

Perceived stress associated with COVID-19 epidemic in Colombia: an online survey

Estrés percibido relacionado con la epidemia de COVID-19 en Colombia: una encuesta en línea

Percepção de estresse relacionado à epidemia da COVID-19 na Colômbia: uma pesquisa eletrônica

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Abstract

This study aimed to assess the prevalence and variables related to perceived stress associated with the COVID-19 pandemic in a sample of Colombian adults using a designed online cross-sectional survey. Adults answered a version of the Perceived Stress Scale (PSS-10) modified for COVID-19 (PSS-10-C), with Cronbach alpha equal to 0.86. In total, 406 individuals aged between 19 and 88 years ($M = 43.9$; $SD = 12.4$) agreed to participate in the survey: 61.8% were females, 90.6% had a university degree, 44.1% were health professionals, and 45.7% considered public health policies for preventing the spread of the disease inconsistent with scientific recommendations. PSS-10-C scores ranged from 0 to 36 ($M = 16.5$; $SD = 7.3$); 58 individuals (14.3%) scored for high perceived stress (cut-off point = 25). The inconsistency between policies and scientific evidence was significantly related to high perception of stress associated with COVID-19 ($OR = 2.36$; 95%CI: 1.32-4.20), after adjusting for gender. We concluded that the study group presented the prevalence of perceived stress associated with COVID-19 at high levels, arising from the inconsistent strategies developed by health authorities in view of scientific recommendations. Further researches must address the psychosocial aspects of epidemics.

COVID-19; Quarantine; Psychological Distress; Cross-Sectional Studies

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Introduction

Since the first case, in early December ¹, the perceived vulnerability to coronavirus infection (COVID-19) has radically changed in all countries. In Colombia, it switched from a distant threat to a real problem when the country reported the first infected, in March 2020 ².

Based on other countries' experiences, both scientific organizations and the media demanded public health decisions that were consistent with the best available evidence to control the spread of the infection ^{1,2}. However, for financial interests, decisions were taken late ³. Data suggest that public health policies often underestimated scientific evidence and responded to political and capitalist interests ⁴.

On March 20th, the Colombian National Government decided to prevent COVID-19 transmission: the President of the Republic decreed a quarantine ⁵. Quarantines have negative psychological effects, often deemed as marginal, including symptoms related to anxiety, depression, acute stress, and even manifestations of post-traumatic stress disorder ⁶.

The restriction of mobility can act as a psychosocial stressor ⁷ due to prolonged confinement, difficulties in obtaining daily-life necessary supplies, potential financial losses, and access to conflicting and inadequate information on the Internet ^{6,8}. Yet, few studies have quantified perceived stress during quarantines. In Australia, Taylor et al. ⁶ evaluated the frequency of and factors associated with psychosocial stress; by applying the *Kessler Psychosocial Distress Scale* during the equine influenza epidemic they observed that 34% of participants presented high levels of perceived distress, compared to 12% of the general population. They also reported that the psychosocial distress was significantly higher for those residing closer to infection outbreaks, workers in the equine sector, and younger and less educated people ⁹.

Similarly, for the current COVID-19 pandemic, 52,730 people in China responded to the COVID-19 Peritraumatic Distress Index, which includes symptoms of anxiety, depression, related to stress and specific phobias, as well as physical symptoms reported during the last week. Researchers found that 35% of participants scored high for psychological distress, more frequent among women, people aged between 18 and 30 years, participants with higher education level and residents near affected areas ⁹. They observed that psychological distress was associated with local availability of medical services, regional health system efficiency, and measures to control the epidemic ¹⁰.

Political decisions may affect emotional health; thus, measures should consider the perceived stress of citizens in emergency situations ¹⁰. These decisions seem relevant in countries like Colombia, where mistrust in public institutions explains most of the limited social capital ¹¹. This study aimed to assess the prevalence and variables related to perceived stress associated with the COVID-19 pandemic in a sample of Colombian adults.

Method

The authors performed a cross-sectional study approved by the Ethics Research Committee of the University of Magdalena (Act 002-2020). The research was based on the *Declaration of Helsinki* and Colombian legislations.

