# Occupational Stress, Anxiety and Fear of COVID-19 in Colombian Physicians

Estrés laboral, ansiedad y miedo al COVID-19 en médicos generales colombianos

Estresse ocupacional, ansiedade e medo da COVID-19 em clínicos gerais colombianos

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## ABSTRACT

**Introduction.** Epidemics can cause anxiety in the general population and health professionals. The pandemic caused by the COVID-19 virus is no exception. This study's objective is to identify symptoms of work-related stress, anxiety and fear of COVID-19 in physicians, as well as to discover their relation with the territorial body in which they work. **Methodology:** This is a cross-cutting study that explored the symptoms and perceptions of Colombian physicians forced to quarantine, who exercised their profession in March, 2020 during the COVID-19 pandemic. Having

provided informed consent anonymously and voluntarily, participants completed a virtual form with general questions on COVID-19. The survey was aimed at finding psychosomatic problems using the Generalized Anxiety Disorder (GAD-7) scale and Fear of COVID-19 (FCV-19S) scale. Participants were classified as working in non-capital or capital municipalities according to the territorial body in which they practiced. Logistic regression between the territorial body (which was taken as an independent variable here) and symptoms of anxiety, work-related stress and fear of COVID-19 (which, in this case, were taken as dependent variables) was performed. **Results:** Five hundred and thirty-one general physicians participated, with an average age of 30. Seventy-three point three percent practiced in a capital municipality. One third of the surveyed physicians presented mild work-related stress, while 6% presented high or severe work-related stress, without differences between groups ($p < 0.05$). Symptoms of anxiety were found in 72.9% of the surveyed physicians, more frequently among those who practiced in capitals ($p = 0.044$). Thirty-seven point one percent presented symptoms of fear of COVID-19 (FCV-19S). No relation was observed in the logistic regression. **Discussion:** Psychosocial and psychosomatic factors associated with fear are the common denominators of symptoms of anxiety and work-related stress during pandemics. **Conclusion:** Seven of every ten participants presented symptoms of anxiety or work-related stress, while four presented symptoms of FCV-19S. No relation was observed with the municipalities in which they worked.

**Keywords:**
Coronavirus Infection; General Practitioners; Occupational Stress; Anxiety Disorders; Fear; Epidemics.

## RESUMEN

**Introducción.** Las epidemias pueden generar angustia en la población general y en los profesionales de la salud, y la pandemia causada por el virus del COVID-19 no es la excepción. El objetivo del presente estudio es determinar la presencia de síntomas de estrés laboral, ansiedad y miedo al COVID-19 en médicos generales, además de estimar la asociación según el ente territorial donde trabajaban. **Metodología.** Este es un estudio transversal que exploró síntomas y percepciones durante la pandemia del COVID-19 en médicos generales colombianos sometidos a cuarentena obligatoria que ejercieron su profesión en marzo del 2020. Previo consentimiento informado, anónima y voluntariamente, los participantes diligenciaron un formulario virtual con preguntas generales sobre COVID-19. El cuestionario buscaba encontrar problemas psicosomáticos sirviéndose de la Escala para el Trastorno de Ansiedad Generalizada (GAD-7, por sus siglas en inglés) y el FCV-19S (Fear of COVID-19). Los participantes se clasificaron en Municipio no capital o Municipio capital según el ente territorial en donde laboraban. Regresión logística entre el ente territorial (que acá es tomada como variable independiente) con los síntomas de ansiedad, estrés laboral y miedo al COVID-19 (que en este caso es tomado como variable dependiente). **Resultados:** Participaron 531 médicos generales con edad promedio de 30 años. El 73.3% laboraban en Municipio capital. Un tercio de los encuestados presentó estrés laboral leve, mientras que el 6% presentó estrés laboral alto o severo, esto sin diferencias entre los grupos ($p<0.05$). Se identificaron síntomas de ansiedad en el 72.9%, más frecuente entre quienes laboraban en las capitales ($p=0.044$). El 37.1% presentó síntomas de miedo al COVID-19 (FCV-19S). No se observó asociación en la regresión logística realizada. **Discusión:** Factores psicosociales y psicosomáticos asociados al miedo son el común denominador de los síntomas de ansiedad y estrés laboral en las pandemias. **Conclusión:** Siete de cada diez participantes presentó síntomas de ansiedad o estrés laboral, mientras que cuatro presentaron síntomas de FCV-19S. No se observó asociación con la clasificación del municipio donde laboraban.

**Palabras clave:**
Infecciones por Coronavirus; Médicos Generales; Estrés Laboral; Trastornos de Ansiedad; Miedo; Epidemias.

## RESUMO

**Introdução.** As epidemias podem causar angústia na população em geral e nos profissionais de saúde, e a pandemia causada pelo vírus COVID-19 não é exceção. O objetivo deste estudo é determinar a presença de sintomas de estresse ocupacional, ansiedade e medo da COVID-19 em clínicos gerais,

além de estimar a associação de acordo com a entidade territorial em que trabalhavam. **Metodología.** Este é um estudo transversal que explorou sintomas e percepções durante a pandemia da COVID-19 em clínicos gerais colombianos submetidos à quarentena obrigatória que exerceram sua profissão em março de 2020. Após consentimento informado, anonimamente e voluntariamente, os participantes preencheram um formulário virtual com perguntas gerais sobre a COVID-19. O questionário procurou encontrar problemas psicossomáticos utilizando a Escala de Desordem de Ansiedade Generalizada (GAD-7, sigla em inglês) e o FCV-19S (Fear of COVID-19). Os participantes foram classificados em município não-capital ou município capital de acordo com a entidade territorial onde trabalhavam. Regressão logística entre a entidade territorial (que aqui é tomada como variável independente) com os sintomas de ansiedade, estresse ocupacional e medo da COVID-19 (que aqui é tomada como variável dependente). **Resultados.** Participaram 531 médicos de clínica geral com idade média de 30 anos. Do total, 73.3% trabalhavam no município da capital. Um terço dos entrevistados apresentou leve estresse ocupacional, enquanto 6% apresentou estresse ocupacional alto ou severo, isto sem diferenças entre os grupos (p<0,05). Os sintomas de ansiedade foram identificados em 72.9%, mais frequentes entre os que trabalham nas capitais (p=0,044). Ademais, 37.1% tinham sintomas de medo da COVID-19 (FCV-19S). Nenhuma associação foi observada na regressão logística realizada. **Discussão.** Fatores psicossociais e psicossomáticos associados ao medo são o denominador comum dos sintomas de ansiedade e estresse ocupacional em pandemias. Conclusão. Sete em cada dez participantes apresentavam sintomas de ansiedade ou estresse no trabalho, enquanto quatro apresentavam sintomas do FCV-19S. Nenhuma associação foi observada com a classificação do município onde trabalhavam.em bebês com peso extremamente baixo ao nascer. Existem formas de enterocolite necrosante que ocorrem em bebês a termo e, geralmente, estão associadas a fatores predisponentes, resultados compatíveis com os achados nesta pesquisa. **Conclusão.** Este estudo realizado com população colombiana está correlacionado com o descrito na população mundial em que a enterocolite necrosante ocorre mais nos recém-nascidos prematuros e com baixo peso ao nascer.

**Palavras-chave:**
Infecção por Coronavírus; Clínicos Gerais; Estresse Ocupacional; Transtornos de Ansiedade; Medo; Epidemias.

