

## Factors Associated with the Emotion of Sadness in Older Adults During the COVID-19 Pandemic

Fatores Associados à Emoção de Tristeza em Pessoas Idosas Durante a Pandemia da Covid-19

Factores Asociados a la Emoción de Triste en Adultos Mayores Durante la Pandemia del COVID-19

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### Abstract

Introduction: Measures of social restrictions can increase exposure time to the emotion of sadness, and during the COVID-19 pandemic, older adults were one of the main risk groups. Objective: To evaluate the factors associated with the emotion of sadness in older adults during the COVID-19 pandemic. Methods: The design is cross-sectional, and 133 older people enrolled in Primary Care in a city in the interior of the state of São Paulo participated. Data collection was conducted by telephone and included sociodemographic aspects, emotional health, and social support. For data analysis, Pearson's chi-square test and binary logistic regression model were used. Results: The results showed that sadness was associated with not receiving instrumental social support ( $p=0.01$ ), maintaining electronic social contact ( $p=0.01$ ), feelings of anguish ( $p=0.00$ ), and emotion of fear ( $p=0.01$ ). Conclusions: The results are interesting for directing emotional management interventions and promoting social relationships.

**Keywords:** social support, COVID-19, elderly, mental health, sadness

### Resumo

Introdução: Medidas de restrições sociais podem aumentar o tempo de exposição à emoção de tristeza, e na pandemia da covid-19, as pessoas idosas compuseram um dos principais grupos de risco. Objetivo: Avaliar os fatores associados à emoção da tristeza em pessoas idosas durante a pandemia da covid-19. Métodos: O delineamento é transversal, e participaram 133 pessoas idosas cadastradas na Atenção Básica de um município do interior do estado de São Paulo. A coleta de dados ocorreu por telefone e incluiu aspectos sociodemográficos, saúde emocional e apoio social. Para a análise dos dados, foram utilizados o teste qui-quadrado de Pearson e o modelo de regressão logística binária. Resultados: Os resultados mostraram que a tristeza esteve associada ao não recebimento de apoio social instrumental ( $p=0,01$ ), à manutenção do contato social eletrônico ( $p=0,01$ ), ao sentimento de angústia ( $p=0,00$ ) e à emoção do medo ( $p=0,01$ ). Conclusão: Os resultados são interessantes para direcionar intervenções de manejo emocional e de promoção das relações sociais.

**Palavras-chave:** apoio social, covid-19, idoso, saúde mental, tristeza

### Resumen

Introducción: Las medidas de restricción social pueden aumentar el tiempo de exposición a la emoción de la tristeza, y en la pandemia de la COVID-19, los ancianos fueron uno de los principales grupos de riesgo. Objetivo: Evaluar los factores asociados a la emoción de tristeza en adultos mayores durante la pandemia de COVID-19. Métodos: El diseño es transversal y participaron 133 ancianos matriculados en la Atención Primaria de un municipio del interior del estado de São Paulo. La recolección de datos se realizó por teléfono e incluyó aspectos sociodemográficos, de salud emocional y de apoyo social. Para el análisis de los datos, se utilizaron la prueba de chi-cuadrado de Pearson y el modelo de regresión logística binaria. Los resultados mostraron que la tristeza se asoció con no recibir apoyo social instrumental ( $p=0,01$ ), mantener contacto social electrónico ( $p=0,01$ ), sentimientos de angustia ( $p=0,00$ ) y emoción de miedo

( $p=0,01$ ). Conclusión: Los resultados son interesantes para orientar intervenciones de gestión emocional y para promover las relaciones sociales.

*Palabras clave:* apoyo social, COVID-19, anciano, salud mental, tristeza

## Introduction

The COVID-19 pandemic has exposed society to an unprecedented biopsychosocial health crisis. The main protective measures declared by the World Health Organization (WHO) were isolation and social distancing (Johnson et al.; 2024; World Health Organization, 2021), which are important in times of emergency to contain the virus, but also increase concerns about mental health, because they are risk factors for the exacerbation of mental problems (Koppner et al.; 2024; Holmes et al., 2020).

