Cogitare Enfermagem

ORIGINAL ARTICLE

STRESS IN THE ELDERLY IN THE CONTEXT OF THE COVID-19 PANDEMIC AND ITS ASSOCIATED FACTORS

HIGHLIGHTS

1. Stress in the elderly during COVID-19, was associated with fear of death of relatives.
2. Healthcare professionals need to be prepared to identify mood changes in the elderly to create individualized care plans.
3. Information from the Internet and radio was not a cause of stress in the elderly.

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ABSTRACT

Objective: To identify stress in the elderly living in the city of Lima and its association with demographic factors, infodemics, the presence of physical and psychological symptoms, and the use of illicit substances in the context of the Covid-19 pandemic. **Method:** Quantitative, transversal, and analytical study through the *web-based survey* with 384 elderly from the city of Lima - Peru between April and August 2021. The instruments of demographic profile, Perceived Stress Scale, and self-reported symptoms were used for the study. The Multiple logistic regression was used, considering the significance level of 5%. **Results:** 62% were women, and the age ranged between 60 and 95 years with a mean of 70.5. The stress average was 26.8 points. Stress was associated with fear of relatives dying and concern for the elderly. **Conclusions:** it is important for health professionals trained to identify changes in mood in the elderly and to create individualized care plans.

DESCRIPTORS: Aged; Covid-19; Stress disorder traumatic; Pandemics; Infodemic.

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INTRODUCTION

In December 2019, SARSCoV2, a new coronavirus that causes an infectious disease called Covid-19 and in severe cases causes respiratory failure, pneumonia, kidney failure, and other conditions, which could lead to death, was discovered in Wuhan [1-2].

The World Health Organization (WHO) declared Covid-19 a pandemic in March 2020, causing, as of June 16, 2022, a total of 6.316,054 deaths and 237,770,528 infections worldwide [3]. In Peru, 213,343 deceased persons have been registered, of which 148,235 are over 60 years; males had a higher incidence, with a fatality rate of 5.98%, and 3,551,540 cases of infection [4].

This overwhelming increase in cases was due to the high transmissibility of the virus, and the number of deaths has generated the idea of a containment public health strategy that includes social isolation, forcing families to modify activities and routines at home [5-6].

The elderly were and are the most vulnerable to Covid-19; the most frequent causes that put them at high risk are the indices of frailty and vulnerability to adverse events, disability and degree of dependency, and susceptible health conditions that hinder their recovery and increase mortality [7].

Likewise, this pandemic stage has affected mental health, causing fear, anxiety, and stress, altering the emotional stability of the elderly, and adding to misinformation by the different media, causing isolation, loss of independence, loneliness, and anguish [7]. Information overload and unsubstantiated comments can make people feel insecure, which, in turn, can cause fear and stress, increasing the possibility of worsening mental health conditions [8]. In addition, negative psychological effects due to the information received about the pandemic generated symptoms of post-traumatic stress, confusion, intense mental anger [9] disorder, anxiety [10], stress, and fear [11].

Strengthening and caring for the mental health of the population is essential; with the beginning and development of the pandemic, the difficulties that people, especially the elderly, in using and understanding the information received by different media can cause physical and emotional disturbances. In this context, the following research question was formulated: What is the stress level of the elderly and its associated factors due to the Covid-19 pandemic in the city of Lima?

The objective of this study was to identify stress in the elderly living in the city of Lima and its association with demographic factors, infodemics, the presence of physical and psychological symptoms, and the use of illicit substances in the context of the Covid-19 pandemic.

METHOD

A quantitative, cross-sectional, and analytical study was carried out in the city of Lima, Peru, between April to August 2021 through a *web-based survey*. This study is part of the project "Infodemic of Covid-19 and its repercussions on the mental health of the elderly". Lima is the capital of Peru and is located on the country's central coast. Currently, it has a population of over nine million, representing 30% of the total population, ranking fifth in Latin America and the Caribbean and one of the 30 most populous cities in the world [12].