## Introducción

A clinical condition consisting of a severe progressive respiratory alteration, fever, myalgia and fatigue was first reported in Wuhan, China in December, 2019. It was subsequently named COVID-19, caused by a new coronavirus (SARS-CoV-2). It has spread quickly across all continents (1,2). This virus has caused the world's largest outbreak of atypical pneumonia. It is commonly related with Severe Acute Respiratory Syndrome (SARS), which emerged in 2003 and spreads quicker, has a higher rate of infection and higher death rate than COVID-19 (3).

The World Health Organization (WHO) declared COVID-19 a Public Health Emergency of International Concern (PHEI) in January, 2020. In March, they catalogued it as a pandemic (4). Government authorities from all countries, health advisory institutions and regional and international scientific communities have taken action and provided recommendations to face the health, economic and social security challenges brought about by the infection (5-7).

Health safety crises often generate stress and even panic in the general population and health care professionals. They fear contracting the disease and dying from the infection (3,8,9). Sim et al, evaluated the psychological impact of the SARS epidemic in uninfected communities and observed a significant presence of psychiatric morbidity (10). Furthermore, various authors note that health care workers usually fear infecting their families, friends or colleagues. Consequently, they experience symptoms of stress, anxiety or depression with long-term psychological implications (2, 4, 7,11-13). Kang et al. and Lai et al. have indicated that health care professionals have reported significant rates of depression, anxiety, insomnia and stress during the current COVID-19 epidemic (8, 11).

There are insufficient studies in Latin America that assess psychosocial aspects during epidemics. Neither were any studies of symptoms of mental health cases in Colombian physicians exposed to the pandemic caused by COVID 19 identified. The first confirmed case of COVID-19 in Colombia was reported by the press

on March 6, 2020. It is necessary to identify various mental health alterations (anxiety or fear) and work-related stress in Colombian health care workers during the pandemic and identify whether their presence is different with respect to working in capital cities or not. This is in order to establish future recommendations, preventive actions or interventions of any kind for government or health care institutions. This study's objective was to determine the presence of symptoms of work-related stress, anxiety and fear of COVID-19, as well as to estimate whether or not working in the municipal capital of a territorial department can be associated with an increased presence of the three indicated conditions.

## Methodology

This is cross-cutting study that is a part of the DISEU Project (Psychosocial Dynamics in University Students, COVID-19 branch), which belongs to the University Collectives line of research. A written invitation was sent through WhatsApp, Facebook and Instagram and to personal or union e-mails for general physicians who practiced on-site in March, 2020, to participate by completing a specially designed digital form from April 1-5 of that same year, during phase one of the mandatory confinement decreed by the Colombian government. The protocol established that social network invitations would be emphasized and the platform would remain open five more days if the calculated sample size was not reached in the five days of digital field work. In order to participate, general physicians must have practiced in March, 2020 in outpatient care or in hospitals at any level of complexity of care in public or private institutions whose patients presented any type of negative health impact or condition. The only established exclusion criteria was if a participating general physician did not fully complete the form.

A free electronic form made in Google Forms was used to perform surveys and acquire statistics based on opinions. This platform was selected because it is frequently used in educational, occupational and social contexts. It facilitates virtual coordination and is easy to complete. Participants were requested to apply their answers to the period between March 24 and 30, 2020, while Colombia underwent a mandatory quarantine related to COVID-19.

The form, specifically designed for this study, had three sections. The first examined sociodemographic characteristics (gender, age and the municipality in which the participant worked). The second section was made up of 25 general questions about their perception or opinion on aspects related to the COVID-19 epidemic and the medical response to the virus, with binary answers (Yes/No). The questions inquired on government measures, citizen behavior and expressions of fear of the pandemic. Researchers discussed these questions and selected them from a brainstorm of ideas taken from the information generated by Colombian and foreign newscasts and publications in English on COVID-19 (1,5,8,9,11). The third section included the Spanish version of the three internationally proposed scales:

**the psychosomatic problem scale,** also called the work-related stress test. It is a simple tool with few questions that is not well known. It allows analyzing the presence of psychosomatic symptoms associated with stress and estimating its presence and severity in the workplace. The version in Spanish was developed by García-Izquierdo in 1993 and performed by taking items from an extensive instrument created by Hock (14) in 1988 to explore the Burnout Syndrome ("feeling overwhelmed or exhausted"). It is used in various occupational contexts, including health care professionals. However, no studies in which reliability tests were performed were identified. The test consists of twelve Likert items in which answers are provided as follows: Never = 1 point, Almost never = 2, Few times = 3, Sometimes = 4, Relatively frequently = 5 and Very frequently = 6. The sum establishes the presence of work-related stress: 0-12 points = No symptoms of stress; 13-24 = No symptoms of stress, but in the warning phase; 25-36 = Mild stress; 37-48 = Moderate stress, 49-60 = High stress; and over 61= Severe stress. A score of equal to or greater than 25 indicates the presence of work-related stress. Higher scores indicate a greater psychosomatic response, which corresponds to a higher level of stress.

**Generalized Anxiety Disorder (GAD-7) Scale.** It is used to assess anxiety problems or symptoms in clinical contexts and the general population. The scale has a good internal consistency (Cronbach = 0.92) and test-retest reliability (interclass correlation = 0.83). It consists of seven Likert questions: Never = 0; Less than half the time = 1; More than half the time = 2; and Almost every day = 3. It yields a total score of between 0 and 21 points, diagnosing participants as follows: 0-4 points = No symptoms of anxiety; 5-9 = Mild symptoms of anxiety; 10-14 = Moderate symptoms of anxiety; and 15-21 = Severe symptoms of anxiety. A score of ten or more establishes the presence of symptoms of anxiety and indicates a need for a specific assessment from a specialized professional (15, 16).

**Fear of COVID-19 Scale [FCV-19S].** This scale was recently developed by Ahorsu et al., proposed in March, 2020, and consists of seven items. According to the authors, it has robust, reliable and valid psychometric properties to evaluate fear of COVID-19 in the general population; Cronbach's alpha: 0.82 and inter-class correlation: 0.72 (17). There is only an original English version. The items were translated into Spanish and then translated back into English (back translation), following Muñiz, Elosua and Hambleton's (2013) guidelines. There is currently no validation in Spanish, for which reason the scale's reliability was estimated. Each question is answered as a Likert scale item with five options, assigning scores as follows: Strongly disagree = 1; Disagree = 2; Neither agree or disagree = 3; Agree = 4 and Strongly agree = 5. The original version's authors did not indicate the cut-off point. In this study, the first three options were considered negative answers. The other two were considered positive. A score greater than the studied population's average score was defined as a symptom of fear of COVID-19.

The search showed that the data available on the amount of practicing general physicians in Colombia is contradictory. One press report stated there were 77,473 general physicians as of 2011 (18). However, another report indicated there were 65,939 professionals in 2018 (19). Information provided by the National Labor Observatory for Education certified that 73,092 physicians graduated between 2001 and 2018, of which 26% were specialists. Therefore, 54,092 general physicians were estimated to have graduated in that period (20). Due to the above, the current existence of approximately 80,000 general physicians in Colombia was subjectively estimated. A total of 385 participants were estimated to be included in the study using the online calculator, Netquest, considering the sample size with 50% heterogeneity, 95% reliability and a 5% margin of error.