The study was formed by a nonprobability sample. Professors and students from a public university in Santa Marta, Colombia, and health professionals were invited to participate via email. The recipients could forward the link to friends and acquaintances, in a snowball strategy. We expected at least 386 people to engage in the survey and a 50% prevalence of perceived stress associated with the COVID-19 pandemic at high levels. Inclusion criteria were: Colombian individuals, over 18 years old, and able to respond online questionnaires.

Participants filled out demographic information on age, gender, education level, marital status, employment, and socioeconomic status. They were further asked to answer yes or no to: whether they were health professionals; suffered from a chronic condition (comorbidities such as diabetes); followed the precautionary measures; and considered the public health policies for preventing the spread of the disease consistent with scientific recommendations.

The *Perceived Stress Scale* (PSS-10) indicates stress as perceived by participants during the last month¹². The researchers adapted the PSS-10 to specify the stress associated with COVID-19 (COVID-PSS-10). The modified items are in Supplementary Material (http://cadernos.ensp.fiocruz.br/site/public_site/arquivo/supply-e00090520_7096.pdf). Each item provides five response options: never, almost never, sometimes, fairly often, and very often. Items n. 1, 2, 3, 6, 9, and 10 are scored from 0 to 4; items n. 4, 5, 7, and 8 are scored reversely, from 4 to 0¹². The scores range between 0 and 40. In this study, scores equal to or higher than 25 were deemed as high perceived stress associated with COVID-19. Previous Colombian studies have used this cut-off point in college students^{13,14}.

Several Colombian studies have used the previous Spanish version of the PSS-10, which has shown acceptable internal consistency, with Cronbach alpha between 0.65 and 0.86^{15,16}. In our study, the COVID-PSS-10 presented a high internal consistency, with Cronbach alpha equal to 0.86.

Between 8:00p.m. on March 21 and 8:00p.m. on March 23, 2020 (the first weekend of the quarantine in Colombia), the leading researcher sent 60 emails among his contacts. The questionnaire was disclosed by email, Facebook, and WhatsApp.

In the descriptive component, frequencies and percentages were computed for categorical variables, and mean (M) and standard deviation (SD) were calculated for quantitative variables. Table 1 shows all dichotomized variables. To establish the crude associations between the quantified variables and high perceived stress associated with COVID-19, odds ratios (OR) were estimated with a 95% confidence interval (95%CI). Associations were adjusted using logistic regression. The IBM-SPSS Statistics 23.0 (<https://www.ibm.com/>) helped in the analysis.

Table 1

Demographic characteristics of the participants.

Variable	Frequency	%
Age (years)		
18-30	64	15.8
31-59	305	75.1
60 or older	37	9.1
Gender		
Female	251	61.8
Male	155	38.2
Education level		
Primary/Secondary	40	9.4
Higher education	366	90.6
Marital status		
Permanent couple (married and free union)	249	61.3
Occasional couple (single, widowed, divorced)	157	38.7
Employment		
Yes	286	70.4
No	120	29.6
Socioeconomic status		
Low	84	20.7
Medium	231	56.9
High	91	22.4

Results

In total, 407 people received the email, and one disagreed to participate (0.2%). Participants were aged between 19 and 88 years ($M = 43.9$; $SD = 12.4$) (Table 1); 179 participants (44.1%) reported working with healthcare; 94 (23.2%) suffering from medical morbidity; 397 (97.8%) following precautionary measures for COVID-19 infection; and 222 (54.7%) considering public health policies for preventing the spread of the disease consistent with scientific suggestions.

Regarding high perceived stress associated with COVID-19, scores ranged between 0 and 36 ($M = 16.5$; $SD = 7.3$); 58 participants (14.3%) scored for high perceived stress, which was significantly related to the inconsistency between adopted policies and scientific evidence. After adjusting for gender, the relationship remained significant ($OR = 2.36$; 95%CI: 1.32-4.20). Table 2 presents other associations.

Table 2

Frequency of high perceived stress by variables and associations.

