Attitudes towards and mental health during COVID-19 pandemic: An online cross-sectional survey in the State of Goiás, Brazil

Atitudes e saúde mental durante a pandemia da COVID-19: Uma pesquisa transversal online no estado de Goiás, Brasil

Actitudes y salud mental durante la pandemia COVID-19: Una encuesta transversal en línea en el estado de Goiás, Brasil

Ueric José Borges de Souza

ORCID: https://orcid.org/0000-0003-1442-4771

Instituto Federal de Educação, Ciência e Tecnologia Goiano, Brasil

E-mail: uericjose@gmail.com

Luciana Cristina Vitorino

ORCID: https://orcid.org/0000-0001-7271-9573

Instituto Federal de Educação, Ciência e Tecnologia Goiano, Brasil

E-mail: luciana.vitorino@ifgoiano.edu.br

Layara Alexandre Bessa

ORCID: https://orcid.org/0000-0001-6286-9260

Instituto Federal de Educação, Ciência e Tecnologia Goiano, Brasil

E-mail: layara.bessa@ifgoiano.edu.br

Abstract

The novel Corona Virus Disease (COVID-19) has been spreading through all the world fastly leading to a massive public reaction. The knowledge and attitude toward measures for prevention are essential in the control of pandemic infection. Pandemics may contribute to intensified levels of stress, and anxiety is a natural reaction to any stressful situation. This study aimed to assess the knowledge, attitudes towards, anxiety and perceive mental health care among Brazilian Population from Goiás State during COVID-19 pandemic. An online survey was conducted, and a total of 251 responses were received. The participants were older than 18 years, with an average of 33.95. The participants demonstrated a moderate level of knowledge about the COVID-19 infection and its preventive aspects with more than 92% believing that social distance is essential to stop the virus spread and 93.2% agreeing to

quarantine or isolate themselves if they present symptoms. Sleep difficulties and distress related to social media were reported in 20.8% and 48.6% of participants, respectively. Most agreed on the need for mental healthcare and assistance from professionals during the pandemic. Our results reflect the need to raise awareness and discuss people's mental health concerns and highlights the urgent need for the government and professional associations be prepared to deal with the psychological effects of the pandemic.

Keywords: COVID-19; Knowledge; Attitude; Anxiety; Mental healthcare.

Resumo

O novo coronavírus (SARS-CoV-2), causador da doença COVID-19, tem se propagado mundialmente de forma devastadora, causando diversos impactos na sociedade. O conhecimento e atitudes em relação às medidas de prevenção são essenciais para o controle da doença. Além disso, com a pandemia os sintomas de stress e ansiedade tem sido intensificado. Este estudo buscou avaliar o conhecimento, as atitudes e questões relacionadas com nível de ansiedade e percepção dos cuidados com a saúde mental durante a pandemia entre a população do estado de Goiás, Brasil. Para isso, foi realizada uma pesquisa online, e um total de 251 respostas foram recebidas e analisadas. Os participantes demonstraram um nível moderado de conhecimento sobre a doença e seus aspectos preventivos. Mais de 92% dos participantes responderam que o distanciamento social é essencial para impedir a propagação do vírus e 93,2% concordaram em isolar-se caso apresentem sintomas. Dificuldades para dormir e sentimentos de angústia foram relatados em 20,8% e 48,6% dos participantes, respectivamente. A maioria dos participantes concordaram com a necessidade de cuidados em saúde mental e assistência profissional durante a pandemia. Nossos resultados refletem a necessidade de ações de sensibilização sobre saúde mental durante a pandemia e reforça a necessidade urgente do governo na efetivação de políticas públicas direcionadas à esta questão.

Palavras-chave: COVID-19; Conhecimento; Atitude; Ansiedade; Saúde mental.

Resumen

La COVID-19 es la enfermedad infecciosa causada por el coronavirus (SARS-CoV-2) que se ha estado extendiendo por todo el mundo y ha llevado a una reacción pública masiva. El conocimiento y la actitud hacia las medidas de prevención son esenciales para el control de la infección pandémica. Las pandemias pueden contribuir a aumentar los niveles de estrés, y la ansiedad es una reacción natural a cualquier situación estresante. Este estudio tenía por objeto

evaluar los conocimientos, actitudes, ansiedad y percepción de la atención de salud mental entre la población brasileña del estado de Goiás durante la pandemia COVID-19. Se realizó una encuesta en línea y se recibió un total de 251 respuestas. Los participantes eran mayores de 18 años, con un promedio de 33,95. Los participantes demostraron un nivel moderado de conocimiento sobre la infección por COVID-19 y sus aspectos preventivos, con más del 92% de la convicción de que la distancia social es esencial para detener la propagación del virus y el 93,2% de la misma aceptó someterse a cuarentena o aislarse si presentaban síntomas. Las dificultades de sueño y la angustia relacionada con las medias sociales fueron reportadas en 20,8% y el 48,6% de los participantes, respectivamente. La mayoría estuvo de acuerdo en la necesidad de atención de la salud mental y de la asistencia de los profesionales durante la pandemia. Nuestros resultados reflejan la necesidad de crear conciencia y debatir los problemas de salud mental de las personas y resaltan la urgente necesidad de que el gobierno y las asociaciones profesionales estén preparados para enfrentar a los efectos psicológicos de la pandemia.

Palabras clave: COVID-19; Conocimiento; Actitud; Ansiedad; Salud mental.

1. Introduction

The world is facing a critical and severe public health emergency because of the spread of COVID-19 caused by severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2). The World Health Organization (WHO) declare it a Public Health Emergency of International Importance on January 30, 2020 (WHO, 2020a). In Brazil, the epidemic was declared an Emergency in Public Health of National Importance (ESPIN), on February 3, 2020 (Brasil, 2020). On the 11th of March, the organization provided the highest alert level and the COVID-19 beginning to be considered a pandemic as by then about 114 countries were affected (WHO, 2020b).