In the context of the COVID-19 pandemic, two literature review studies pointed out that older adults constituted the most vulnerable group to COVID-19 and also were more prone to mental health complications such as loneliness, sadness, anxiety, and depression (Bafail, 2022; Ahmadi et al., 2023). Older adults are the fastest-growing segment of the population, and aging is experienced in largely heterogeneous ways, permeated by social, economic, and cultural disparities. These differences are even more evident in developing countries, such as Brazil, where access to social and health services is unequal (Kalache et al., 2020).

A systematic literature review study evaluated 53 studies with the aim of verifying factors associated with depressive symptoms and sadness in the elderly during the COVID-19 pandemic. In addition to the factors already known before the pandemic, such as female gender, widowed, single or divorced marital status, low educational levels, feeling alone, having physical and/or cognitive limitations, other factors directly related to the pandemic phase were: high levels of stress, feeling vulnerable to COVID-19, fear of infecting other people, limited access to information about COVID-19, isolation/social distancing, and difficulties in receiving medical care and medications (Silva et al., 2023).

In Brazil, a study that assessed factors associated with symptoms of depression and anxiety in 380 Brazilians older adults during the COVID-19 pandemic found that those who were physically inactive, spent more time in social isolation, and rarely received social support from friends/family were more likely to experience symptoms of depression and anxiety (Andrade et al., 2021).

Several studies highlight the potential vulnerability of older adults to feelings of sadness, loneliness, depression, and loss of social support (Barreto et al., 2020; Bu et al., 2020; Vasconcelos et al., 2020). And other investigations showed a significant increase in loneliness and depression among older adults during the pandemic compared to before (Scorsolini-Comin et al., 2020; Ward et al., 2023). A literature review study pointed out the psychological impacts of social isolation in other pandemics prior to COVID-19, negative psychological effects such as post-traumatic stress, financial losses, uncertainty about health status, emotional disorders, sadness, and fragmentation of the social support network (Tilburg et al., 2020).

Sadness is part of the group of primary emotions, as are joy, disgust, surprise, anger, and fear. Primary emotions are considered important for human development and are a channel of interaction between people. When an emotion is triggered, it fosters a series of physiological and neuropsychic activations that result in behavioral manifestations. Sadness

is an emotion associated with periods of more melancholic and disturbing experiences that occur throughout life for various reasons (Brooke & Jackson, 2020).

The experiences of isolation and/or social distancing, in addition to being pointed out as a factor that predisposes to a longer period of emotions such as sadness, also result in important interferences in the social support network, a variable that is related to better biopsychosocial health conditions (Bu et al., 2020; Vasconcelos et al., 2020; Scorsolini-Comin et al., 2020; Tilburg et al., 2020). An online survey assessed the psychological impacts of the COVID-19 pandemic on mental health and social support and identified being female and having chronic comorbidities as predictors of worse mental health impacts. Higher levels of helplessness and apprehension were also found, as well as decreased social support from friends and increased support from family members (Fontes, 2017).

Older people constituted a segment of the population that was largely affected by COVID-19 and by restrictions/changes in social contact, with worse outcomes. Even though the global scenario is one of post-pandemic recovery, the older population remains biologically, physically, mentally, and socially vulnerable, especially in low and middle-income countries (Baena et al., 2023). Therefore, it is essential to extract knowledge from the information acquired during the COVID-19 pandemic so that more assertive actions can be taken to reduce the burden on society and public health.

Although research has been published aiming to analyze the impacts of the pandemic on the mental health of the population (Ward et al., 2023; Koppner et al., 2024), sadness in older people remains little explored, creating a vulnerability gap for this population in conditions of public health crises such as the COVID-19 pandemic.

Considering this scenario, we hypothesized that perceived social support and intergenerational family structure can mitigate the emotion of sadness among older adults during the COVID-19 pandemic. We added the hypothesis that the emotion of sadness is concomitant with other emotions and feelings, such as fear, anger, anguish, and anxiety. Thus, the objective of this research was to evaluate factors associated with the emotion of sadness among older adults during the COVID-19 pandemic. Even after the COVID-19 pandemic, the negative effects on mental health, social support, and social interactions can remain for a long period of time. Thus, this study can provide results that help formulate strategies for the care of the psychological and social health of older adults in primary care.