The study participants were the elderly living in the city of Lima. To calculate the sample size, the proportions formula for finite populations was used to calculate the sample size with a final sample of 384. To be part of the study, the following inclusion criteria had to be met: being 60 years old or older, of both sexes, and having a cell phone or computer

with Internet. The exclusion criteria were not answering the questionnaire in its entirety.

The collection of information was carried out through the publication of the *web-based survey*; a link was made available on social networks and applications such as Facebook, Instagram, and/or WhatsApp. The snowball technique was used to reach the number of elderly participants.

For the collection of information, the following instruments were used:

Sociodemographic profile: in order to identify information such as sex (male and female), age (in years), marital status (with and without a partner), education (no studies, elementary, secondary, university, and postgraduate), number of children, type of housing (own, rented, family, and other), place of residence (urban and rural), use of health services (public, private, both, and neither) and income changes during the pandemic (no, increased or decreased).

Perceived Stress Scale: elaborated to measure the degree to which people evaluate the situations of daily life that can be considered stressful and demanding. The 14 items that make up the scale assess the degree to which people perceive life as unpredictable, uncontrollable, or overloaded. The questions are general and relatively free of specific content any particular population can understand [13].

Exposure to information about the pandemic (Infodemic): identifying the time in hours the elderly were exposed to information about Covid-19 with the use of the Internet, TV, and radio.

Self-reported symptoms: List of related symptoms linked to the physical and psychological changes that the older adult could present during the pandemic. Each symptom had a Likert-type response (no, rarely, sometimes, and often). In addition, they were asked about the consumption of illegal substances, alcohol, and psychotropic drugs.

The data was analyzed using the program Statistical Package for the Social Sciences (SPSS) v. 25.0. Descriptive statistics were used to describe the sociodemographic characteristics of the sample. Stress scores were presented as means and standard deviations.

To identify the differences in the stress mean scores for each sociodemographic variable, the non-parametric Mann-Whitney U tests were used for variables with two groups and the Kruskal-Wallis H for variables with multiple groups. Likewise, the Pearson and Spearman correlation was used to detect the correlations between the variables.

To identify the association between the dependent variable, stress, with demographic variables, symptoms (physical and psychological), and the use of substances categorized as yes, and no, the multiple logistic regression was used, considering the significance level of 5% and a Confidence Interval (CI) of 95%.

The Ethics Committee approved the digital informed consent of the study with the n° 2021-CE-EPG-000003 of the Universidad Peruana Unión. The acceptance or not to participate in the study was automatically registered in the database generated by the web-based survey.

RESULTS

The sample comprised 416 elderly; 258 (62%) were women. The age of the participants ranged from 60 and 95 years, with a mean of 70.5 (SD=8.2). The average number of children per person was 3.3. Regarding marital status, 225 (54.1%) had a partner, and 157 (37.7%) had am university level of education (Table 1).

Table 1 - Demographic characteristics of the elderly according to stress during the COVID-19 pandemic. Lima, Peru, 2021