The global spread of the new coronavirus COVID-19 transmission has been very rapid. The basic reproduction number (R_0) appears to have stabilized at approximately 2-3 (Liu et al., 2020). The incubation period of SARS-CoV-2 ranges from 1–14 days, usually between 3 and 7 days (Guan et al., 2020). The most common symptoms in mild to moderate patients include dry cough, fever, and fatigue, sometimes accompanied by headache, nasal congestion, sore throat, myalgia, and arthralgia. Shortness of breath can occur up two to 14 days after exposure to coronavirus and may be followed by or progress to hypoxemia (Guan et al., 2020; Xu et al., 2020; Zhang et al., 2020). In 10-20% of patients, severe pneumonia was

reported, and respiratory infection eventually develops into acute respiratory distress syndrome (ARDS), and other severe complications within 8-14 days of the illness (Chen et al., 2020; Li et al., 2020). Among children, the symptoms are moderate, through a small number of patients with gastrointestinal symptoms such as nausea, diarrhea, abdominal pain, constipation, and bloating (Tan et al., 2020; Zheng et al., 2020). In addition to systemic and respiratory symptoms, it has been recently reported that 36.4% of severely affected COVID-19 patients may experience neurological symptoms, such as headache, disturbed consciousness, and acute cerebrovascular diseases (Mao et al., 2020).

Several studies indicated that transmission from person-to-person is a possible route to the spread of COVID-19 infection (Rothan & Byrareddy, 2020; Salehi et al., 2020). The transmission of person-to-person occurs primarily through direct contacts, such as kissing and hugging or respiratory droplets from an infected person via coughing or sneezing (Rothan & Byrareddy, 2020). Besides, the virus can also spread through touching objects or surfaces that have the virus on them, such as handrails, telephones, or doorknobs (Desai & Patel, 2020). Currently, there are no specific antiviral treatment or vaccine against the virus. The only alternative available is to use broad-spectrum antiviral drugs such as nucleoside analogues and also HIV-protease inhibitors that may attenuate viral infection until the development of the specific antiviral drug against COVID-19 (Lu, 2020; Rothan & Byrareddy, 2020). Furthermore, there are several other compounds, both novel and pre-existing that are under analysis and tests for their potential against viral infection. Since there are no approved treatments for this infection, prevention is crucial. So, to reduce the risk of catching or spreading coronavirus, social distancing is essential, as it is more likely to spread when people are close together (Ferguson et al., 2020).

As of July 2020, a total of 17,113,213 confirmed cases and 663,667 deaths were reported worldwide (WHO, 2020c). In Brazil, the first case was reported on February 25, 2020, in the city of São Paulo (Rodriguez-Morales et al., 2020). Since then, the number of infections has increased rapidly, reaching over 2.5 million cases and 90,134 deaths by July 31 (WHO, 2020c). The first confirmed case in Goiás was reported on March 12 and by July 31 was registered 68,448 confirmed cases and a total of 1,656 deaths.

Knowledge of infectious disease and relevant precautions are essential to act to prevent and control infection. In the past, knowledge, attitudes towards, preventive strategies, and active social involvement have had favorable impacts on the control of human influenza H1N1, Ebola and SARS (Bell, 2004; Vartti et al., 2009; Yang & Chu, 2018). So, there is an urgent need to evaluate the public´s awareness of COVID-19 since the vaccine remains

underway. Also, social isolation is related to numerous symptoms related to psychological disorders (Castro-de-Araujo & Machado, 2020). A recent review of the psychological impact of people quarantined revealed numerous emotional outcomes, such as, stress, depression, irritability, insomnia, anger, emotional exhaustion, fear, some of which persisted after the quarantine was lifted (Brooks et al., 2020). The authors also suggest that officials should take every measure to ensure that this experience is as tolerable as possible for people (Brooks et al., 2020).

Considering the relevance of all the above factors, this study aimed to evaluate the knowledge, attitude towards, anxiety, and perceived mental healthcare needs among the population of Goiás State, Brazil, during the coronavirus pandemic.

2. Methods

This study was as an online, cross-sectional, opinion-based survey carried out in the Goiás State, Brazil, with a quantitative and exploratory approach. The questionnaire was carried out anonymously without identification of participants, following the norms of resolutions 466/12 (Brasil, 2012) e 510/16 (Brasil, 2016). Since participation was voluntary, consent was presumed by the voluntary choice of participating in the study. The response was restricted to one per participant and it was considered only answers from the participants with age more than 18 years living in the Goiás State, Brazil.

The online questionnaire was created using Google forms and designed based on Roy et al. (2020). The link of the google forms questionnaire was sent through e-mails, WhatsApp, and other social media (Facebook and Instagram) to the contacts of the researchers located at Goiás State, Brazil. Participants were also encouraged to share with their contacts.

The questionnaire was divided into four sections. The first section of the questionnaire included socio-demographic variables, such as age, gender, occupation, education, and area of residence. The second section included questions related to the knowledge of the novel coronavirus. The third section was about attitudes related to combat and transmission, and the fourth was related to anxiety and perceived mental health care needs during the pandemic caused by the novel coronavirus. The data collection was initiated on 10nd Jun 2020 at 7 PM and closed on 31th Jul 2020 at 8 AM.

For the analysis, the data were extracted to the Microsoft excel sheet and descriptive statistics (mean, standard deviation, and frequency), and figures were performed through the software R, version 4.0.2.