## Method

### Study design

This is a cross-sectional study developed in the municipality of São Carlos, interior of São Paulo, with older people registered in the Family Health Units of Primary Care. The study began after approval by the Ethics Committee on Human Research of the Federal University of São Carlos (UFSCar), under opinion number 4.136.963.

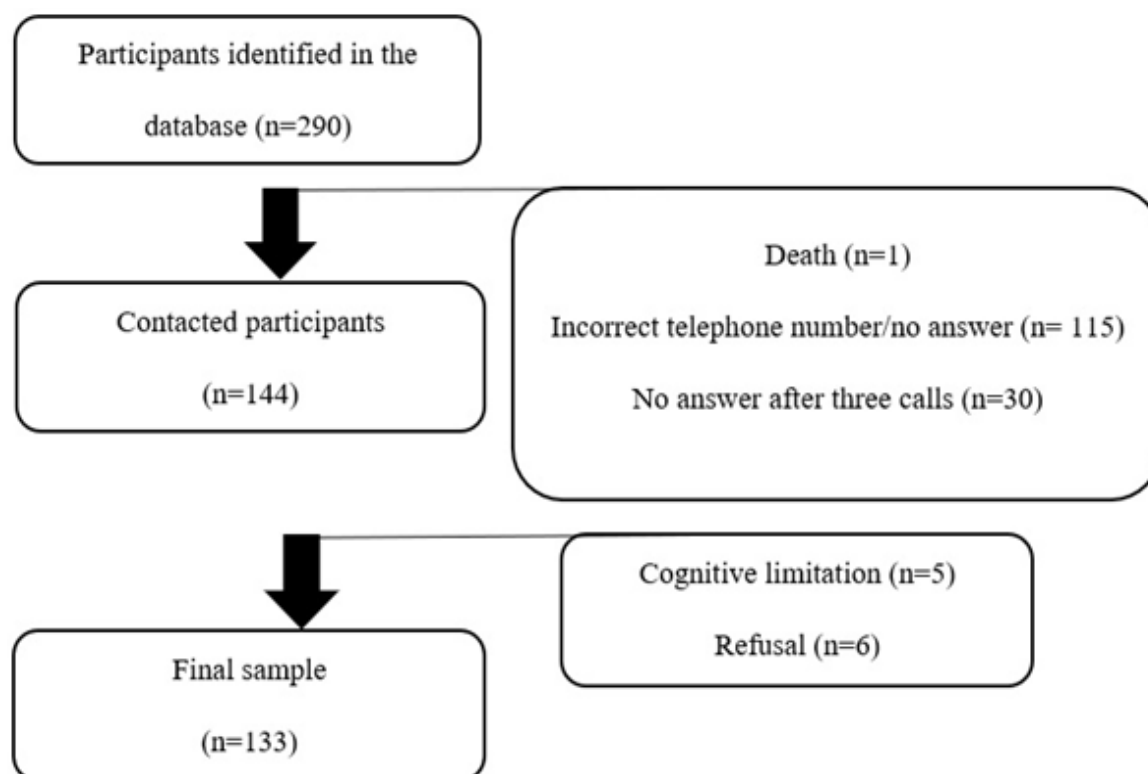
### Participants

Participants in this study were individuals aged 60 years or older. The sample was formed by older individuals registered in the Health and Aging group of UFSCar's research database who had previously participated in research conducted by the group. The eligibility criterion

was the subject being in the research database. Exclusion criteria were: death; an incorrect telephone number; no answer after three calls on different days and times; and cognitive limitations that prevented the telephone assessment (in these cases, the limitation was reported by a member of the household). The participant selection flowchart is shown below.

**Figure 1**

*Flowchart: Selection of the Sample of Older Participants. São Carlos-SP, 2021*



### Protocol for Data Collection

The protocol for evaluation was developed by the researchers, considering that the data collection would be done via telephone call, which limited the application of longer and more complex instruments.

**1. Identification and characterization of health:** sex (female/male), age range (60-69 years/ 70-79 years/ 80 years or older), marital status (with or without partner), education (did not study/ can read and write/ elementary school, elementary school/ higher education), family member died from COVID-19 (yes/no), feel vulnerable to COVID-19 (yes/no), use of protective measures for COVID-19 (hand washing, social distancing, use of face mask, social isolation and alcohol gel sanitization- yes/no).