Variable	Frequency (%)	OR (95%CI)
Age (years)		
18-30	12 (18.8)	1.19 (0.37-4.27)
31-59	40 (13.1)	0.78 (0.30-2.43)
60 or older	6 (16.2)	1.00
Gender		
Female	41 (16.3)	1.59 (0.87-2.90)
Male	17 (11.0)	1.00
Education level		
Primary/Secondary	5 (12.5)	1.00
Higher level	53 (14.5)	1.19 (0.43-4.05)
Marital status		
Permanent couple (married and free union)	34 (13.7)	1.00
Occasional couple (single, widowed, divorced)	24 (15.3)	1.14 (0.65-2.01)
Employment		
Yes	46 (16.1)	1.73 (0.88-3.39)
No	12 (10.0)	1.00
Socioeconomic status *		
Low	11 (13.1)	1.00
Medium	33 (14.3)	1.11 (0.51-2.56)
High	14 (15.4)	1.21 (0.47-3.14)
Health professionals		
Yes	29 (16.2)	1.32 (0.76-2.30)
No	29 (12.8)	1.00
Chronic conditions		
Yes	14 (14.9)	1.07 (0.56-2.04)
No	44 (14.1)	1.00
Follow precautionary measures		
Yes	57 (14.4)	1.00
No	1 (11.1)	0.75 (0.10-5.89)
Consider policies consistent with scientific evidence		
Yes	22 (10.0)	1.00
No	36 (19.6)	2.21 (1.25-3.92)

95%CI: 95% confidence interval; OR: odds ratio.

* In low-medium and high recategorization: $OR = 1.11$, 95%CI: 0.53-2.22.

Discussion

In total, 15% of the participants scored for high perceived stress associated with COVID-19, which was significantly related to participants' perception on the inconsistency between scientifically-verified recommendations and adopted public health measures by the government authorities.

In this study, the prevalence of high perceived stress was relatively lower than in previous studies. In Australia, Taylor et al. ⁶ found that 34% of participants reported high perceived distress during an equine influenza quarantine. Qiu et al. ⁹ reported that 35% suffered from high psychological distress during the last week of the current COVID-19 epidemic. The discrepancy in prevalence may be explained by the spectrum of symptoms explored by each research instrument and the epidemic context ¹⁷.

In our research, high perceived stress was solely associated with the perceived inconsistency between government arrangements and scientific recommendations, compatible with other papers. In China, Qiu et al. ⁹ reported that measures adopted by health authorities to control the epidemic were associated with perceived distress. The data suggest that reliance in national health authorities outlines emotional responses during epidemic situations ¹¹.

Other studies noticed that high psychosocial stress was more common among young people ^{9,10}. Although our study expected a higher prevalence of perceived stress among younger people, due to their information overload by social networks ⁸, it was similar among the three age groups.

Findings regarding education are inconsistent: in Australia, distress was higher among less educated people ⁶; whereas in China, stress was higher among more educated participants ⁹. Studies currently under developments aim to clarify the role of education in the emotional response to crises such as COVID-19 epidemic.

Other variables may mediate emotional responses to epidemics. In this investigation, the perceived stress did not depend on gender, contrarily to a previous study performed in China, which found that women reported greater psychosocial distress than men ⁹, suggesting that biological and sociocultural factors associated with gender may mediate the association ¹⁸.

Our study omitted proximity to most affected areas by the epidemic and access to medical services as modifiers to emotional responses ^{9,17}. We found health professionals to equally report perceived stress when compared to other jobs ^{9,10}, contrarily to the equine epidemic in Australia, in which healthcare professionals showed a significantly higher psychological distress ⁹. This disparity may be explained by biosecurity measures followed by health personnel in hospitals ¹⁹.

The emotional response to epidemics and their control measures relate to several variables, many of which have been little investigated. Our results suggest that a distal variable, as conceived in the model of social determinants of health, such as mistrusting government institutions, may portray a stress factor for citizens ^{11,19}.

This research provides new information on acute emotional responses to quarantine, which must be considered by health authorities alongside the epidemiological aspects of the infection. Emotional aspects are essential for infected people, their family members, and healthy citizens who must remain quarantined ⁵. Yet, this study present some limitations and potential biases: snowball sampling is nonrandom, so results should be interpreted with caution; the chosen method is undershoot, so that it did not reach the general population; and the authors adapted an existing scale to measure perceived stress associated with COVID-19 ²⁰.