Variable	Category	n	%	Stress M (SD)	KW(p)
Gender	Male	158	38.0	26.20 (10.4)	0.62 (p=0.42)
	Female	258	62.0	27.21 (9.87)	
Age	60 – 69	238	57.2	27.96 (9.62)	6.30 (p=0.04)
	70 – 79	126	30.3	25.55 (10.19)	
	80 and over	52	12.5	24.73 (11.14)	
Number of Children	0	43	10.3	27.12 (9.85)	1.56 (p=0.66)
	1 - 5	313	75.2	26.78 (9.90)	
	6 – 9	53	12.7	27.19 (11.02)	
	10 – 12	7	1.7	24.57 (14.40)	
Marital Status	No partner	191	45.9	25.38 (10.22)	5.84(p=0.01)
	With partner	225	54.1	28.05 (9.83)	
Level of Studies	No studies	17	4.1	20.71 (11.77)	24.87 (p<0.001)
	Elementary	66	15.9	24.98 (10.71)	
	Secondary	129	31.0	24.71 (10.91)	
	University	157	37.7	28.89 (8.34)	
	Postgraduate	47	11.3	30.53 (9.01)	
Housing	Own house	297	71.4	27.08 (10.30)	3.41 (p=0.33)
	Rent house	49	11.8	27.67 (7.35)	
	Family house	63	15.1	24.91 (11.00)	
	Other	7	1.7	27.19 (8.85)	
Health services	Public	118	28.4	26.02 (10.29)	2.30 (p=0.51)
	Private	121	29.1	27.33 (9.33)	
	Both	149	35.8	27.46 (9.65)	
	Neither	28	6.7	24.68 (14.06)	
Income during the pandemic	No	173	41.6	26.44 (10.02)	4.16 (p=0.12)
	Increased	22	5.3	23.91 (12.48)	
	Decreased	221	53.1	27.42 (9.86)	

Fonte: Os autores (2021).

The average stress in the elderly was 26.8 (SD=10.1). Regarding the frequency of exposure, the average stress score was compared for the various media, being related to exposure to the use of the Internet (KW=10.73, p<0.01) and TV (KW=7.68, p<0.01). (Table 2)

Table 2 - Association of stress in the elderly according to the frequency of exposure to news about COVID-19. Lima, Peru, 2021

Variable	Categories	n	%	Stress M (SD)	KW(p)
Internet	Unexposed	145	34.9	24.47 (10.7)	10.72 (0.001)
	Exposed	271	65.1	28.09 (9.5)	
TV	Unexposed	43	10.3	22.86 (10.3)	7.68 (0.006)
	Exposed	373	89.7	27.28 (9.98)	
Radio	Unexposed	190	45.7	27.92 (8.5)	2.55 (0.11)
	Exposed	226	54.3	25.91 (11.2)	

Fonte: Os autores (2021).

The association between physical symptoms, use of alcohol, illegal substances, and psychotropic drugs with the stress level was evaluated. When applying the Kruskal-Wallis test, it was found that the significant symptoms were lack of energy, difficulty breathing, headache, muscle pains, sleeping problems, nutritional problems, palpitations, and fatigue. In addition, stress was related to using illegal substances (Table 3).

Table 3 – Relationship between stress with physical symptoms and substance consumption in the elderly during the COVID-19 pandemic. Lima, Peru, 2021

Variables	Category	n	%	Stress M (SD)	KW(p)
Cold sweats or chills	No	274	65.9	26.10 (10.3)	0.00 (0.93)
	Yes	142	34.1	28.23 (9.5)	
Low sex drive	No	293	70.4	26.38 (10.05)	0.00 (0.97)
	Yes	123	29.6	27.90 (10.15)	
Digestive problems	No	227	54.6	25.48 (10.9)	1.99 (0.15)
	Yes	189	45.4	28.45 (8.6)	
Dry mouth	No	252	60.6	26.17 (10.3)	0.46 (0.49)
	Yes	164	39.4	27.84 (9.7)	
Lack of energy	No	233	56.0	24.01 (11.9)	10.11 (0.001)
	Yes	183	44.0	29.04 (7.7)	
Chest tightness	No	239	57.6	25.60 (10.9)	0.76 (0.38)
	Yes	177	42.5	28.48 (8.7)	
Difficulty breathing	No	272	65.4	25.45 (10.5)	5.30 (0.02)
	Yes	144	34.6	29.43 (8.7)	
Trembling	No	290	69.7	26.26 (10.2)	0.00 (1.00)
	Yes	126	30.3	28.14 (9.8)	