### 2. Emotions/feelings:

The questions about emotions and feelings were developed based on the scientific literature on the importance of emotions and feelings during pandemic periods (Brooke & Jackson, 2020; Barreto et al., 2020; Bu et al., Fancourt, 2020; Tilburg et al., 2020).

- The base question for emotions was: "What emotions have you felt during social isolation

due to COVID-19?" Fear (yes/no); anger (yes/no); happy (yes/no); surprised (yes/no), sad (yes/no), other (which).

- The baseline question for feelings was, "What feelings have you experienced during social isolation as a result of COVID-19?" Anguished (yes/no); isolated (yes/no); anxious (yes/no), other (which).

### 3. Home structure, perceived support, and social support:

- Household structure: We asked about the number of people in the household, the degree of kinship among them, and the age of the people residing in the house. Subsequently, these were classified as either unigenerational, bigenerational, and multigenerational.
- Instrumental social support: "Have you received help to perform activities outside the home, such as going to the bank, supermarket, pharmacy, during the period of social isolation due to COVID-19?" (yes/no).
- Emotional social support: "Have you received emotional support from friends, relatives, neighbors, church groups, during the period of social withdrawal due to COVID-19?" (yes/no).
- Electronic contact: "Have you maintained social contact by electronic means (cell phone/ computer) with friends, family, acquaintances during the period of social withdrawal due to COVID-19?" (yes/no).

## Procedures

Due to social isolation measures recommended by the WHO to contain COVID-19, all interviews were conducted by telephone. Two gerontologists who had already had contact with the older adults in previous research group projects conducted the interviews. The participants' telephone numbers were obtained from the research group's database. The interview was conducted in a single session, lasting between 15 minutes and 40 minutes. The order of the questions was exactly the same as mentioned above.

## Statistical Analysis

Data were entered and compiled using the Statistical Package for the Social Sciences (SPSS for Windows), version 21 (IBM Inc., Chicago, IL, USA). The information obtained on social demographics, health, emotions/feelings, household structure, and social support was reported by absolute frequency (n) and percentage (%) calculations. Pearson's Chi-square test was used to compare these variables between the "yes" and "no" responders for the emotion of sadness (Table 1). To build the binary logistic regression model, the absence of multicollinearity and outliers was verified for all variables. The reference category adopted in the binary logistic regression model was "Being sad" (48.8%, n=65). Variables that showed  $p < 0.05$  in Pearson's Chi-square test were tested in the univariate binary logistic regression analysis, and variables with associations of  $p \leq 0.05$  remained in the final model. The Hosmer and Lemeshow test was performed to verify the quality of the model fit ( $p = 0.828$ ). The final binary logistic regression model explained 82% of the cases.

## Results

Of the 133 older adult participants in the study, 48.8% (n=65) reported feeling sad during social isolation due to COVID-19. The results are presented according to the groups "not feeling sad" (n=68) and "feeling sad" (n=65).

For most variables, no differences were identified between the groups regarding sociodemographic characteristics and health conditions for COVID-19, except for the variable "Did someone from your social life die from COVID-19?", in which a higher number of people were identified in the "being sad" category. The data is shown in Table 1.

**Table 1**

*Sociodemographic and Health Characteristics of Older Participants According to the Emotion of Sadness (n=133), São Carlos-SP, 2020*