3. Results

Socio-demographic aspects

A total of 251 participants answered the questionnaire. The participants belong to 31 cities of the Goiás state with maximum representation from Rio Verde (39.84%) and Goiânia (33.86%) (Figure 1). Besides, 95.62% living in urban areas, whereas 4.38 living in rural or suburban areas. The mean age of the participants was 33.95 ± 10.30 years. Among the participants, 75.30 were females (189 participants), and 24.70 were males (62 participants) (Figure 2A). The majority of females and males age ranged from 18 to 30, followed by 31 to 40 (Figure 2B). Regarding the level of education, the lowest level registered was for elementary school and 72.91% (183 participants) has a higher education and above. Most females (98 or 51.85% from females' participants) and males (30 or 48.39% from males' participants) participants were undergraduate (Figure 2C). Concerning to profession/career, most of the participants were a female and male teacher (81 participants or 32.27%). Furthermore, only 7.94% of female (16 participants) and 1.61% of male (1 participant) participants were healthcare professionals (Figure 2D).

Figure 1. Distribution of study sample across 31 cities of Goiás State, Brazil.
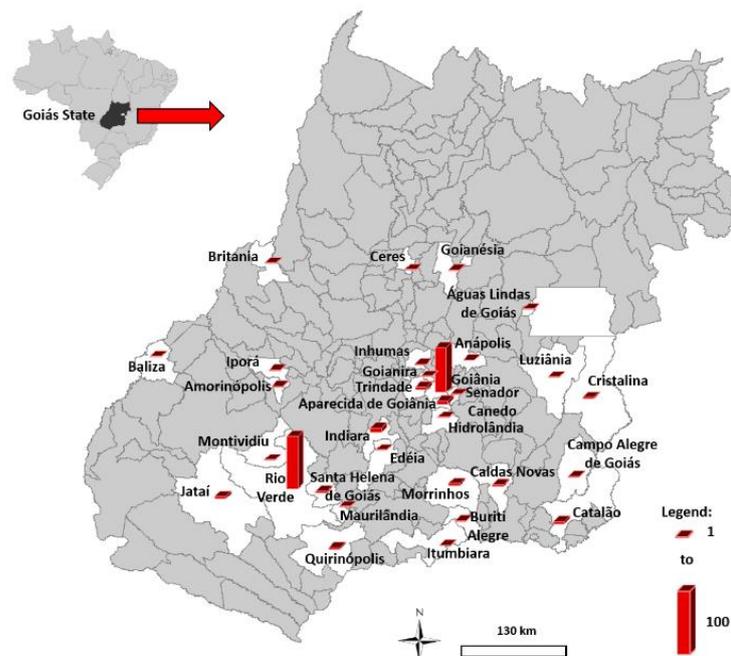
Source: Authors.