		n	%	Stress M (SD)	
Headache	No	237	57.0	24.70 (11.1)	6.38 (0.01)
	Yes	179	43.0	28.43 (9.0)	
Muscle pains	No	217	52.2	24.00 (11.6)	16.45 (<0.001)
	Yes	199	47.8	29.42 (7.6)	
Sleeping problems	No	226	54.3	23.93 (11.2)	17.39 (<0.001)
	Yes	190	45.7	29.27 (8.4)	
Nutritional problems	No	232	55.8	25.38 (10.8)	2.72 (0.10)
	Yes	184	44.2	28.65 (8.9)	
Palpitations	No	264	63.5	25.05 (10.5)	13.24 (0.00)
	Yes	152	36.5	29.91 (8.6)	
Fatigue	No	236	56.7	23.91 (11.5)	12.86 (<0.001)
	Yes	180	43.3	29.06 (8.2)	
Alcohol or Tobacco	No	359	86.3	26.8 (10.1)	1.30 (0.25)
	Yes	57	13.7	27.09 (10.1)	
Illegal Substance	No	370	88.9	26.90 (9.8)	3.58 (0.04)
	Yes	46	11.1	26.24 (12.1)	
Psychotropic drugs	No	310	74.5	26.08 (10.4)	1.63 (0.20)
	Yes	106	25.5	29.01 (8.7)	

Fonte: Os autores (2021).

When analyzing the association between psychological symptoms and stress level, applying the Kruskal-Wallis test, it was found that the most significant symptoms were lack of hope, irritation, fear of getting sick, nervousness, fear of dying, worry, anxiety, sadness, fear, discouragement, fear that their loved ones will die (p<0.05) (Table 4).

Table 4 - Relationship between stress and psychological symptoms in the elderly during the COVID-19 pandemic. Lima, Peru, 2021

Psychological symptoms	Category	n	%	Stress M (SD)	KW(p)
Lack of hope or pessimism	No	253	60.8	23.47 (12.5)	16.96 (<0.001)
	Yes	163	39.2	28.99 (7.8)	
Irritation	No	216	51.9	24.89 (10.99)	8.00 (0.00)
	Yes	200	48.1	28.92 (8.6)	
Unwillingness	No	210	50.5	25.20 (11.2)	2.24 (0.13)
	Yes	206	49.5	28.49 (8.6)	
Fear of getting sick	No	351	84.4	21.17 (12.6)	14.56 (<0.001)
	Yes	65	15.6	27.87 (9.2)	

Nervousness	No	292	70.2	23.15 (11.9)	11.69 (0.00)
	Yes	124	29.8	28.39 (8.8)	
Panic	No	214	51.4	25.76 (10.9)	1.18 (0.27)
	Yes	202	48.6	27.96 (9.1)	
Fear of dying	No	268	64.4	24.62 (11.6)	4.40 (0.03)
	Yes	148	35.6	28.04 (8.9)	
Lack of interest	No	211	50.7	25.30 (11.5)	2.22 (0.13)
	Yes	205	49.3	28.31 (8.2)	
Worry	No	320	76.9	20.73 (12.4)	30.16 (<0.001)
	Yes	96	23.1	28.66 (8.5)	
Will to die	No	317	76.2	26.61 (10.1)	1.26 (0.26)
	Yes	99	23.8	27.53 (10.2)	
Anxiety	No	253	60.8	24.26 (11.7)	8.12 (0.00)
	Yes	163	39.2	28.48 (8.6)	
Sadness	No	322	77.4	21.71 (12.3)	19.25 (<0.001)
	Yes	94	22.6	28.32 (8.8)	
Fear but I do not know of what	No	249	59.9	24.02 (11.6)	10.49 (0.00)
	Yes	167	40.1	28.71 (8.4)	
Discouragement	No	245	58.9	23.83 (11.9)	12.89 (0.00)
	Yes	171	41.1	28.92 (8.0)	
Anger	No	221	53.1	25.34 (10.8)	3.72 (0.05)
	Yes	195	46.9	28.51 (8.9)	
Fear that their loved ones will die	No	317	76.2	17.09 (11.8)	94.44 (<0.010)
	Yes	99	23.8	29.87 (7.16)	
Willingness to be alone	No	257	61.8	25.65 (10.6)	3.50 (0.06)
	Yes	159	38.2	28.74 (8.8)	

Fonte: Os autores (2021).