Variables % (n)	Emotion of Sadness		p-value
	No (n=68)	Yes (n=65)	
<b>Sex</b>			0.35
Female	82.4% (56)	86.2% (56)	
Male	17.6% (12)	13.8% (9)	
<b>Age group</b>			0.58
60-69 years	23.5% (16)	32.2% (21)	
70-79 years	55.9% (38)	53.8% (35)	
80 years or older	20.6% (14)	13.8% (9)	
<b>Marital Status</b>			0.23
With partner	70.6% (48)	63.1% (41)	
Without partner	29.4% (20)	36.9% (24)	
<b>Schooling</b>			0.27
Did not study	10.3% (7)	15.4% (10)	
Knows how to read or write	50.0% (34)	27.7% (18)	
Primary school	25.0% (17)	44.6% (29)	
Middle school	14.7% (10)	7.7% (5)	
Higher education	0	4.6% (3)	
<b>Health conditions (COVID-19)</b>			
<b>Has anyone in your social life died from COVID-19?</b>			
Yes	14.7% (10)	38.5% (25)	0.02
<b>Feels vulnerable to COVID-19</b>	79.4% (54)	78.5% (51)	0.53
<b>Using protective measures for COVID-19</b>			
Hand washing	95.6% (65)	96.9% (63)	0.52
Social distancing	86.8% (59)	89.2% (58)	0.93
Use of face masks	94.1% (64)	90.8% (59)	0.34
Social isolation	72.1% (49)	50.8% (33)	0.09
Alcohol gel sanitization	76.5% (52)	83.1% (54)	0.23

*Note.* Pearson's Chi-square test.

Table 2 presents the differences between groups for variables related to emotions/feelings, household structure, and social support.

**Table 2**

*Analysis of Emotional Aspects, Home Structure, and Perceived Social Support of the Participants According to the Emotion of Sadness (n=133). São Carlos, SP, 2020*

Variables % (n)	Emotion of sadness		
	No (n=68)	Yes (n=65)	p-value
<b>Emotions/ feelings</b>			
Feels isolated	67.6% (46)	83.1% (54)	0.03
Feels anguished	17.6% (12)	83.1% (54)	<0.01
Feels afraid	29.4% (20)	66.2 % (43)	<0.01
Feels angry	4.4% (3)	18.5% (12)	0.01
Feels happy	80.9% (55)	61.5% (40)	0.01
Feels surprised	63.2% (43)	69.2% (45)	0.29
Feels anxious	39.7% (27)	75.4% (49)	<0.01
<b>Home structure</b>			<b>0.91</b>
Uni-gerational	57.4% (39)	53.8% (35)	
Bi-gerational	32.4% (22)	35.4% (23)	
Multi-generational	10.3% (7)	10.8% (7)	
<b>Perceived social support</b>			
Receives instrumental social support	94.1% (64)	81.5% (53)	0.02
Receives emotional social support	92.6% (63)	95.4% (62)	0.46
Maintains electronic social contact	23.5% (16)	49.2% (32)	0.02

Note. Pearson's chi-square test ( $\leq 0.05$ ).

The results of binary logistic regression showed that being sad was associated with not receiving instrumental social support ( $OR_{Aj}=0.13$ ;  $95\%CI=0.27-0.68$ ;  $p=0.01$ ). Maintaining social contact through electronic means ( $OR_{Aj}=4.08$ ;  $95\%CI=1.33-12.45$ ;  $p=0.01$ ), feeling anguished ( $OR_{Aj}=29.4$ ;  $95\%CI=9.73-89.24$ ;  $p=0.00$ ) and the emotion of fear ( $OR_{Aj}=3.73$ ;  $95\%CI=1.33-10.44$ ;  $p=0.01$ ) were associated with the emotion of sadness. Table 3 shows the result of the final regression model.

**Table 3**

*Binary Logistic Regression of Factors Associated With "Being Sad" in the Older Participants (n=133). São Carlos-SP, 2020*

Variables	Univariate Model			Adjusted Model		
	OR	95%CI	p-value	$OR_{aj}$	95%CI	p-value
Receives Instrumental social support	0.27	0.08-0.90	<b>0.03</b>	0.13	0.27-0.68	<b>0.01</b>
Maintains electronic social contact	3.15	1.50-6.61	<b>&lt;0.01</b>	4.08	1.33-12.45	<b>0.01</b>
Feels anguished	22.9	9.31-56.3	<b>&lt;0.01</b>	29.4	9.73-89.24	<b>&lt;0.01</b>
Feels afraid	4.69	2.25-9.75	<b>&lt;0.01</b>	3.73	1.33-10.44	<b>0.01</b>

Note.  $OR_{aj}$ : Adjusted Odds Ratio; 95% CI: 95% confidence interval.