Figure 2. Socio-demographic characteristics of participants. A) Number of participants by sex; B) Number of participants by age group; C) Number of participants by level of education; D) Number of participants by occupation. Female represented in light blue and male in dark blue.
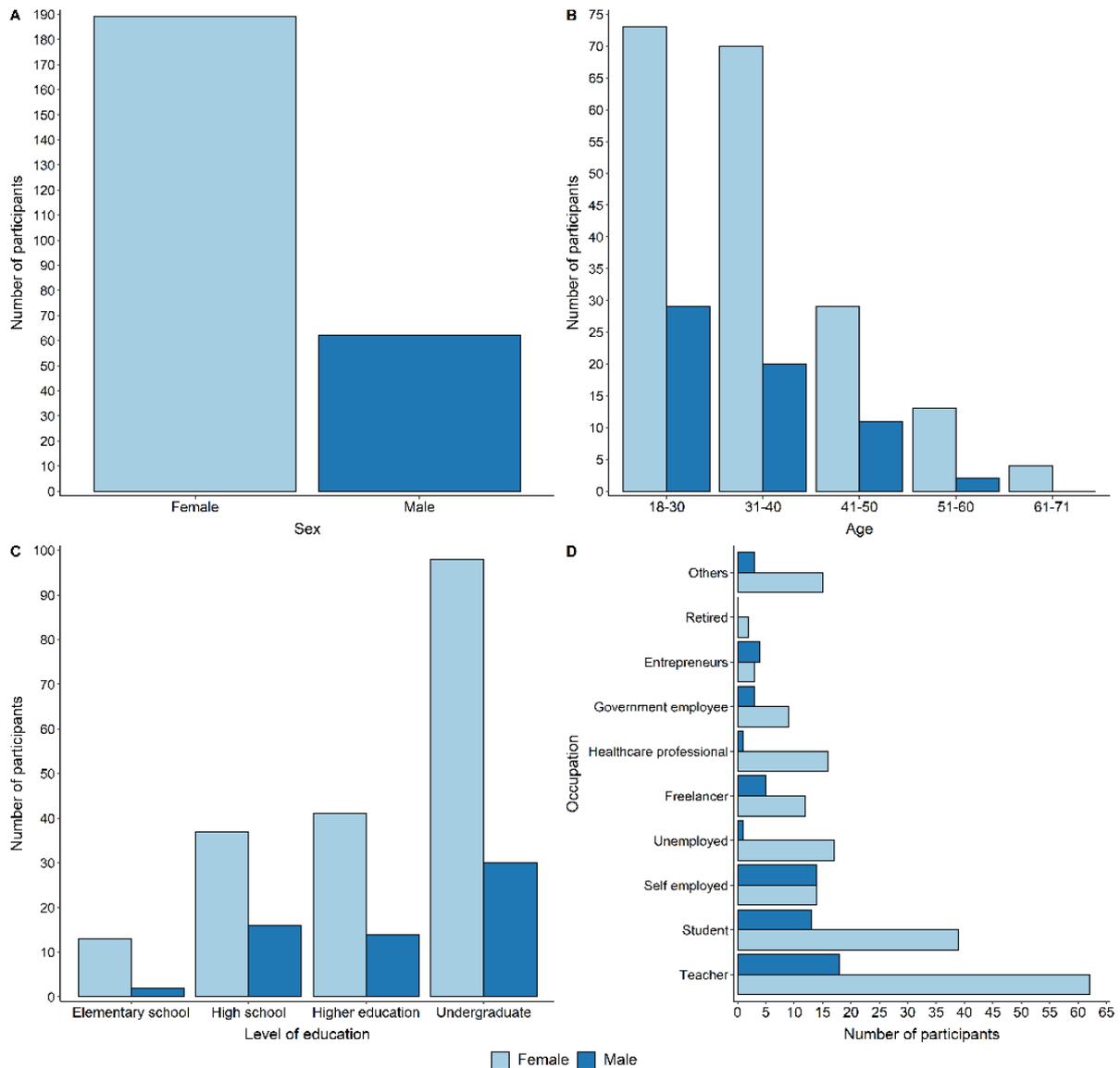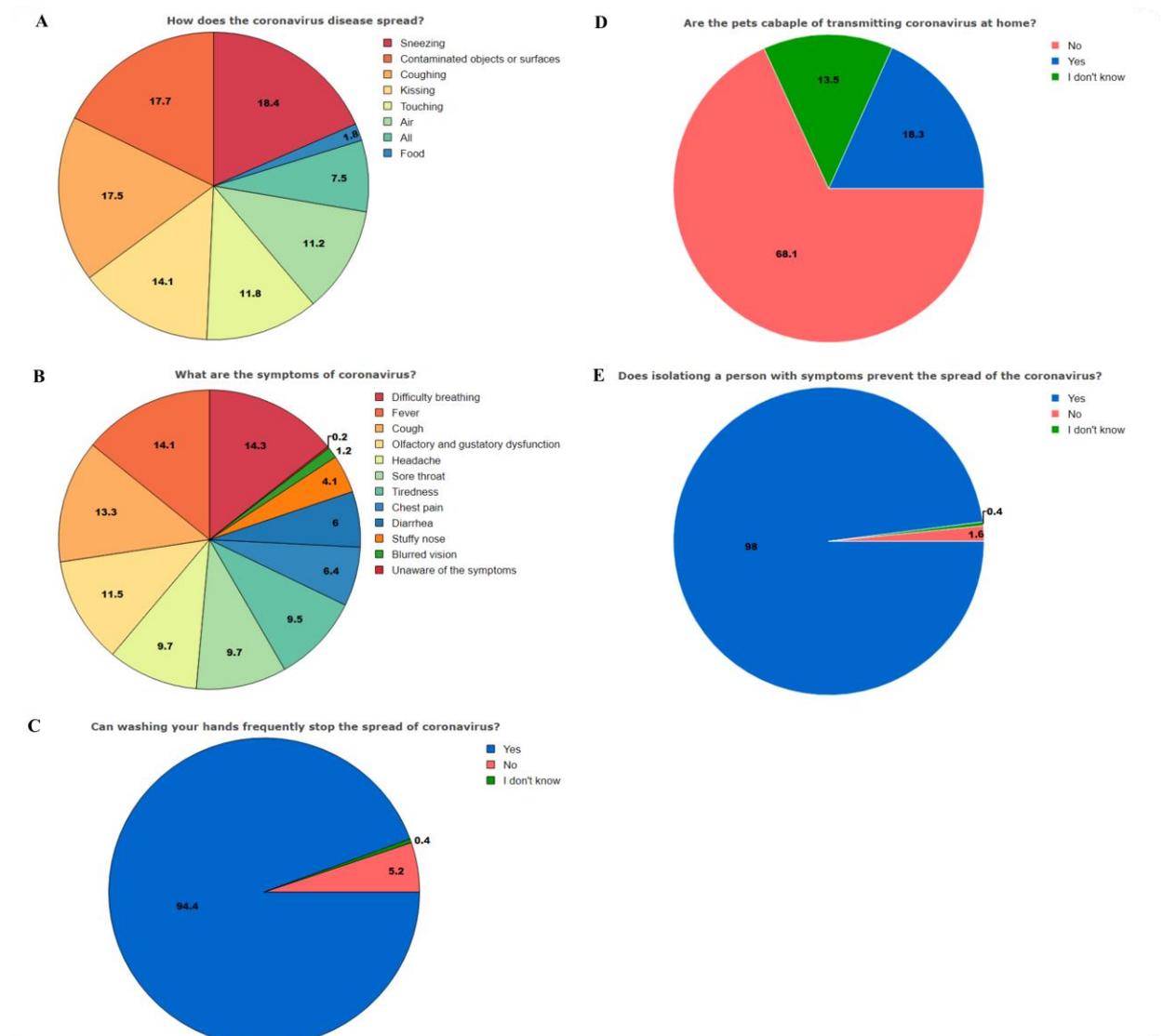

Source: Authors.

General knowledge of COVID-19

A substantial number of participants were reasonably aware of the basic concepts related to the transmission and symptoms of the disease. Out of the total participants, only 7.5% responded that the virus spreads through all multiple modes. The majority of participants answered that sneezing, contaminated objects or surfaces and coughing are the primary way the virus spread (Figure 3A). Regarding the symptoms of coronavirus, most

participants answered difficulty in breathing, fever, cough and olfactory and gustatory disfunction, whereas only 0.2% reported that they do not know the symptoms (Figure 3B). Most participants agreed that washing hands would also avoid the spread of infection (94.4%; Figure 3C) and recognize the importance of isolating a person with symptoms (98%; Figure 3D). Also, 68.1% replied that the pets did not transmit coronavirus, whereas 18.3% answered yes and 13.5% that does not know.

**Figure 3**. General knowledge of 251 participants about COVID-19 pandemic.

Source: Authors.

Attitudes toward during COVID-19 pandemic

The participants were first asked about the government efforts to combat COVID-19. Out of 251 participants, 52.6% answered that the government has taken measures to combat the COVID-19 (surely and likely), whereas 17.5% reported that does not (Figure 4A). Most of the participants (96.4%; surely and likely) agreed that washing hands could reduce the risk of contamination (Figure 4B). More than 92% of the participants believed that social distance is essential to stop the virus spread (Figure 4C) and 93.2% agreed to quarantine or isolate themselves if they present symptoms (Figure 4D).