The multiple linear regression analysis identified that stress was triggered by the fear of relatives dying and the concern of the elderly. On the other hand, not using the Internet and radio did not cause stress in the participants (Table 5).

Table 5 – Association between stress and demographic variables, infodemic, physical and psychological symptoms, and substance consumption in the elderly. Lima, Peru, 2021

Variables	B	CI 95%	p-value
Internet exposure (no)	0.27	0.09 – 0.46	0.00

Radio exposure (no)	-0.44	-0.71 – -0.17	0.001
Fear of relatives dying (no)	11.33	9.17 – 13.48	<0.001
Worry (not)	2.65	1.48 – 4.82	0.01

Fonte: Os autores (2021).

DISCUSSION

The start of the Covid-19 pandemic brought many health problems to the elderly population. In the study, a predominance of the female sex was identified, those between 60 and 69 years old and who have a partner and with a high level of education. In addition, that stress was associated with the fear of relatives dying and concern about the pandemic. However, not accessing the Internet and radio did not cause stress.

Among the psychological symptoms identified in the elderly were fear of family members dying and concern about getting sick. Covid-19 has affected different stages of life and caused many individual and collective psychiatric problems such as panic, anxiety, depression, post-traumatic stress disorders, suspicion, infodemic, cacophony, xenophobia, and racism, among others, causing a global crisis of mental health in people, as well as a great psychosocial experiment in pandemic situations [14].

Stress pictures are prolonged psychophysiological reactions of the individual to external and internal events, which depend on the subject's cognitive assessment, producing activation of symptoms such as psychosomatic and behavioral responses [15]. Stress leads to impatience, irritability, lack of consideration for other people, and constant physical discomfort such as stomachache, back pain, headache, hair loss, dizziness, and constipation, among other symptoms [15].

Psychological reactions and mental health problems to epidemics and pandemics suggest that various psychological and psychosocial factors of vulnerability may play a role in coronaphobia, including individual difference variables such as intolerance of uncertainty, perceived vulnerability to illness, and the propensity for anxiety (worry) [16].

The infodemic of Covid-19 affected the elderly, a group especially vulnerable to contagion by the virus and more likely to suffer problems, both physical and psychological [17]; the impact has been so significant on an emotional level that they can easily reach chronicity [18], coupled with misinformation by the different media, causing isolation, loss of independence, loneliness, and anguish [19].

In this study, it was identified that stress in the elderly during the pandemic was generated by fear that their relatives would die and concern about the disease. These results relate to a study on the immunological mechanisms, fear of illness, the uncertainty of the future, stigma, traumatic memories of serious illness, and social isolation experienced by people during Covid-19 that can trigger mental health problems [20].

However, it was found that not using the Internet does not generate stress in the elderly when the information benefits their health. However, the daily disclosure in the media of the increase in infections and deaths in the pandemic, plus the alarm generated in the early stages due to the need to flatten the curve, contributed to the increase in the perception of the severity of the disease, which has influenced the rise in misinformation about it, generating fear and anxiety [21].

Indeed, during the bombardment of information, the population began to feel overwhelmed and believe in everything they read or heard, causing an emotional imbalance that led to the paranoia of feeling the symptoms of the coronavirus without having been

in contact with someone sick and even without leaving the house or being exposed to positive contacts [22].

To examine the cumulative effects and potential moderators of exposure to Covid-19 news and information on concomitant emotions, appraisals, and behaviors. Broad exposure to the media caused negative effects on adverse psychological reactions, presenting a moderate and positive association with concern about the disease and preventive measures. Furthermore, associations between public media exposure and adverse psychological reactions were moderated by experience with Covid-19 [23].