The database, generated automatically on Microsoft Excel, was downloaded from the Google platform and the data was cleansed. Two groups were created to observe the results according to the hierarchy of municipalities in which the participants practiced: (1) Not a department capital municipality, and (2) Department capital municipality. An analysis was performed with EPI-INFO-7.0 (Centers for Disease Control and Prevention, Atlanta, U. SA.; 2008). The continuous data was expressed in medians (Me) with interquartile ranges (RI) and categoricals in absolute numbers, percentages and 95% reliability intervals. The differences between groups were evaluated with the Mann-Whitney U Test or ANOVA (according to the homogeneity of the variance for continuous variables) and the Mantel-Haenszel or Fischer test for categoricals, according to the theoretical frequencies. An unadjusted logistic regression was performed between the municipalities' category (independent variable) and symptoms of anxiety, work-related stress and fear of COVID-19 (dependent variable). A value of $p < 0.05$ was considered statistically significant.

In order to preserve complete anonymity, a researcher was assigned to download the database from the platform. They replaced the column with participants' e-mails with an individual alphanumeric code. Upon participating, the form's senders expressly identified themselves as general physicians. They accepted the terms and granted informed consent when completing the forms, which complies with the Declaration of Helsinki's guidelines. Technical and scientific regulations for health care research established in Colombia in Resolution 8430 of 1993 were taken into account. The study was classified as research with minimal risks (21). The Women's Health Research Group and the DISEU research project have institutional approval from Universidad de Cartagena, Colombia. The researcher who downloaded the database identified the participants with symptoms of work-related stress and anxiety, replaced the alphanumeric code with the respective e-mail address and individually sent each notification reporting the study's results.

## Results

We received 548 completed forms sent from different e-mails in the first five days of April, 2020. Seventeen (3.1%) were incomplete and ruled out. The study was performed with information provided by 531 general physicians, 37.9% over the calculated sample size.

Among participants, 389 worked in capital municipalities (73.3%) and 142 worked in non-capital municipalities in territorial departments (26.7%). The average age was 30. Over half were among the 21-30 age group, and those working in capital municipalities were older than the former, $p < 0.05$. Over 50% stated they were female physicians. Table 1 shows the sociodemographic data.

The answers to questions on perceptions and opinions on aspects related to the pandemic and the surveyed individuals' performance are presented in Table 2. Forty percent expressed having felt discriminated for being medical professionals, without significant differences between the groups. Those who worked in capital municipalities reported having believed they had COVID-19 symptoms, as well as being afraid of spreading the

infection at home, coexisting with family members in the high-risk group for COVID-19 and complying with the exhaustive disinfection protocol upon arriving home more often compared to those who worked in non-capital municipalities, $p < 0.05$.

**Table 1.** Sociodemographic characteristics.

| | | All: 531 | Non-capital municipality n=142 (26.7%) | Capital municipality n=389 (73.3%) | p |
|---|---|---|---|---|---|
| **Age (Me) - [RI]** | | 30.0 [26-36] | 28.5 [25-34] | 31.0 [27-37] | 0.0002* |
| **n(%) [IC95%]** | | | | | |
| | 21-30 | 277 (52.2) [47.9-56.4] | 87 (61.3) [52.7-69.3] | 190 (48.8) [43.9-53.8] | 0.01** |
| | 31-40 | 164 (30.9) [27.1-34.9] | 43 (30.3) [22.9-38.5] | 121 (31.1) [26.7-35.9] | 0.85** |
| **Age range** | 41-50 | 49 (9.2) [7.0-12.0] | 6 (4.2) [1.6-9.0] | 43 (11.0) [8.3-14.6] | 0.01** |
| | 51-60 | 31 (5.8) [4.1-8.2] | 5 (3.5) [1.1-8.0] | 26 (6.79) [4.6-9.6] | 0.16** |
| | 61-70 | 10 (1.9) [1.0-3.4] | 1 (0.7) [0.1-3.9] | 9 (2.3) [1.2-4.3] | 0.22** |
| **Regions** | Andean | 220 (41.4) [37.3-45.7] | 85 (59.9) [51.3-68.0] | 135 (34.7) [30.1-39.6] | 0.0001** |
| | Caribbean | 294 (55.4) [51.1-59.5] | 50 (35.2) [27.4-43.7] | 244 (62.7) [57.8-67.4] | 0.0001** |
| | Pacific | 9 (1.7) [0.9-3.2] | 5 (3.5) [1.1-8.0] | 4 (1.0) [0.4-2.6] | 0.04** |
| | Orinoco | 7 (1.3) [0.6-2.7] | 1 (0.7) [0.1-3.9] | 6 (1.5) [0.7-3.3] | 1.00*** |
| | Amazon | 1 (0.2) [0.1-1.1] | 1 (0.7) [0.1-3.9] | 0 | 0.26*** |
| **Gender** | Male | 215 (40.5) [36.4-42.7] | 58 (40.8) [32.7-49.4] | 157 (40.4) [35.6-45.3] | 0.91** |
| | Female | 316 (59.5) [55.3-63.6] | 84 (59.1) [50.6-67.3] | 232 (59.6) [54.7-64.4] | |

(*) Mann-Whitney U Test. (**) Mantel-Haenszel. (***) Fisher

**Source:** Prepared by author.

**Table 2.** Surveyed individuals' perceptions and opinions on aspects related to the COVID-19 epidemic and their performance.

| | | All: 531 | Non-capital municipality n=142 (26.7%) | Capital municipality n=389 (73.3%) | p* |
|---|---|---|---|---|---|
| **n (%) [IC95%]** | | | | | |
| **Have you felt discriminated for being a health care professional?** | No | 324 (61.0) [56.8-65.0] | 96 (67.6) [59.2-75.2] | 228 (58.6) [53.7-63.4] | 0.06 |
| | Yes | 207 (39.0) [34.9-43.2] | 46 (32.4) [24.8-40.7] | 161 (41.4) [36.6-46.3] | |
| **Have you believed you had symptoms related to COVID-19?** | No | 327 (61.6) [57.4-65.5] | 99 (69.7) [61.4-77.1] | 228 (58.6) [53.7-46.3] | |
| | Yes | 204 (38.4) [34.4.42.6] | 43 (30.3) [22.9-38.5] | 161 (41.4) [36.6-46.3] | <0.05 |
| **Are case reports shown to the community reliable?** | No | 499 (94.0) [91.6-95.7] | 131 (92.5) [86.6-96.1] | 368 (94.6) [91.9-96.4] | 0.31 |
| | Yes | 32 (6.0) [4.3-8.4] | 11 (7.7) [3.9-13.4] | 21 (5.4) [3.6-8.1] | |
| **Do you believe detection tests in your community are sufficient?** | No | 503 (94.8) [92.5-96.3] | 134 (94.4) [89.2-97.5] | 369 (94.9) [92.2-96.6] | 0.82 |
| | Yes | 28 (5.3) [3.7-7.5] | 8 (5.6) [2.5-10.8] | 20 (5.1) [33.7.8] | |
| **Are you afraid a COVID-19 death rate similar to that of China or Europe may arise?** | No | 43 (8.1) [6.1-10.7] | 14 (9.9) [5.5-16.0] | 29 (7.5) [5.2-10.5] | 0.36 |
| | Yes | 488 (91.9) [89.3-93.9] | 128 (90.1) [84.0-94.5] | 360 (92.5) [89.5-94.8] | |
| **Do you consider the government's measures against COVID-19 sufficient?** | No | 411 (77.4) [73.6-80.7] | 114 (80.3) [72.8-86.5] | 297 (76.3) [71.9-80.3] | 0.33 |
| | Yes | 120 (22.6) [19.2-26.3] | 28 (19.7) [13.5-27.2] | 92 (23.6) [19.7-28.1] | |
| **Has your community properly followed the mandatory confinement measures?** | No | 515 (97.0) [95.2-98.1] | 138 (97.2) [92.9-99.2] | 377 (96.9) [94.7-98.2] | 0.87 |
| | Yes | 16 (3.0) [1.9-4.8] | 4 (2.8) [0.8-7.1] | 12 (3.1) [1.8-5.3] | |
| **Is there enough health care equipment if cases significantly increase?** | No | 481 (90.6) [87.8-92.8] | 130 (91.5) [85.7-95.6] | 351 (90.2) [86.9-92.8] | 0.64 |
| | Yes | 50 (9.4) [7.2-12.2] | 12 (8.4) [4.4-14.3] | 38 (9.8) [7.213.1] | |
| **Would you be afraid to have to appear at a health care unit as a patient?** | No | 94 (17.7) [14.6-21.1] | 29 (20.4) [14.1-28.0] | 65 (16.7) [13.3-20.7] | 0.32 |
| | Yes | 437 (82.3) [78.8-85.3] | 113 (79.6) [72.0-85.9] | 324 (83.3) [79.3-86.7] | |