Figure 4. Attitudes towards of 251 participants from Goiás State during COVID-19 pandemic.
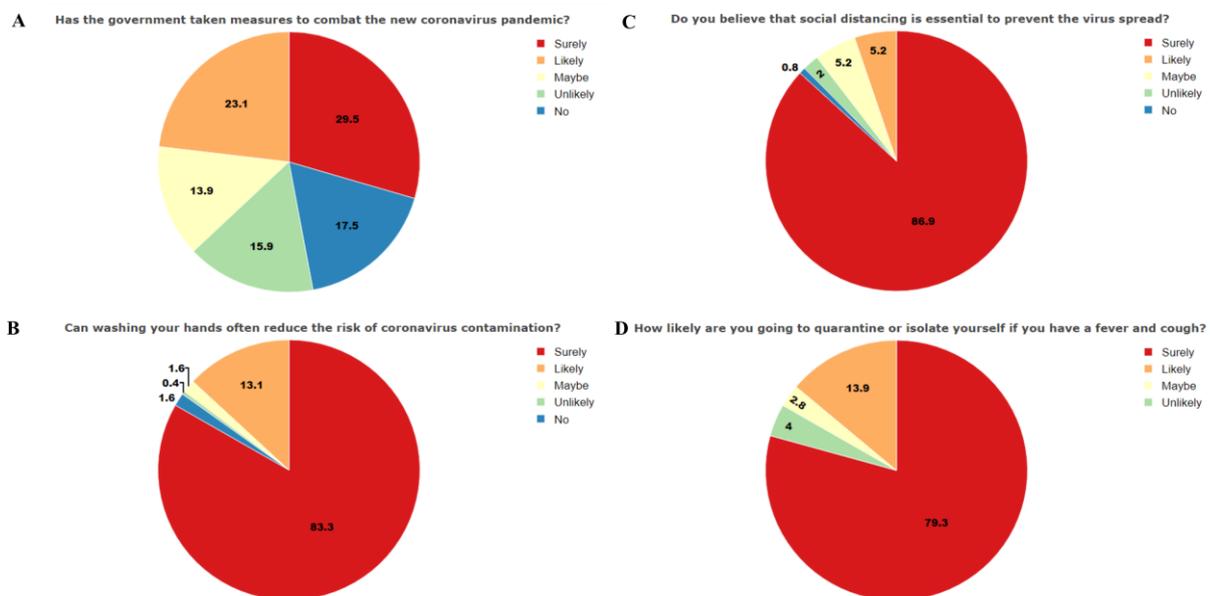
Source: Authors.

Anxiety towards and perceived mental health needs during COVID-19 pandemic

The Table 1 shows the results from different questions associated with anxiety towards during the COVID-19 pandemic. Always and frequently were considered together as a positive answer. Among the participants, 76.8% were preoccupied with the pandemic, and 47% always and frequently feel that they can become infected with the new coronavirus. Approximately 90% of the participants had avoided agglomeration of people and 83.2% reduced their social contact. Over this time, a total of 76.5% participants often discussed the pandemic with their friends and parents, and 69.7% expressed to feel afraid if someone in

their social circle getting infected with the coronavirus and became sick. About 20% of participants had sleeping difficulty worried about the pandemic, and 48.6% felt affected by the reports of COVID-19 pandemic on social media. Almost 10% of the people reported the felling to buy and stock essentials supplies at home, and 5.6% mentioned inappropriate social behavior due to the fear of coronavirus infection. Also, more than 76% of the participants in this study admitted that they felt the need to keep the environment clean, 91.3% often washed their hands and 94.4% admitted using a mask (Table 1).

Table 1. Questions and answers from 251 participants of anxiety-related to COVID-19 pandemic. Data presented as percentage (%).

Question	Always	Frequently	Sometimes	Rarely	Never
How often do you think about the pandemic caused by the new coronavirus?	38.2	38.6	20.6	2.4	0.4
How often do you feel you can become infected with the new coronavirus?	20.7	26.3	39.0	12.7	1.2
How often have you avoided agglomeration of people?	55.0	35.1	8.8	1.2	-
How often have you avoided social contact?	44.6	38.6	12.4	3.2	1.2
How often do you talk with your friends and family about the pandemic?	41.4	35.1	18.3	4.4	0.8
How often are you having trouble sleeping worried about the pandemic?	8.8	12.0	29.5	19.5	30.3
How often do you feel affected by coronavirus-related themes on social media?	21.1	27.5	33.5	12.0	6.0
How often do you feel you should buy and stock everything that is essential at home?	6.4	3.6	18.3	29.5	42.2
How often do you feel afraid of someone close to you getting infected with the coronavirus?	45.8	23.9	21.1	7.2	2.0
How often do you feel you need to clean up your environment?	38.2	38.6	17.5	5.2	0.4
How often do you feel you need to wash your hands?	61.0	30.3	7.6	1.2	-
How often do you use the mask?	62.9	31.5	5.2	0.4	-
Thoughts about the possibility of contaminating yourself with the coronavirus have already led you to aggressive behavior with someone?	2.0	3.6	19.9	13.1	61.4

Source: Authors.

Concerning the questions about perceived mental healthcare needs, 44.2% of participants admitted that it would be nice to talk to someone about their worries regarding the COVID-19 pandemic (Figure 5A). A total of 91.2% agreed on the need for mental healthcare for people who panic in the face of the pandemic situation (Figure 5B). More than 97% of participants indicated that mental health assistance from psychologists, psychiatrists, and other mental health professionals remained necessary to address emotional and psychological issues related to the COVID-19 pandemic and 87.3% may recommend mentally affected people to seek mental health support (Figure 5C and Figure 5D).