**Discussion**

This research analyzed factors associated with the emotion of sadness in a sample of Brazilian older adults during the COVID-19 pandemic. The binary logistic regression model

showed that feeling anguished, afraid, and maintaining social contact through electronic means were associated with the emotion of sadness. In addition, receiving instrumental social support decreased the chance of manifesting sadness. The COVID-19 pandemic and the protective measures of isolation and social withdrawal may expose the population to stressors for a prolonged period of time. Consequently, older adults may experience more frequently the emotion of sadness, which may occur simultaneously with the emotion of fear and the feeling of anguish. This may have influenced the amplitude of the confidence interval, especially the anguish variable.

Our study is in line with the global scientific literature, which has shown an increase in the levels of anguish and fear in the general population, which are intertwined with insecurities experienced due to the COVID-19 pandemic, the fear of disease and loss of loved ones, dissatisfaction with economic issues, and social isolation (EL-Zoghby et al., 2020; Armitage & Nellums, 2020). Research with older adults shows declining emotional well-being (Malta et al., 2020; Seckman, 2023), causing a greater impact as a result of vulnerability to disease, fear due to lack of information, loss of loved ones, and greater restrictions regarding social life (Seckman, 2023). Consequently, increased levels of loneliness were observed in this population (Zacher & Rudolph, 2021; Kadowaki & Wister, 2023), and the positive influence of active social support networks on the mental health of older adults (Luchetti et al., 2020).

A Brazilian survey aiming to characterize the older population (n=9,173) during the COVID-19 pandemic, regarding sociodemographic and health conditions, adherence to social isolation measures, and feelings of sadness and depression, found evidence of the impact of inequalities on the health, income, and care of older adults. Feelings of sadness and anguish were frequently pronounced, particularly among women. The authors draw attention to sadness as a major contributor to loneliness, which is an important predictor of mortality and decline in health in older adults (Romero et al., 2021).

Sadness is an emotion that is part of human experience; however, the large exposure to stressful factors, such as the COVID-19 pandemic, and changes in routine can lead the population to experience this emotion for prolonged periods of time. The Lancet journal, in 2020, published a note on the negative effects of social isolation and increased loneliness among older adults, and stressed the importance of social support networks and the use of online technologies in this period (EL-Zoghby et al., 2020). However, the effects of using online technologies for older adults are still controversial. A literature review evaluated the effectiveness of video calling in older adults and found that evidence is still uncertain about video calling interventions to reduce loneliness (Noone et al., 2020).

A study based on a scoping review of 67 articles and data from the Canadian Longitudinal Study on Aging showed an increase in loneliness among older adults. Comparatively, in the period before and during the pandemic, the results showed an increase in loneliness of 67% for women aged 65 to 74, while for men in the same age group, there was an increase of 45% (Kadowaki & Wister, 2023). The use of technology was highlighted as a means of minimizing loneliness and isolation. However, the authors emphasize the existence of digital exclusion due to physical and functional limitations and the financial conditions of the older adults. In Brazil, the inclusion of older adults in the digital age is still a challenge. A study addressing data from five cohorts from 2019 to 2023 included Brazilians as vulnerable to digital exclusion. The research pointed to socioeconomic and health factors, as well as age-

related limitations, as barriers to accessing technologies (Mohan et al., 2024).

In the present study, the maintenance of social contact through the use of digital technologies was a factor that was associated with the emotion of sadness, but this data needs to be analyzed with caution, because the number of older people who reported using technology networks, despite being significantly different, was low in both groups. Brazil is a country with wide differences in access to technological, educational, social, cultural, and health services, which makes facing pandemic periods more complex, requiring greater political commitment and financial investment in science and basic health care. Moreover, a possible explanation for this result may be linked to the sudden change in the form of social contact, the non-adaptation of the older population to this means of interaction, the low experience with electronic media, and the impact of the lack of physical contact with family and friends.

In this scenario, the social support network can be an attenuating factor for the frequency or intensity of sadness. In our study, instrumental social support was associated with a lower chance of reporting the emotion of sadness among older adults. The support network is considered an important factor for older adults, because with aging, there are changes in cognitive and physical functions, and a strengthened social support network and good quality intergenerational relationships have positive outcomes for the bio-psychosocial health of older adults (Sharifi, *et al.*, 2023).