| | | | | | |
|---|---|---|---|---|---|
| **Are you satisfied with the work you do every day?** | No | 139 (26.2) [22.6-30.0] | 45 (31.7) [24.1-40.0] | 94 (24.2) [20.2-28.7] | 0.08 |
| | Yes | 392 (73.8) [69.9-77.3] | 97 (68.3) [60.0-75.9] | 295 (75.8) [71.3-78.8] | |
| **Do you feel protected by the system during your professional activities?** | No | 490 (77.0) [73.2-90.4] | 115 (81.0) [73.5-87.1] | 294 (75.6) [71.1-79.6] | 0.19 |
| | Yes | 122 (23.0) [19.6-26.7] | 27 (19.0) [12.9-26.4] | 95 (24.4) [20.4-28.9] | |
| **Do you feel you are contributing to improve the pandemic's current situation?** | No | 63(11.9) [9.3-14.8] | 23 (16.2) [10.5-23.3] | 40 (10.3) [7.6-13.7] | 0.06 |
| | Yes | 468 (88.1) [85.1-90.6] | 119 (83.8) [76.7-89.4] | 349 (89.7) [86.3-92.4] | |
| **Do you feel anxiety when thinking of going to work?** | No | 147(27.7) [24.0-31.6] | 42 (29.6) [22.2-37.8] | 105 (27.0) [22.8-31.6] | |
| | Yes | 384(72.3) [68.3-75.9] | 100 (70.4) [62.2-77.8] | 284 (73.0) [68.4-77.2] | 0.55 |
| **Do you think you can become infected by COVID-19 by performing your medical work?** | No | 23(4.3) [2.9-6.4] | 8 (5.6) [2.5-10.8] | 15 (3.9) [2.3-6.3] | 0.37 |
| | Yes | 508(95.7) [93.5-97.1] | 134 (94.4) [89.2-97.5] | 374 (96.1) [93.7-97.6] | |
| **Have you considered quitting your job to protect yourself and your family?** | No | 272(51.2) [46.9-55.4] | 71 (50.0) [41.5-58.5] | 201 (51.7) [46.7-56.6] | 0.73 |
| | Yes | 259(48.8) [44.5-53.0] | 71 (50.0) [41.5-58.5] | 188 (48.3) [43.4-53.3] | |
| **Have you felt disappointed by the conditions of COVID-19 in your medical work?** | No | 226(42.6) [38.4-46.8] | 56 (39.4) [31.3-48.0] | 170 (43.7) [38.9-48.7] | 0.37 |
| | Yes | 305(57.4) [53.1-61.5] | 86 (60.6) [52.0-68.6] | 219 (56.3) [51.3-61.1] | |
| **Have you felt discriminated for being a health care professional?** | No | 324(61.0) [56.8-65.0] | 96 (67.6) [59.2-75.2] | 228 (58.6) [53.7-63.4] | 0.06 |
| | Yes | 207(39.0) [34.9-43.2] | 46 (32.4) [24.8-40.7] | 161 (41.4) [36.6-46.3] | |
| **Do you have a thorough disinfection protocol upon arriving home?** | No | 49(9.3) [7.0-11.9] | 25 (17.6) [11.7-24.9] | 24 (6.2) [4.2-9.0] | |
| | Yes | 482(90.8) [88.0-92.9] | 117 (82.4) [75.1-88.3] | 365 (93.8) [91.0-95.8] | <0.001 |
| **Are you afraid you may carry COVID-19 home?** | No | 28(5.3) [3.6-7.5] | 12 (8.4) [4.4-14.3] | 16 (4.1) [2.5-6.6] | <0.05 |
| | Yes | 503(94.7) [92.4-96.3] | 130 (91.5) [85.7-95.6] | 373 (95.9) [92.4-97.4] | |

| | | | | | |
|---|---|---|---|---|---|
| **Is your family afraid you may return home infected with COVID-19?** | No | 102(19.2) [16.0-22.7] | 29 (20.4) [14.1-28.0] | 73 (18.8) [15.2-22.9] | 0.66 |
| | Yes | 429(80.8) [77.2-83.9] | 113 (79.6) [72.0-85.9] | 316 (81.2) [77.1-84.8] | |
| **Do you live with any family members in a group at high risk due to COVID-19?** | No | 225(42.4) [38.2-46.6] | 71 (50.0) [41.5-58.5] | 154 (39.6) [34.8-44.5] | <0.03 |
| | Yes | 306(57.6) [53.3-61.7] | 71 (50.0) [41.5-58.5] | 235 (60.4) [55.5-65.1] | |
| **Are you afraid to be an asymptomatic carrier?** | No | 213(40.1) [36.0-44.3] | 59 (41.5) [33.3-50.1] | 154 (39.6) [34.8-44.5] | 0.68 |
| | Yes | 318(59.9) [55.6-63.9] | 83 (58.4) [49.9-66.6] | 235 (60.4) [55.5-65.1] | |
| **Have you thought of moving out of your home during the COVID-19 pandemic?** | No | 171(32.3) [28.3-36.2] | 44 (31.0) [23.5-39.3] | 127 (32.6) [28.2-37.5] | 0.71 |
| | Yes | 360(67.8) [63.7-71.6] | 98 (69.0) [60.7-76.5] | 262 (67.3) [62.5-71.8] | |
| **Have you had nightmares with the virus?** | No | 357(67.2) [63.1-71.0] | 94 (66.2) [57.8-73.9] | 263 (67.6) [62.8-72.1] | 0.75 |
| | Yes | 174(32.7) [28.9-36.8] | 48 (33.8) [26.1-42.2] | 126 (32.4) [27.9-37.2] | |
| **Are you stressed due to COVID-19?** | No | 125(23.5) [20.1-27.3] | 34 (23.9) [17.2-31.8] | 91 (23.4) [19.5-27.8] | 0.89 |
| | Yes | 406(76.5) [72.6-79.8] | 108 (76.1) [68.2-82.8] | 298 (76.6) [72.1-80.5] | |
| **Do you feel anxiety because of COVID-19?** | No | 409(77.0) [73.2-80.4] | 113 (79.6) [72.0-85.9] | 296 (76.1) [71.6-80.1] | 0.39 |
| | Yes | 122(23.0) [19.6-26.7] | 29 (20.4) [14.1-28.0] | 93 (23.9) [19.9-28.4] | |

(*) Mantel-Haenszel
**Source:** Prepared by author.