Figure 5. The perceived mental health needs of 251 participants from Goiás State during COVID-19 pandemic.
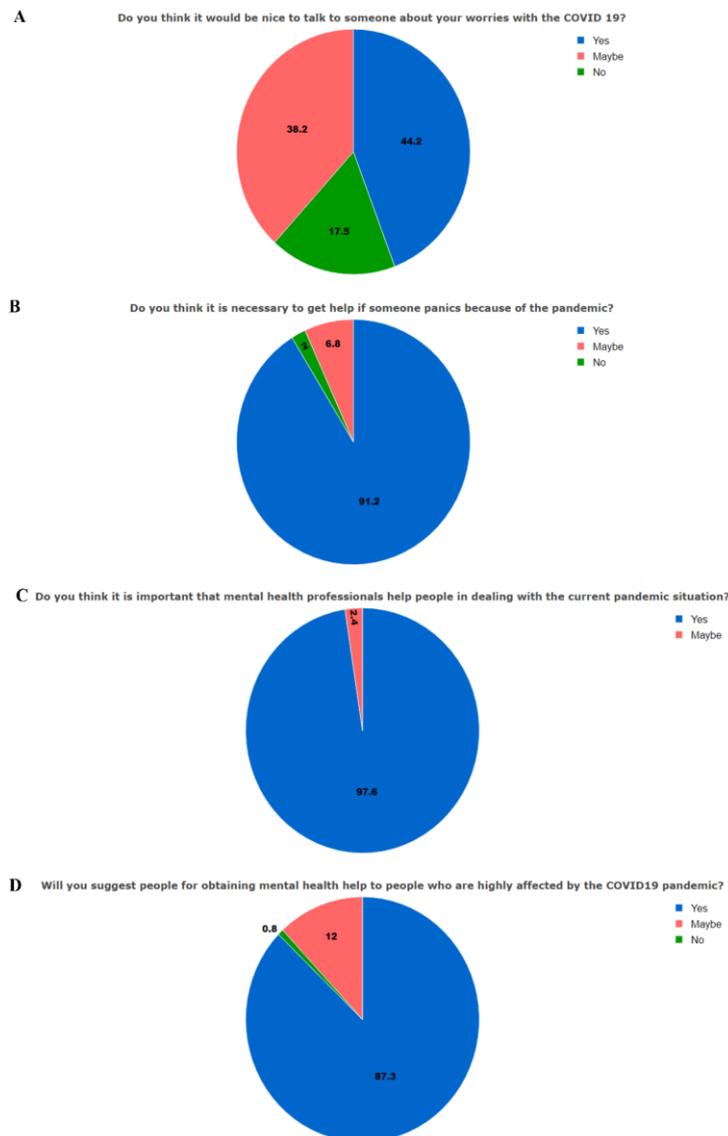
Source: Authors.

4. Discussion

The COVID-19 is a new disease that has rapidly become the most significant public health challenge in the world in the last century. Many countries around the world have taken requirements of social distance and partial and total lockdowns to contain it. While no effective treatment is available, social distance and isolation remain the best and safest way to avoid the spread of COVID-19 successfully. People around the world experience a series of challenges during these times. People also should be well aware and practice to reduce the risk of infection and spread of the virus to others, since there is no specific treatment or vaccine available.

In this study, most of the participants were reasonably aware of the mode of spread symptoms, and still demonstrate adequate knowledge regarding preventive measures. The participants also reported that hand wash and social distance is essential to prevent the virus spread, and more than 3/4th agreed to self-quarantine or isolation in their own home. This behavior may be associated with a strong awareness campaign, dissemination of control measures for transmission, and support for social isolation, developed by the prominent Brazilian media outlets. As of June 8, six Brazilian media outlets joined together in a consortium to provide transparency to COVID-19 data in Brazil, many of which diverge from data officially released by the government. The responses can also be related to the high education and experience of the participants, since most of them were either graduate and post-graduate and (32.27%) were teacher. Furthermore, only 7.94% were healthcare professionals.

Little fluctuation in knowledge and attitudes due to variation in characteristics of participants like a highly educated sample was also observed in China (Zhong et al., 2020), United States (Clements, 2020) and India (Roy et al., 2020). In addition, Roy et al. (2020) highlight that the moderate level of knowledge on infection and attitudes aware may be due to the government and media emphasizing preventive measures. In this study, only 47% of participants agreed (likely and frequently) that the government has taken action to combat the coronavirus pandemic. This can be explained by the confusion generated by the divergence of opinions between the federal government, which strongly advocated increasing flexibility over the months of June and July 2020 and the state government of Goiás, in favor of isolation measures.

This study also found considerably positive practices towards in front COVID-19. Most participants took preventive practices, such as sanitizing their hands, wearing masks

while going out, avoiding social contact, and agglomeration of people. This following preventive practices could also result from people's higher levels of education and knowledge, which was similar to previous research in China (Zhong et al., 2020), in the United States (Clements, 2020) and India (Roy et al., 2020).

Almost half of the participants were afraid of getting infected with the new coronavirus. Extraordinary situations such as diseases and epidemics may trigger fear among many people (Pakpour & Griffiths, 2020). So, fear is one of psychological aspects of the COVID-19 and the knowledge of such information can help government and professional associations to perform preventive COVID-19 behaviors to reduce the fear levels and treat psychological effects (Castro-de-Araujo & Machado, 2020; Pakpour & Griffiths, 2020; Sakib et al., 2020).

The influenza A H1N1 outbreak in 2009-2010, which resulted in high worldwide mortality, caught the world's media attention, sparking a pandemic anxiety among the public in a significant way (Everts, 2013). Nowadays, the COVID-19 provides an uncommon situation in which mortality has been almost constant, given the daily reports on death rates from the news and social media (Menzies & Menzies, 2020). In this study, 20.8% of participants reported having trouble sleeping, and more than 48% reported themselves affected by coronavirus-related themes on social media. Roy et al. (2020) point out that this could be largely influenced by media information, since the media affects mental well-being and contributes to the level of anxiety. Of the 2 billion users that WhatsApp accumulates around the world, it is estimated that more than 120 million are Brazilian; therefore, in addition to the news about Covid-19, commonly disseminated by the journalistic media, Brazilians still receive and frequently share, through their contacts and groups, information about the disease, whether they are safe or not. Besides, WhatsApp has recently been associated with disinformation campaigns in Brazil (Reis et al., 2020), which contributes to increasing the anxiety level among Brazilians regarding messages about Covid-19 released in this app, since now, they have to live with the fear that information received by the topic is fake news (Ricard & Medeiros, 2020).

