

Facing the COVID-19 pandemic with science and practice

Enfrentando a COVID-19 com ciência e prática

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ABSTRACT

The COVID-19 pandemic has led to a health system crisis, deaths and socioeconomic hardship. In order to minimize the consequences of the COVID-19 pandemic in the municipality of Lavras, a partnership was developed between the Lavras City Hall and the Universidade Federal de Lavras (UFLA). The present study aimed to describe the main prevention measures proposed in Lavras and to evaluate the community's perception of the management model towards COVID-19. A public online questionnaire, with 20 multiple-choice questions, about the measures to confront covid was submitted to the Google Forms platform from April 22nd to April 30th, 2020. The data regarding the strategies carried out to deal with COVID-19 was obtained from the published municipal ordinances. During the eight days that the questionnaire was applied, a total of 8,874 respondents from Lavras were obtained. Among these respondents, 31.64% (2,808) were men, 68.15% (6,047) were women, and 0.21% (19) declared "another option". When the participants were asked whether they are respecting the social distance measures, 7,452 (84.1%) of them answered "yes." Also, a total of 57.4% of the participants reported that the social distancing measures compromised their family income. However, despite the impact of this economic compromise on these families, 93.82% of the respondents believe that the measures applied are important. When analyzing the questionnaire responses, it was noticeable that despite residents suffering negative economic consequences, there was great popular approval of preventive measures, such as social distancing and the use of masks. In addition, it was possible to notice the population's trust in the measures recommended by professionals at UFLA and the city hall, highlighting the importance of establishing contact between authorities and the population during decision making.

Keywords: SARS-CoV-2, scientific communication, social distancing.

ABSTRACT

A pandemia COVID-19 levou a uma crise do sistema de saúde, mortes e dificuldades socioeconômicas. A fim de minimizar as consequências da pandemia da COVID-19 no município de Lavras, foi desenvolvida uma parceria entre a Prefeitura de Lavras e a Universidade Federal de Lavras (UFLA). O presente estudo teve como objetivo descrever as principais medidas de prevenção propostas em Lavras e avaliar a percepção da comunidade sobre o modelo de gestão em relação à COVID-19. Um questionário público online, com 20

perguntas de múltipla escolha, sobre as medidas para enfrentar a COVID foi submetido à plataforma Google Forms de 22 a 30 de abril de 2020. Os dados referentes às estratégias realizadas para lidar com a COVID-19 foram obtidos a partir das portarias municipais publicadas. Durante os oito dias em que o questionário foi aplicado, um total de 8.874 respondentes de Lavras foram obtidos. Entre estes respondentes, 31,64% (2.808) eram homens, 68,15% (6.047) eram mulheres, e 0,21% (19) declararam "outra opção". Quando perguntaram aos participantes se estavam respeitando as medidas de distância social, 7.452 (84,1%) deles responderam "sim". Além disso, um total de 57,4% dos participantes relataram que as medidas de distância social comprometeram a renda de suas famílias. Entretanto, apesar do impacto deste compromisso econômico sobre estas famílias, 93,82% dos respondentes acreditam que as medidas aplicadas são importantes. Ao analisar as respostas ao questionário, foi perceptível que apesar dos residentes sofrerem conseqüências econômicas negativas, houve grande aprovação popular de medidas preventivas, tais como o distanciamento social e o uso de máscaras. Além disso, foi possível perceber a confiança da população nas medidas recomendadas pelos profissionais da UFLA e da prefeitura, destacando a importância de estabelecer contato entre as autoridades e a população durante a tomada de decisão.

Palavras-chave: SARS-CoV-2, comunicação científica, distanciamento social.

1 INTRODUCTION

In late 2019, a new coronavirus, later identified as SARS-CoV-2, was identified as the cause of an outbreak of acute respiratory disease that began in China (KAUR, GUPTA, 2020; GÜNER, HASANOĞLU, AKTAS, 2020). On January 30, 2020, the WHO declared the COVID-19 outbreak as a public health emergency of international concern, and in March 2020, the outbreak was characterized as a pandemic in order to emphasize the severity of the situation and urge all countries to control the infection (GÜNER, HASANOĞLU, AKTAS, 2020).