Table 3 shows the twelve symptoms the psychosomatic problem survey assesses. Cronbach's alpha was 0.873. More than half of those evaluated reported having various symptoms several times, almost always or always. Moreover, 43% reported trouble sleeping, 27% felt a strong temptation not to get up in the morning for work and 20% presented extreme weariness or fatigue. Did not present symptoms of work-related stress: 20 (3.8%) (IC 95%: 2.4-5.7), neither did they have symptoms, but were in the warning phase: 169 (31.8%) (IC 95%: 28.0-35.9), mild work-related stress: 186 (35.0%) (IC 95%: 31.1-39.2), moderate work-related stress: 22 (23.0%) (IC 95%: 19.6-26.7), high work-related stress: 29 (5.5%) (IC 95%: 3.8-7.7) and severe work-related stress: 5 (0.9%) (IC 95%: 0.4-2.2). No differences were observed in the classification of work-related stress between both groups, p > 0.05.

**Table 3.** Symptoms of work-related stress. Psychosomatic problem survey. Total population and distribution according to the municipality in which they work n = 531.

| Items | | Never, rarely, sometimes | Often | Almost always | Always |
|---|---|---|---|---|---|
| | | n (%) [IC95%] | | | |
| **Trouble sleeping** | All | 302 (56.9) [52.6-61.0] | 138 (26.0) [24.4-30.0] | 61 (11.5) [9.0-14.5] | 30 (5.6) [4.0-7.9] |
| | Non-capital municipality | 72 (52.1) [43.6-60.6] | 34 (23.9) [17.2-31.8] | 26 (18.3) [12.3-25.7] | 8 (5.6) [2.5-10.8] |
| | Capital municipality | 228 (58.6) [53.7-63.4] | 104 (26.7) [22.6-31.3] | 35 (9.0) [6.5-12.3] | 22 (5.7) [3.8-8.4] |
| **Headaches** | All | 312 (58.8) [54.5-62.9] | 123 (23.2) [19.8-26.9] | 63 (11.9) [9.4-14.9] | 33 (6.2) [4.5-8.6] |
| | Non-capital municipality | 90 (63.4) [54.9- 71.3] | 30 (21.1) [14.7- 28.8] | 16 (11.3) [6.6-17.6] | 6 (4.2) [1.6-9.0] |
| | Capital municipality | 222 (57.1) [52.1-61.9] | 93 (23.9) [19.9-28.4] | 47 (12.1) [ 9.2-15.7] | 27 (6.9) [4.8-9.9] |
| **Indigestion or gastrointestinal discomfort** | All | 348 (65.8) [61.6-69.7] | 109 (20.6) [17.4-24.3] | 39 (7.4) [5.4-9.9] | 33 (6.2) [4.5-8.6] |
| | Non-capital municipality | 90 (63.8) [55.3-71.7] | 29 (20.6) [14.2-28.2] | 14 (9.9) [5.5-16.1] | 8 (5.7) [2.5-10.9] |
| | Capital municipality | 258 (66.5) [61.7-71.0] | 80 (20.6) [16.9-24.9] | 25 (6.4) [4.4-9.3] | 25 (6.4) [4.4-9.3 |
| **Extreme weariness or fatigue** | All | 270 (50.8) [46.6-55.1] | 143 (26.9) [23.3-30.9] | 68 (12.8) [10.2-15.9] | 50 (9.4) [7.2-12.2] |
| | Non-capital municipality | 71 (50.0) [41.5-58.5] | 34 (23.9) [17.2-31.8] | 26 (18.3) [12.3-25.7] | 11 (7.7) [3.9-13.4] |
| | Capital municipality | 199 (51.2) [46.2-56.1] | 109 (28.0) [23.8-32.7] | 42 (10.8) [8.1-14.3] | 39 (10.0) [7.4-13.4] |
| **A tendency to eat, drink or smoke more than usual** | All | 269 (50.7) [46.4-54.9] | 123 (23.2) [19.8-26.9] | 83 (15.6) [12.8-19.0] | 56 (10.5) [8.21-13.4] |
| | Non-capital municipality | 77 (54.2) [45.7-62.6] | 24 (16.9) [11.1-24.1] | 28 (19.7) [13.5-27.2] | 13 (9.1) [5.0-15.1] |
| | Capital municipality | 192 (49.4) [44.4-54.3] | 99 (25.4) [21.4-30.0] | 55 (14.1) [11.0-17.9] | 43 (11.0) [8.3-14.6] |
| **A decrease in sexual interest** | All | 339 (63.8) [59.7-67.8] | 87 (16.4) [13.5-20.0] | 62 (11.7) [9.2-14.7] | 43 (8.1) [6.1-10.7] |
| | Non-capital municipality | 99 (69.7) [61.4-77.1] | 19 (13.4) [8.2-20.1] | 18 (12.7) [7.7-19.3] | 6 (4.2) [1.6-9.0] |
| | Capital municipality | 240 (61.7) [56.8-66.4] | 68 (17.5) [14.0-21.6] | 44 (11.3) [8.5-14.8] | 37 (9.5) [7.0-12.8] |

| | | | | | |
|---|---|---|---|---|---|
| **Shortness of breath or a choking sensation** | All | 454 (85.5) [82.2-88.2] | 52 (9.8) [7.5-12.6] | 13 (2.4) [1.4-4.1] | 12 (2.3) [1.3-3.9] |
| | Non-capital municipality | 124 (87.3) [80.7-92.3] | 12 (8.4) [4.4-14.3] | 4 (2.8) [0.8-7.1] | 2 (1.4) [0.2-5.0] |
| | Capital municipality | 330 (84.8) [80.9-88.1] | 40 (10.3) [7.6-13.7] | 9 (2.3) [1.2-4.3] | 10 (2.6) [1.4-4.7] |
| **A reduced appetite** | All | 453 (85.3) [82.0-88.1] | 50 (9.4) [7.2-12.2] | 12 (2.3) [1.3-3.9] | 16 (3.0) [1.9-4.8] |
| | Non-capital municipality | 129 (90.8) [84.8 -95.0] | 11 (7.7) [3.9-13.4] | 1 (0.7) [0.1- 3.9] | 1 (0.7) [0.1- 3.9] |
| | Capital municipality | 324 (83.3) [79.3-86.7] | 39 (10.0) [7.4-13.4] | 11 (2.8) [1.6-5.0] | 15 (3.9) [2.3-6.3] |
| **Muscular or nervous tremors** | All | 467 (87.9) [84.9-90.4] | 46 (8.7) [6.6-11.4] | 10 (1.9) [1.0-3.4] | 8 (1.5) [0.8-2.9] |
| | Non-capital municipality | 128 (90.1) [84.0-94.5] | 10 (7.0) [3.43-12.6] | 4 (2.8) [0.8- 7.1] | 0 |
| | Capital municipality | 339 (87.1) [83.4-90.1] | 36 (9.2) [6.8-12.5] | 6 (1.5) [0.7-3.3] | 8 (2.1) [1.0-4.0] |
| **Stinging or painful sensations** | All | 422 (79.5) [75.8-82.7] | 59 (11.1) [8.7-14.1] | 30 (5.6) [4.0-7.9] | 20 (3.8) [2.4-5.7] |
| | Non-capital municipality | 111 (78.2) [70.5-84.7] | 15 (10.6) [6.0-16.8] | 9 (6.3) [2.9-11.7] | 7 (4.9) [2.0-9.9] |
| | Capital municipality | 311 879.9) [75.7-83.6] | 44 (11.3) [8.5-14.8] | 21 (5.4) [3.6-8.1] | 13 (3.3) [2.0-5.6] |
| **Strong temptations not to get up in the morning** | All | 332 (62.5) [58.3-66.5] | 103 (19.4) 16.3-23.0] | 56 (10.5) [8.2-13.4] | 40 (7.5) [5.6-10.1] |
| | Non-capital municipality | 78 (54.9) [46.4-63.3] | 27 (19.0) [12.9-26.4] | 22 (15.5) [10.0 22.5] | 15 (10.6) [6.0-16.8] |
| | Capital municipality | 254 (65.3) [60.4-69.9] | 76 (19.5) [15.9-23.8] | 34 (8.7) [6.3-12.0] | 25 (6.4) [4.4-9.3] |
| **A tendency to sweat or feel palpitations** | All | 453 (85.3) [82.0-88.1] | 52 (9.8) [7.5-12.6] | 13 (2.4) [1.4-4.1] | 13 (2.4) [1.4-4.1] |
| | Non-capital municipality | 122 (85.9) [79.1-91.2] | 15 (10.6) [6.0-16.8] | 4 (2.8) [0.8-7.1] | 1 (0.7) [0.1-3.9] |
| | Capital municipality | 331 (85.1) [81.2-88.3] | 37 (9.5) [7.0-12.8] | 9 (2.3) [1.2-4.3] | 12 (3.1) [1.8-5.3] |