Finally, it is essential to point out that most participants agreed about the importance of people affected by the COVID-19 to receive mental health care. Castro-de-Araujo & Machado (2020) recently reported that Brazil is not prepared to be dealing with the psychological effects of the pandemic since mental health care is not included in the national public health agenda. It also called the attention to needs for building strategies with full support from government and professional associations to guarantee access to medications

and counselling for patients during the pandemic to avoid worsening mental disorders and access to psychotherapy through remote and online ways (Castro-de-Araujo & Machado, 2020).

5. Final Considerations

This study provides early evidence about awareness, attitude, anxiety, and mental health care during COVID-19 by population from Goiás State, Brazil. We believe these results have important theoretical and practical consequences in setting and design effective prevention strategies and highlights the importance of the government taking future measures for the mental health affected population.

Nevertheless, this study is limited to people who had smartphones, e-mail IDs and represents, in the majority, educated population with an average age of 33 years possessing a graduate or postgraduate degree, so it should not be generalized to whole population.

Acknowledgments

References

Bell, D. M. (2004). Public Health Interventions and SARS Spread, 2003. *Emerging Infectious Diseases*, 10(11), 1900–1906.

Brasil. (2013). Resolução no 466, de 12 de dezembro de 2012. Diretrizes e normas regulamentadoras de pesquisas envolvendo seres humanos. *Diário Oficial Da União [da] República Federativa Do Brasil*, 150(112).

Brasil. (2016). Resolução nº 510, de 7 de abril de 2016. *Diário Oficial da União*, 44-46.

Brooks, S. K., Webster, R. K., Smith, L. E., Woodland, L., Wessely, S., Greenberg, N., & Rubin, G. J. (2020). The psychological impact of quarantine and how to reduce it: rapid review of the evidence. *The Lancet*, 395(10227), 912–920.

Castro-de-Araujo, L. F. S., & Machado, D. B. (2020). Impact of COVID-19 on mental health in a Low and Middle-Income Country. *Ciência & Saúde Coletiva*, 25(suppl 1), 2457–2460.

Chen, N., Zhou, M., Dong, X., Qu, J., Gong, F., Han, Y., Qiu, Y., Wang, J., Liu, Y., Wei, Y., Xia, J., Yu, T., Zhang, X., & Zhang, L. (2020). Epidemiological and clinical characteristics of 99 cases of 2019 novel coronavirus pneumonia in Wuhan, China: a descriptive study. *The Lancet*, 395(10223), 507–513.

Clements, J. M. (2020). Knowledge and Behaviors Toward COVID-19 Among US Residents During the Early Days of the Pandemic: Cross-Sectional Online Questionnaire. *JMIR Public Health and Surveillance*, 6(2), e19161.

Desai, A. N., & Patel, P. (2020). Stopping the spread of COVID-19. *Jama*, 323(15), 1516.

Everts, J. (2013). Announcing swine flu and the interpretation of pandemic anxiety. *Antipode*, 45(4), 809–825.

Ferguson, N., Laydon, D., Nedjati Gilani, G., Imai, N., Ainslie, K., Baguelin, M., Bhatia, S., Boonyasiri, A., Cucunuba Perez, Z., & Cuomo-Dannenburg, G. (2020). *Report 9: Impact of non-pharmaceutical interventions (NPIs) to reduce COVID19 mortality and healthcare demand*. Technical Report. London: Imperial College COVID-19 Response Team.

Guan, W., Ni, Z., Hu, Y., Liang, W., Ou, C., He, J., Liu, L., Shan, H., Lei, C., Hui, D. S. C., Du, B., Li, L., Zeng, G., Yuen, K.-Y., Chen, R., Tang, C., Wang, T., Chen, P., Xiang, J., Zhong, N. (2020). Clinical Characteristics of Coronavirus Disease 2019 in China. *New England Journal of Medicine*, 382(18), 1708–1720.

Li, Q., Guan, X., Wu, P., Wang, X., Zhou, L., Tong, Y., Ren, R., Leung, K. S. M., Lau, E. H. Y., Wong, J. Y., Xing, X., Xiang, N., Wu, Y., Li, C., Chen, Q., Li, D., Liu, T., Zhao, J., Liu,

M., Feng, Z. (2020). Early Transmission Dynamics in Wuhan, China, of Novel Coronavirus–Infected Pneumonia. *New England Journal of Medicine*, 382(13), 1199–1207.

Liu, Y., Gayle, A. A., Wilder-Smith, A., & Rocklöv, J. (2020). The reproductive number of COVID-19 is higher compared to SARS coronavirus. *Journal of Travel Medicine*, 27(2).

Lu, H. (2020). Drug treatment options for the 2019-new coronavirus (2019-nCoV). *Bioscience Trends*, 14(1), 69–71.

Mao, L., Jin, H., Wang, M., Hu, Y., Chen, S., He, Q., Chang, J., Hong, C., Zhou, Y., Wang, D., Miao, X., Li, Y., & Hu, B. (2020). Neurologic manifestations of hospitalized patients with coronavirus disease 2019 in Wuhan, China. *JAMA Neurology*, 77(6), 683-690.

Menzies, R. E., & Menzies, R. G. (2020). Death anxiety in the time of COVID-19: theoretical explanations and clinical implications. *The Cognitive Behaviour Therapist*, 13, e19.1–e19.11.