In conclusion, 15% of the participants reported high perceived stress associated with COVID-19. High levels of stress were related to perceived inconsistent strategies adopted by health authorities in view of scientifically-verified recommendations. Further researches must address the psychosocial aspects of epidemics.

Contributors

All authors contributed to the study conception and design and data interpretation, approved the final version, and agreed to be accountable for all aspects of the work. J. C. Pedrozo-Pupo and M. J. Pedrozo-Cortés revised critically the intellectual content. A. Campo-Arias drafted the article.

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Additional informations

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Resumen

El objetivo de este estudio fue conocer la prevalencia, y algunas variables asociadas con el estrés percibido relacionado con la epidemia de COVID-19, en una muestra de adultos colombianos. Los autores diseñaron una encuesta transversal en línea. Los adultos respondieron una versión modificada de la Escala de Estrés Percibido (Perceived Stress Scale, por su siglas en inglés PSS-10); relacionado con la COVID-19 (PSS-10-C) y su alfa de Cronbach fue 0,86. Un total de 406 encuestados aceptaron participar. Las edades de los encuestados oscilaban entre los 19 y los 88 años ($M = 43,9$; $DE = 12,4$). Un 61,8% eran mujeres, un 90,6% con educación universitaria, un 44,1% trabajadores del sector salud, y un 45,7% de los participantes consideraron que las políticas públicas de salud para prevenir la propagación de la epidemia no se adecuaron a las recomendaciones científicas. El PSS-10-C tuvo una puntuación entre 0 y 36 ($M = 16,5$; $DE = 7,3$); un total de 58 participantes (14,3%) obtuvieron una puntuación para alto estrés percibido (punto de corte en 25). La inconsistencia entre las políticas tomadas y las evidencias científicas estuvo significativamente asociada con un alto estrés percibido, en relación con el COVID-19 ($OR = 2,36$; $95\%CI: 1,32-4,20$), tras realizar un ajuste por sexo. En conclusión, es alta la prevalencia del estrés percibido relacionado con el COVID-19 en esta muestra de personas colombianas. El estrés alto está relacionado con la percepción de inconsistencia entre los acuerdos de las autoridades de salud y las recomendaciones científicas. Asimismo, se necesitan más investigaciones enfocadas en los aspectos psicosociales de la epidemia.

COVID-19; Cuarentena; Distrés Psicológico; Estudios Transversales

Resumo

O estudo teve como objetivo conhecer a prevalência e algumas variáveis associadas à percepção de estresse relacionado à pandemia da COVID-19 em uma amostra de adultos colombianos. Os autores desenharam um estudo transversal. Os adultos responderam a uma versão modificada da Perceived Stress Scale para a COVID-19 (PSS-10-C), que apresentou alfa de Cronbach de 0,86. Um total de 406 adultos concordou em participar. A idade dos participantes variava de 19 a 88 anos ($M = 43,9$, $DP = 12,4$). 61,8% eram mulheres, 90,6% tinham bolsas de estudo, 44,1% eram profissionais de saúde e 45,7% achavam que as políticas de saúde pública para prevenir a propagação da epidemia não estavam de acordo com as recomendações científicas. A pontuação da PSS-10-C variava entre 0 e 36 ($M = 16,5$; $DP = 7,3$); um total de 58 participantes (14,3%) tiveram pontuação alta para estresse percebido (ponto de corte de 25). A inconsistência entre as políticas adotadas e as evidências científicas mostraram uma associação significativa com alta percepção de estresse relacionado à COVID-19 ($OR = 2,36$; $IC95\%: 1,32-4,20$), depois de ajustar para o gênero. O estudo conclui que havia alta prevalência de estresse percebido relacionado à COVID-19 nessa amostra de adultos colombianos. O estresse alto está relacionado à percepção de inconsistência entre as propostas das autoridades sanitárias e as recomendações científicas. São necessários mais estudos para tratar dos aspectos psicossociais das epidemias.

COVID-19; Quarentena; Angústia Psicológica; Estudos Transversais

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