**Source:** Prepared by author.

Eight of every ten participants reported having some of the problems explored in GAD-7 in the two evaluated weeks. Cronbach's alpha was 0.793. Twenty-six percent felt nervous or very upset over half the days or almost every day. The above was more frequent among those working in capital municipalities (p < 0.05). Fifteen percent, whether or not they practiced in a capital municipality, expressed having felt fear almost every day as if something terrible were about to happen. A similar proportion of individuals stated they worried daily. Responses to GAD-7 are presented in Table 4.

Did not present symptoms of anxiety: 144 (27.1%) (IC 95%: 23.5-31.0), mild: 178 (33.5%) (IC 95%: 29.6-37.6), moderate: 138 (26.0%), (IC 95% 22.4-30.0), severe: 71 (13.4%) (IC 95%: 10.7-16.5). No differences were observed between the two groups in: the absence of symptoms of anxiety and mild or moderate presence, p > 0.05. Fifteen-point two percent (IC 95%: 11.9-19.1) of physicians working in capitals and 8.4% (IC 95%: 4.4-14.3) of those working in non-capital municipalities had symptoms of severe anxiety, p = 0.0443.

**Table 4.** Anxiety disorder problems or symptoms. Generalized Anxiety Disorder Scale (GAD-7). Total population and distribution according to the municipality in which they work n = 531.

| Items | | Never | Less than half the time | Over half the time | Almost every day |
|---|---|---|---|---|---|
| | | n (%) [IC 95%] | | | |
| **Feeling nervous, anxious or very upset** | All | 174 (32.8) [28.9-36.9] | 217 (40.9) [36.8-45.1] | 97 (18.3) [15.2-21.8] | 43 (8.1) [6.1-10.7] |
| | Non-capital municipality | 48 (33.8) [26.1-42.2] | 62 (43.7) [35.4-52.2] | 24 (16.9) [11.1-24.1] | 8 (5.6) [2.5-10.8] |
| | Capital municipality | 126 (32.4) [27.93-37.2] | 155 (39.8) [35.1-44.8] | 73 (18.8) [15.20-22.9] | 35 (9.0) [6.5-12.3] |
| **Cannot stop worrying** | All | 114 (21.5) [18.2-25.2] | 223 (42.0) [37.9-46.2] | 106 (20.0) [16.8-23.6] | 88 (16.6) [13.6-20.0] |
| | Non-capital municipality | 35 (24.6) [17.8-32.6] | 58 (40.8) [32.7 -49.4] | 28 (19.7) [13.5-27.2] | 21 (14.8) [9.4-21.7] |
| | Capital municipality | 79 (20.3) [16.6 -24.6] | 165 (42.4) [37.6-47.4] | 78 (20.0) [16.4-24.3] | 67 (17.2) [13.8-21.3] |
| **Excessive concern due to various things** | All | 108 (20.3) [17.1-24.0] | 210 (39.5) [35.5-43.8] | 135 (25.4) [21.9-29.3] | 78 (14.7) [11.9-17.9] |
| | Non-capital municipality | 30 (21.1) [14.7 -28.8] | 55 (38.7) [30.7-47.3] | 43 (30.3) [22.9-38.5] | 14 (9.9) [5.5 16.0] |
| | Capital municipality | 78 (20.0) [16.4-24.3] | 155 (39.8) [35.1-44.8] | 92 (23.6) [19.7-28.1] | 64 (16.4) [13.1-20.5] |
| **Difficulty relaxing** | All | 123 (23.2) [19.8-26.9] | 201 (37.8) [33.8-42.0] | 146 (27.5) [23.9-31.4] | 61 (11.5) [9.0-14.5] |
| | Non-capital municipality | 35 (24.6) [17.8-32.6] | 48 (33.8) [26.1-42.2] | 47 (33.1) [25.4- 41.5] | 12 (8.4) [4.4-14.3] |
| | Capital municipality | 88 (22.6) [18.7-27.0] | 153 (39.3) [34.6-44.3] | 99 (25.4) [21.4-30.0] | 49 (12.6) [9.7- 16.3] |
| **Feeling so restless you cannot stay still** | All | 213 (40.1) [36.0-44.3] | 176 (33.1) [29.3-37.3] | 99 (18.6) [15.6-22.2] | 43 (8.1) [6.1-10.7] |
| | Non-capital municipality | 54 (38.0) [30.0 -46.5] | 51 (35.9) [28.0-44.4] | 33 (23.2) [16.6-31.1] | 4 (2.8) [0.8-7.1] |
| | Capital municipality | 159 (40.9) [36.1-45.8] | 125 (32.1) [27.7-36.9] | 66 (17.0) [13.6-21.0] | 39 (10.0) [7.42-13.4] |

| | | All | | | |
|---|---|---|---|---|---|
| **Feeling irritated or easily angered** | All | 148 (27.9) [24.3-31.8] | 219 (41.2) [37.1-45.5] | 117 (22.0) [18.7-25.7] | 47 (8.8) [6.7-11.6] |
| | Non-capital municipality | 47 (33.1) [25.4-41.5] | 57 (40.1) [32.0-48.7] | 31 (21.8) [15.3-29.5] | 7 (4.9) [2.0- 9.9] |
| | Capital municipality | 101 (26.0) [21.9-30.5] | 162 (41.6) [36.8-46.6] | 86 (22.1) [18.3-26.5] | 40 (10.3) [7.6-13.7] |
| **Being afraid as if something terrible were about to happen** | All | 154 (29.0) [25.3-33.0] | 162 (30.5) [26.7-34.5] | 139 (26.2) [22.6-30.1] | 76 (14.3) [11.6-17.5] |
| | Non-capital municipality | 41 (28.9) [21.6 -37.1] | 43 (30.3) [22.9-38.5] | 37 (26.1) [19.1-34.1] | 21 (14.8) [9.4-21.7] |
| | Capital municipality | 113 (29.0) [24.8-33.7] | 119 (30.6) [26.2-35.3] | 102 (26.2) [22.1-30.8] | 55 (14.1) [11.0-17.9] |

**Source:** Prepared by author.

Table 5 shows the results obtained with FCV-19S. Half of the participants reported trouble sleeping out of worry about COVID-19 and six of every ten had rapid heart rates or felt palpitations. No difference was observed between the groups (p > 0.05). Cronbach's alpha was 0.598. Thirty-seven point one percent (IC 95%: 33.1-41.2) had symptoms of fear of COVID-19. Seventy-four point five percent reported four or more symptoms of fear of those explored by the scale. The average number of fears was 4.1 ± 1.0.