Pakpour, A. H., & Griffiths, M. D. (2020). The fear of COVID-19 and its role in preventive behaviors. *Journal of Concurrent Disorders*, 2(1), 58-63.

Reis, J. C. S., Melo, P., Garimella, K., Almeida, J. M., Eckles, D., & Benevenuto, F. (2020). A Dataset of Fact-Checked Images Shared on WhatsApp During the Brazilian and Indian Elections. *Proceedings of the International AAAI Conference on Web and Social Media*, 14, 903–908.

Ricard, J., & Medeiros, J. (2020). Using misinformation as a political weapon: COVID-19 and Bolsonaro in Brazil. *The Harvard Kennedy School (HKS) Misinformation Review*, 1(2), 1-6.

Rodriguez-Morales, A. J., Gallego, V., Escalera-Antezana, J. P., Méndez, C. A., Zambrano, L. I., Franco-Paredes, C., Suárez, J. A., Rodriguez-Enciso, H. D., Balbin-Ramon, G. J., Savio-Larriera, E., Risquez, A., & Cimerman, S. (2020). COVID-19 in Latin America: The implications of the first confirmed case in Brazil. *Travel Medicine and Infectious Disease*, 35, 101613.

Rothan, H. A., & Byrareddy, S. N. (2020). The epidemiology and pathogenesis of coronavirus disease (COVID-19) outbreak. *Journal of Autoimmunity*, 109, 102433.

Roy, D., Tripathy, S., Kar, S. K., Sharma, N., Verma, S. K., & Kaushal, V. (2020). Study of knowledge, attitude, anxiety & perceived mental healthcare need in Indian population during COVID-19 pandemic. *Asian Journal of Psychiatry*, 51, 102083.

Sakib, N., Bhuiyan, A. K. M. I., Hossain, S., Al Mamun, F., Hosen, I., Abdullah, A. H., Sarker, M. A., Mohiuddin, M. S., Rayhan, I., Hossain, M., Sikder, M. T., Gozal, D., Muhit, M., Islam, S. M. S., Griffiths, M. D., Pakpour, A. H., & Mamun, M. A. (2020). Psychometric Validation of the Bangla Fear of COVID-19 Scale: Confirmatory Factor Analysis and Rasch Analysis. *International Journal of Mental Health and Addiction*, 11, 1-12.

Salehi, S., Abedi, A., Balakrishnan, S., & Gholamrezanezhad, A. (2020). Coronavirus Disease 2019 (COVID-19): A Systematic Review of Imaging Findings in 919 Patients. *American Journal of Roentgenology*, 215(1), 87–93.

Tan, Y., Tan, B., Pan, J., Wu, J., Zeng, S., & Wei, H. (2020). Epidemiologic and clinical characteristics of 10 children with coronavirus disease 2019 in Changsha, China. *Journal of Clinical Virology*, 127, 104353.

Vartti, A.-M., Oenema, A., Schreck, M., Uutela, A., de Zwart, O., Brug, J., & Aro, A. R. (2009). SARS knowledge, perceptions, and behaviors: a comparison between Finns and the Dutch during the SARS outbreak in 2003. *International Journal of Behavioral Medicine*, 16(1), 41-48.

World Health Organization: WHO. (2020a). *Coronavirus disease (COVID-2019) situation reports*. Retrieved from https://www.who.int/docs/default-source/coronaviruse/situation-reports/20200130-sitrep-10-cov.pdf?sfvrsn=d0b2e480_2.2020.

World Health Organization: WHO. (2020b). Rolling updates on coronavirus disease (COVID-19). Retrieved from https://www.who.int/emergencies/diseases/novel-coronavirus-2019/events-as-they-happen.

World Health Organization: WHO. (2020c). *WHO Coronavirus Disease (COVID-19) Dashboard*. Retrieved from https://covid19.who.int/.

Xu, X.-W., Wu, X.-X., Jiang, X.-G., Xu, K.-J., Ying, L.-J., Ma, C.-L., Li, S.-B., Wang, H.-Y., Zhang, S., Gao, H.-N., Sheng, J.-F., Cai, H.-L., Qiu, Y.-Q., & Li, L.-J. (2020). Clinical findings in a group of patients infected with the 2019 novel coronavirus (SARS-Cov-2) outside of Wuhan, China: retrospective case series. *BMJ*, 368, m606.

Yang, J. Z., & Chu, H. (2018). Who is afraid of the Ebola outbreak? The influence of discrete emotions on risk perception. *Journal of Risk Research*, 21(7), 834–853.

Zhang, J., Dong, X., Cao, Y., Yuan, Y., Yang, Y., Yan, Y., Akdis, C. A., & Gao, Y. (2020). Clinical characteristics of 140 patients infected with SARS-CoV-2 in Wuhan, China. *Allergy*, 75(7), 1730–1741.

Zheng, F., Liao, C., Fan, Q., Chen, H., Zhao, X., Xie, Z., Li, X., Chen, C., Lu, X., Liu, Z., Lu, W., Chen, C., Jiao, R., Zhang, A., Wang, J., Ding, X., Zeng, Y., Cheng, L., Huang, Q., Jin, R. (2020). Clinical Characteristics of Children with Coronavirus Disease 2019 in Hubei, China. *Current Medical Science*, 40(2), 275–280.

Zhong, B.-L., Luo, W., Li, H.-M., Zhang, Q.-Q., Liu, X.-G., Li, W.-T., & Li, Y. (2020). Knowledge, attitudes, and practices towards COVID-19 among Chinese residents during the rapid rise period of the COVID-19 outbreak: a quick online cross-sectional survey. *International Journal of Biological Sciences*, 16(10), 1745-1752.

Percentage of contribution of each author in the manuscript

Ueric José Borges de Souza – 33,34%

Luciana Cristina Vitorino – 33,33%

Layara Alexandre Bessa – 33,33%