Perceived social support refers to the subjective evaluation that the person makes about his/her support network, which can include family, friends, and community. It can occur at psychological, material, or instrumental levels, with the latter including help to perform activities such as shopping, paying bills, and controlling money (Romero et al., 2021). A relevant aspect about the perceived social support is that it is evaluated from the perspective that the person himself/herself has about the support available to them when needed, in a qualitative way (Li et al., 2021).

Prior to the scenario of the COVID-19 pandemic, social support was already considered a variable of great relevance in gerontological research (Brito et al., 2018; Del-Pino-Casado et al., 2018). In a pandemic context, in which the population faced different peaks of contamination and a prolongation of sociocultural restrictions, it can be even more important. Thus, social support has been highlighted as a variable related to better psychosocial health conditions and a moderator of the negative effects of isolation (Kasar & Karaman, 2021; Macdonald & Hülür, 2021).

Our data showed no association of the emotion of sadness with the household structure of older adults. In contrast, in Switzerland, a four-week longitudinal survey using a database of 99 older adults during the COVID-19 lockdown period showed that one factor that attenuated the negative effects of social isolation was greater satisfaction with social communication, and older adults with lower levels of loneliness had greater active social support networks and resided in intergenerational households (Grelle et al., 2023).

In our study, one factor that may explain the data found is that, at the time of data collection, Brazil was facing the first peak of the COVID-19 pandemic, in which older adults were considered the main risk group for the disease, and incentives for isolation and social distancing practices were growing, which may have increased emotions of sadness and fear, and feelings of anguish. During this period, the need for a social support network to assist

older adults, especially in activities outside the home, was also highlighted. Although the results obtained in this research are in accordance with information provided in the national and international literature, limitations should be considered. First, caution is needed with generalizations and inferences of causality with other older populations, since the data refer to a specific sample within the coverage area of primary care health services in a Brazilian municipality. Second, the data were collected via telephone call, which limits the use of scales to measure the data with greater precision, and there is also a limitation in that the responses were mostly binary (yes/no).

Another aspect is that these data were collected during the first peak of the COVID-19 pandemic. After this period, Brazil faced an increase in the number of COVID-19 cases and a consequent increase in deaths, longer periods of exposure to isolation/social distancing, mourning, and economic losses, which may have intensified the exposure of older adults to feelings of anguish, anxiety, the presence of mental disorders, emotions such as fear and anger due to uncertainties about the pandemic, as well as the dynamics of formal and informal social support.

Therefore, the results of this research expand knowledge about emotional health and social support for older adults during periods of health crisis, and draw attention to the importance of intergenerational relationships and social support as variables to be addressed in interventions in primary health care.

Studies on the impacts of the COVID-19 pandemic on the population's mental health have highlighted the importance of interventions that consider the particularities of each region, given the size of the Brazilian territory (Noone et al., 2020; Schmidt et al., 2020; Mukhtar, 2020). Thus, the results obtained in this study can be used in an academic environment for comparisons with other studies focusing on the older population in other phases of COVID-19 and post-pandemic, and in community contexts to formulate interventions aimed at strengthening and expanding social and intergenerational relationships, given that these are important for social and emotional health.

### Conclusions

This study identified that receiving instrumental social support was positive in minimizing the emotion of sadness. On the other hand, electronic social contact, the feeling of anguish, and the emotion of fear were associated with the emotion of sadness.

The results of this study open the way for other research focused on analyzing the long-term effects of COVID-19 on the mental, emotional, and social health of older adults. Furthermore, our results contribute to the formulation of interventions in primary health care, with a view to expanding and strengthening social and intergenerational relationships, considering the significant and positive impact that social relationships have on the longevity and emotional and social well-being of older adults.

Furthermore, considering the context of social inequality and the rapid growth of the older population in Brazil, our study draws attention to digital isolation, which can trigger implications for mental health and barriers to remote care. Thus, there is a notable need to develop public policies and programs to facilitate access to technologies, including the acquisition of devices and the development of digital skills, ensuring the rights of this population.

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#### Data Availability

The entire dataset supporting the results of this study has been published in the article itself.

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