Working in a capital municipality or non-capital municipality was not found to be a factor associated with more symptoms of anxiety OR: 0.80 (IC 95%: 0.54-1.18), p = 0.27; work-related stress OR: 0.99 (IC 95%: 0.67-1.46), p = 0.97 or fear of COVID-19 OR: 1.44 (IC95:0.96-2.16) p = 0.07.

**Table 5.** Symptoms of fear of COVID-19. Fear of COVID Scale (FLV-19S).

| | | All: 531 | Non-capital municipality n=142 (26.7%) | Capital municipality n=389 (73.3%) | p (*) |
|---|---|---|---|---|---|
| | | N (%) [IC95%] | | | |
| **Very afraid of COVID-19** | No | 94 (17.7) [14.7-21.2] | 29 (20.4) [14.1-28.0] | 65 (16,71) [13,3-20,7] | 0,3 |
| | Yes | 437 (82.3) [78.8-85.3] | 113 (79.5) [72,0-85,8] | 324 (83,29) [79,2-86,6] | |
| **Uneasiness thinking about COVID-19** | No | 114 (21.5) [18.2-25.2] | 35 (24,6) [17,8-32,5] | 79 (20,31) [16,6-24,5] | 0,3 |
| | Yes | 417 (78.5) [74.8 -81.8] | 107 (75,3) [67,4-82,1] | 310 (79,6) [75,4-83,3] | |
| **Your hands get damp or sweaty when thinking about COVID-19?** | No | 163 (30.7) [26.9-34.7] | 47 (33,1) [25,4-41,4] | 116 (29,8) [25,4-34,5] | 0,5 |
| | Yes | 368 (69.3) [65.2-73.1] | 95 (66,9) [58,5-74,5] | 273 (70,1) [65,4-74,5] | |

| | | | | | |
|---|---|---|---|---|---|
| **You are afraid to lose your life due to COVID-19** | No | 154 (29.0) [25.3-33.0] | 41 (28,8) [21,5-37,0] | 113 (29,0) [24,7-33,7] | 1 |
| | Yes | 377 (71.0) [67.0-74.7] | 101 (71,1) [62,9-78,4] | 276 (70,9) [66,2-75,2] | |
| **You get nervous or anxious when you hear news or stories about COVID-19** | No | 174 (32.8 [28.91-36.9] | 48 (33,8) [26,0-42,2] | 126 (32,3) [27,9-37,1] | 0,8 |
| | Yes | 357 (67.2) [63.1-71.1] | 94 (66,2) [57,7-73,9] | 263 (67,6) [62,8-72,0] | |
| **You cannot sleep because COVID-19 worries you** | No | 245 (46.1) [41.9-50.4] | 63 (44,3) [36,0-52,9] | 182 (6,7) [41,8-51,7] | 0,6 |
| | Yes | 286 (53.9) [49.6-58.1] | 79 (55,6) [47,0-63,9] | 207 (53,2) [48,2-58,1] | |
| **Your heart rate quickens or palpitates when you think about COVID-19** | No | 188 (35.4) [31.5-39.6] | 53 (37,3) [29,3-45,8] | 135 (34,7) [30,1-39,5] | 0,6 |
| | Yes | 343 (64.6) [60.4-68.5] | 89 (62,6) [54,1-70,6] | 254 (65,3) [60,4-69,8] | |

(*) Mantel-Haenszel
**Source:** Prepared by author.

## Discussion

Many major epidemic outbreaks that have decimated humanity have been recorded throughout its history (4,8,22,23). The influenza virus epidemic in 1918, the so-called "Spanish flu" that began in the United States, caused a high death rate around the world (22).

The WHO created the International Health Regulations (IHR) in 1851 and last updated it in 2005. It is an international law instrument among whose objectives is helping countries avoid disease propagation (24). The IHR defines Public Health Emergencies of International Concern (PHEIC) as extraordinary events that constitute a risk to states' public health through the propagation of diseases that appear unexpectedly, severely or suddenly and call for immediate action with a coordinated international response. Ever since 2007, the WHO has declared six PHEIC: the H1N1 pandemic (2009), setbacks in the eradication of poliomyelitis (2014), the Ebola epidemic in West Africa (2014), the Zika virus outbreak (2016), the Kivu-Congo Ebola epidemic (2018-2019) and the COVID-19 pandemic in 2019-2020 (9, 25).

This study, performed during the preventive quarantine phase without an overflow of the national health care system's capacity, observed increased symptoms of anxiety, work-related stress and fear among the professionals who participated, which is documented in this COVID-19 epidemic and others (3,5,9-11,13). Xiao indicated that COVID-19 has a high mortality rate and viral infection mortality rate, as well as negative psychological and mental impacts (2). Hawryluck et al, break down the psychological effects of quarantines during epidemics (3).

Pandemics tend to move in suddenly and propagate quickly, generating various negative impacts, especially social impacts (5,9,11). The study showed that 39% of physicians expressed having felt discriminated for being health care professionals, which was more frequently reported by those working in the municipal capital of a territorial department. Various authors have indicated that two sociological phenomena against health care professionals sharply arise during epidemics: discrimination and stigmatization (4,9,23). The former refers to an individual or group's treatment with partiality or prejudice. The latter is a condition, trait, behavior or attribute that gets the bearer included in a social category that generates a negative response of cultural unacceptability from society. There is a vicious cycle between stigmatization and discrimination (26). The concept was coined by Canadian sociologist Erving Goffman in 1963 and indicates that the instinctual egoism of survival emerges during epidemics, which

leads to rejecting others, considering them possible sources of infection (23,27).

Appropriate, quick and clear information from public health officials regarding the epidemic and government or health care measures contribute to reducing discrimination of health care professionals (5,17,28). The recent SARS epidemic corroborated that the concentration of fear creates stigmatization and discrimination (3,9). The mass media, a powerful influencer of public attitudes, can contribute to prevention by not using dramatic headlines that promote fear and even panic (5,26,29). Various authors have indicated that health care professionals, who are victims of discrimination during epidemics, can reach up to 60% more emotional alteration (12).

Over 70% of the evaluated physicians expressed a fear of contracting COVID-19, being a source of infection for their families, being asymptomatic carriers and even dying. Symptoms of anxiety, work-related stress and psychosomatic manifestations were identified at similar proportions. The magnitude of somatizations can be observed in many of the scales' items. This term was proposed at the beginning of the 20th century by German neurologist and psychoanalyst Wilhelm Stekel to explain how a psychological disorder can produce somatic symptoms (30). Adolphs R. has extensively explained the neurobiology of social cognition (31).

