces the importance of further contributions resulting from a dialogue between Health Psychology and Environmental Psychology to understand the effects of long periods of social distancing and confinement on the mental health of the population.

Contributors

K. P. M. FERREIRA and C. F. MELO were responsible for the study conception and design, data analysis and interpretation, and writing the article. M. D. OLIVEIRA, R. A. F. BARBOSA, R. A. MOURA, and I. M. COSTA collaborated

with data collection, data analysis, interpretation and discussion, and in the review of the final version of this article. Z. N. C. DELABRIDA was responsible for data analysis, interpretation and discussion, and reviewing the final version of this study.

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