COVID-19 has established itself as one of the greatest global health challenges of this century (Werneck and Carvalho, 2020), with a large number of cases and deaths worldwide. The first case in Brazil was detected in February 2020 and, since then, the human infection rate is unevenly distributed across the country (HALLAL et al., 2020). In Brazil, to date, January 2023, there have been 36.717.501 confirmed cases and 696.254 confirmed deaths. In Lavras-MG, there have been 32.343 confirmed cases and 349 deaths from COVID-19 since the first report of the disease in March 2020. To control and prevent the spread of the virus, appropriate knowledge about the infection and disease control practices was required, highlighting the importance of scientific knowledge in establishing disease control strategies (NWAGBARA et al., 2021). In this regard, universities and research centers were essential in supporting local communities during the pandemic, assisting the development of strategies to combat COVID-19 (SINCLAIR et al., 2020).

The Universidade Federal de Lavras (UFLA), in 2008, developed a strategic environmental plan in order to establish UFLA as a sustainable and environmentally friendly university (SCOLFORO et al., 2018). Thus, due to this plan, by the time the COVID-19 pandemic broke-out, the university was already used to implementing strategies and policies to combat some endemic diseases, such as dengue fever, on the university campus and in the city of Lavras. Therefore, on March 18, the mayor of the municipality of Lavras, in partnership with UFLA, created the Intersectoral Commission for the Prevention and Confrontation of COVID-10 (CIPEC) to guide actions to combat the COVID-19 pandemic. The present study aimed to describe CIPEC's main activities and to evaluate the community's perception of the management model towards COVID-19.

2 METHOD

A cross-sectional, prospective, and analytical study was conducted to analyze the adherence to COVID-19 biosafety practices by the population of Lavras, a municipality in the state of Minas Gerais, southeastern Brazil (21°14'43"S 44°59'59"W), located 184 km from Belo Horizonte state capital. The city has a population density of 103,773 inhabitants and the city area is 564.744 km² (IBGE, 2019). Also, the local health care system, which assisted in dealing with the pandemic, is composed of twenty-two primary health care units; seven secondary health care units and two tertiary health care units.

2.1 DATA SOURCE

Information about the strategies carried out to deal with COVID-19 was obtained from the published municipal ordinances. A questionnaire containing 20 multiple-choice questions about preventive measures was developed by the Lavras municipal government and was submitted on the Google Forms platform from April 22nd to April 30th, 2020.

The participation of the whole population was engaged using mixed media, where the questionnaire was publicized, and citizen participation was requested. The media tools used to promote the form were official websites from different companies, Facebook®, Instagram®, UFLA's "Minute of Health " project page, live broadcast news on Facebook platforms, and on UFLA's University Radio programming.

2.2 RESULTS ANALYSIS

The SPSS program, version 17, was used to perform statistical tests. Data were analyzed using Pearson's Cross Tabulation, Pearson's Correlation, Kruskal-Wallis Test and Frequency

Distribution.