Somatization is an unconscious defense mechanism by means of which emotional discomfort becomes a physical symptom, deviating attention from the psychological conflict causing the anxiety (32). It is a complex cognitive, affective and behavioral process in which an individual in a vitally stressful situation experiences physical symptoms and attributes them to a biological disease (33). Somatization is involved in social cognition, a neurobiological process that allows properly interpreting social signs to answer appropriately and accordingly (30,32,33). It explains the relationship between symptoms of anxiety and stress that were observed in the study. The magnitude of the identified symptoms of work-related stress is a reason for concern, since stress is an important factor of the Burnout Syndrome (14). Various anatomical structures are involved in these processes: the prefrontal cortex and amygdala, cingulum and frontal, premotor and motor cortex (31,34). We can speculate that the high presence of somatization observed in the participating professionals is an escape mechanism from anxiety and fear, which are present in all epidemics.

Stress, anxiety and fear are symptomatic emotions or expressions that are normal in initial phases of aggressor stimuli that can be moderated with individual coping or somatization patterns. They can also overflow, causing hysteria or panic. All of this occurs during epidemics (3,5,8,11,17). The presence and confluence of symptoms of stress, anxiety and fear can be explained by the modifications that occur in neurotransmitters. A link has been established between decreases in some neurotransmitters and emotions (34-35). Decreases in serotonin, dopamine, endorphins, acetylcholine, adrenaline and gamma-aminobutyric acid (GABA) are associated with anxiety, obsession, depression, difficulties controlling anger, sadness and negative emotions (34,36).

In general, no significant differences were observed between both groups, except for severe symptoms of anxiety, which does not support the hypothesis of more psychosocial alterations in physicians working in capital municipalities. Personal and family uncertainty, the unpredictability of the impact's severity, occupational despair and unease and fear are likely to affect patients equally (3,5,11). Fear is a cerebral alarm system that activates when the brain detects a real or fictitious, present or future threat. They can even be associated to past experiences (29). Fear is a survival mechanism for living beings, especially humans (8, 11,17,23,29). The cerebral amygdala has nuclei that receive sensory information and regulates fear conditioning using serotonin, dopamine and norepinephrine (35,37). These same receptors and neurotransmitters participate in the three symptomatic events in the study. The magnitude of symptoms of fear was similar to that of anxiety and stress, making it possible to associate them (29,37).

Saramago (38) indicates a clear example of people's actions during epidemics in a sudden onset epidemic picture under quarantine that represents behaviors derived from panic, despair, uncontrolled anxiety, humans' egoism to survive and collective fear. Without distinguishing between populations or cultures, psychological pandemics caused by fear travel further and quicker than the diseases themselves, infecting the collective imagination (11,23,34).

High risk of infection, inadequate personal protective equipment, the absence of safety conditions or unfavorable working and hiring conditions, a lack of biomedical or therapeutic supplies, isolation, exhaustion, long shifts and lack of family contact are other factors that contribute to increased symptoms of stress or anxiety, panic, depression and despair in physicians who work during epidemics (1,3,5,17). Even though some of those factors were not expressly surveyed in the study presented here, all of them are part of the events inherent to epidemics and have been approached from

a psychosocial context (10). Changes to lifestyles due to the epidemic have occasionally been associated with more emotional alteration in health care professionals (12). Therefore, they must make cognitive and behavioral efforts to answer and face stressful situations (10).

The obtained results confirm that physicians are not immune to mental health problems and the negative emotional or psychological effects can harm their decision-making capacity and general well-being. Constant, severe or chronic stress will generate depressive tendencies, social interpersonal isolation, sleep disorders, frustration or impotence, Burnout Syndrome and difficulty properly adopting personally to the events related to the epidemic (2-3,5,14,17). Cruz-Valdez et al., in a cross-sectional study on health care professionals during the H1N1 epidemic, reported a 24% prevalence of Burnout Syndrome (emotional weariness, depersonalization and low personal fulfillment) (28). In that same study, resident physicians presented higher emotional weariness, irritability, insomnia, sensations of physical overstraining and, above all, anxiety due to the work overload, strenuous shifts and departure restrictions.

Symptoms of anxiety, as has been noted, are explained by neuroendocrine mechanisms, in which the cortical-striatal-thalamic-cortical circuit plays a primary role (31,34-36). We found a high presence of symptoms of moderate and severe anxiety similar to those reported in other studies performed during epidemics (8,11). Nickel et al., observed that two of every three health care professionals in a third-level hospital in Toronto were concerned about the virus, while 29% saw negative impacts emotionally in their lifestyles and family harmony during the SARS epidemic (12).

This study's strength is being one of the first to cover mental and occupational health aspects for Colombian general physicians during an epidemic. It was performed with a virtual survey that was easy to complete and GAD-7, a short, well-known tool that has been validated in various scenarios. It was reliable for participants. Its limitations are those of cross-sectional studies: it establishes statistical associations, not causalities. The virtual and massive form of invitation, as well as the unvalidated acceptance of being a general physician can create different biases, especially in terms of remembrance and selection, since it is not possible to control participants and exactly know whether they are general physicians or even actually attended patients in March, 2020. The survey was short in order to prevent abandonment in the middle of filling out the form. This condition was complicated to set up and can become another limitation. In addition, it can create a

reporting or background bias. Use of biosafety equipment or backgrounds of family or personal anxiety were not surveyed, since both can be significantly confusing. Although the number of participants was larger than the sample size, the results may be over or underestimated, with a possible measurement bias, especially in terms of FCV-19S. Said scale was initially developed and validated on an Iranian population during the COVID-19 pandemic, which spoke two languages. Only one publication was identified in English (17). It has yet to be validated in Spanish, which is a significant limitation. It lacked reliability among the participating Colombian general physicians. The psychosomatic problem survey was reliable and was used to explore twelve somatizations. Its weakness was not having identified validations by other authors, although it has been used in various occupational scenarios. Extensive studies on Colombian physicians working during epidemics or pandemics are called for to specify the behavior and influence of multiple psychosomatic and psychological aspects.

Health care and government officials are recommended to understand epidemics as evolving situations with various phases (5). Adopting mandatory preventive isolation and practicing social distancing, hygiene measures, and citizen requirements that seek to decrease the disease's propagation must be prudently enforced (3,39). Occupational health authorities and occupational risk companies to which practicing physicians are affiliated must continuously explore these workers' mental health, since significant figures of anxiety and work-related stress were observed in the studied group. Routine clinical assessments will allow identifying elevated levels of anxiety and stress to apply therapeutic actions, without putting the occupational programs that include preventive measures for work-related stress and anxiety aside.

## Conclusion

Seven of every ten evaluated general physicians presented symptoms of anxiety or work-related stress, while four presented symptoms of fear of COVID-19. Severe anxiety was more frequent among physicians in capital municipalities. However, working in those territorial bodies was not associated with a higher presence of any of the three studied conditions. Inadequately enforced confinement and social distancing, as well as citizens' failure to comply and a lack of hygiene measures, can be factors that generate fear, anxiety and stress, which further deteriorate the general community and health care professionals' mental health.

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# Conflicts of Interest

There are no conflicts of interest to declare.

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