On the other hand, so that the population obtains greater knowledge about Covid-19, electronic services have been implemented that allow digital literacy in health aimed at different vulnerable populations. Electronic services are aimed at increasing knowledge about diseases and using social networks and the media to cope with changes in routines and practices, reduce fear and anxiety, increase knowledge and digital skills and increase the acceptance of the technology in specific groups [24].

A descriptive ecological study that explores the percentage of the population with an inability to recognize fake news, the percentage of trust in the content of social networks, and the percentage of their use as the only source of news in Argentina, Brazil, Chile, Colombia, Mexico, and Peru until November 29, 2020, calculated the internet penetration rate in each country, the Facebook penetration rate and the mortality rate from Covid-19, finding that Chile and Argentina were the countries with the highest internet penetration rates (92.4% and 92.0%, respectively) and is also among those that use social networks the most as the only means of obtaining news (32.0% and 28.0% respectively); Brazil and Colombia showed an intermediate behavior in both indicators Mexico presented that it has the highest use of social networks, while Peru and Colombia presented the highest values on the index of inability to recognize false news [25].

Within a few weeks of the appearance of Covid-19 in China, misleading rumors and conspiracy theories about its origin circulated around the world, along with scaremongering, racism, and the massive purchase of masks and protective equipment; all closely linked to the new "Infomedia" ecosystems of the 21st century marked by social networks. The virus spread very quickly, and misinformation about the outbreak, consequently, panic and fear among the inhabitants worldwide [26].

Also, not using the radio caused less stress in the elderly. A study carried out in the United States identified that the consumption of news increased by 32% over the period before the health crisis, and traditional media, especially TV, are the ones that obtain the highest percentages, both in the consumption of news as in the positive assessment of credibility by the public [26].

Another study in Brazil indicates that TV 862 (44.80%) and social networks 651 (33.84%) were reported as frequent sources of exposure to news or information about Covid-19. The participants indicated that TV (46.47%), social networks (30.81%), and radio (14.48%) affected them psychologically and/or physically. Receiving false news about Covid-19 on TV (19.8%) and on social networks (21.5%) resulted mainly in stress and fear. The information disseminated contributes to awareness but also affects the elderly physically and/or psychologically, mainly generating fear and stress [11].

Studies suggest high prevalence rates for mental disorders, including depression, anxiety, mood disorders, suicidal behavior and self-harm, schizophrenia, substance consumption, neurodevelopmental, dementia, and other mental health problems [27]. One would expect deleterious emotional effects motivated by fear, stigma, and forced isolation [28].

Among the limitations, it is indicated that the study population is homogeneous and that it is impossible to infer these results for the elderly population of Lima. It is important to highlight that this research contributes to identifying possible stress problems in older

adults by health professionals; for this, constant training is necessary for their detection.

CONCLUSION

Stress was associated with the female sex, aged between 60 and 69 years, who have a partner. In addition, the pandemic generated feelings such as the fear that their relatives would die and concern about the disease. On the other hand, not using the Internet and radio was a protective factor against stress.

This study collaborates in identifying stress by health professionals in geriatrics and gerontology to create strategies and welcome this population that will need support from professionals in this area and the inter-and multi-disciplinary agency team.

It is necessary to create public policies that direct efforts toward the care of the elderly at the different levels of care. With the pandemic, the fragility of the different health organizations, the policies themselves, and the lack of preparation of health professionals to face this context have been seen. In this sense, government bodies need to review the different health policies in light of the new reality.

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Substantial contributions to the conception or design of the work; or the acquisition, analysis, or interpretation of data for the work - **Arpasi-Quispe O, Fhon JRS**; Drafting the work or revising it critically for important intellectual content - **Arpasi-Quispe O, Fernandes-Molocho L, Mocarro-Aguilar MR, Díaz-Orihuela MM, Fhon JRS**; Agreement to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved - **Arpasi-Quispe O, Mocarro-Aguilar MR, Fhon JRS**. All authors approved the final version of the text.