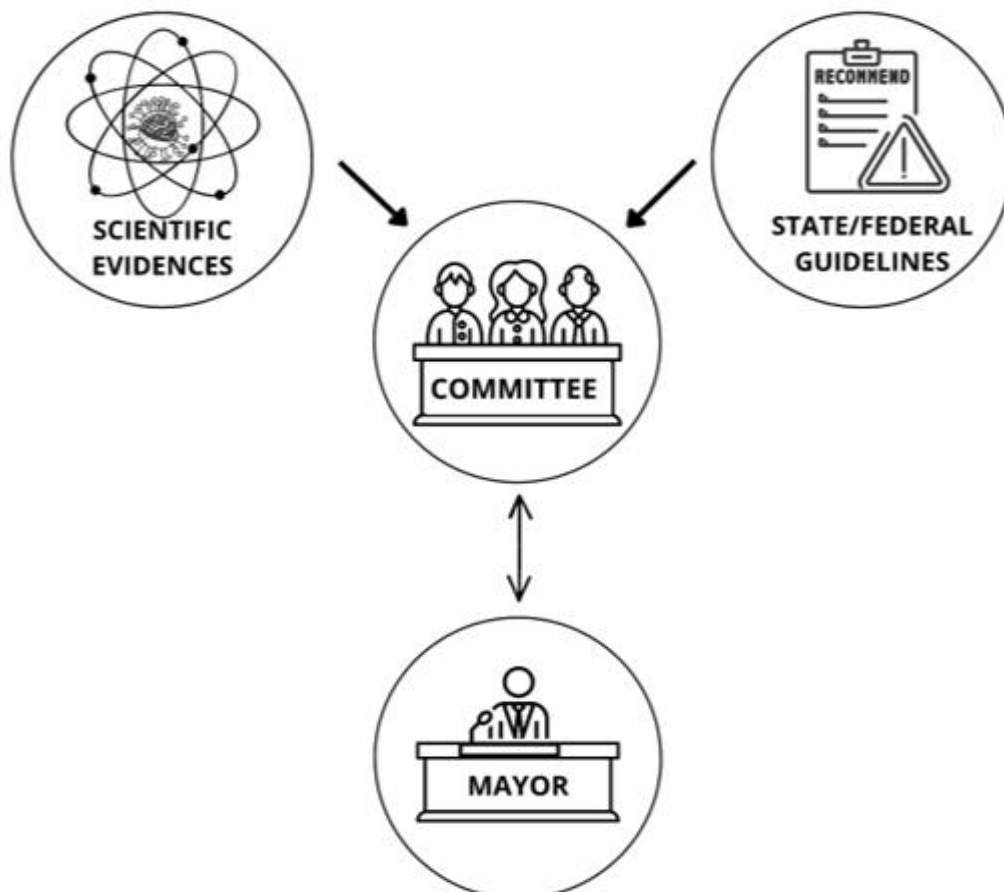
3 RESULTS AND DISCUSSION




3.1 INTERSECTORAL COMMISSION FOR THE PREVENTION AND CONFRONTATION OF COVID-10 (CIPEC) MAIN MEASURES

With the overall goal of controlling the SARS-Cov-2 spread, delaying virus transmission and preventing associated diseases and deaths, the Comitê Intersetorial de Prevenção e Enfrentamento à COVID-19 (CIPEC) promoted an academic and technical discussion regarding the Mayor's decisions. Once the decisions were approved, informative notes were released through municipal decrees published on official digital platforms.

The municipal measures implemented to address the pandemic of COVID-19 are distributed into 18 groups, arranged into three categories: improvement measures, health education measures, and restrictive measures (Figure 1). All strategies deployed were based on CIPEC guidelines, regulations set by federal and state agencies, and evidence from scientific papers recognized by various authorities.

Figure 1 - Decision-making flowchart for defining the main COVID-19 prevention and control measures determined by the mayor of Lavras (2017-2020 Management)



 <p>IMPROVEMENT MEASURES</p> <ol style="list-style-type: none"> 1 - Increasing testing capacity. 2 - Improvement of clinical care for people affected by COVID-19. 3 - Development of telemedicine platforms. 4 - Acquisition of Personal Protective Equipment (PPE). 5 - Cleaning and disinfecting of public spaces. 6 - Increase in the number of clinical and intensive care beds. 7 - Mass drive-through flu vaccination for the elderly and high-risk groups. 8 - Construction of an emergency medical center. 	 <p>HEALTH EDUCATION MEASURES</p> <ol style="list-style-type: none"> 1 - Health education in COVID-19. 2 - Permanent review of infection prevention and control measures. 3 - Training of health professionals in COVID-19. 4 - Periodic meetings with leaders from different sectors of the economy. 5 - Interpersonal communication, social media, radio campaigns and mixed methods intervention. 	 <p>RESTRICTIVE MEASURES</p> <ol style="list-style-type: none"> 1 - Restrictions on bus travel from areas with high numbers of effective reproduction (Rt). 2 - Total or partial closure of educational institutions and workplaces. 3 - Limiting the number of visitors and contact between residents of confined areas, such as long-term care facilities and prisons. 4 - Cancellation, prohibition, and restriction of mass gatherings. 5 - Reduction of public transport service.
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In order to ensure that the municipal measures were followed, sharing scientific knowledge with the population was essential, encouraging and reinforcing the citizens' trust in science (PARIKH, 2021, BICCCHIERI et al., 2021). Therefore, health education on COVID-19 was carried out using strategies involving social mobilization, training, mass and interpersonal communication, social media, radio campaigns and mixed methods intervention.

Scientific information about SARS-CoV-2 was shared on radio, official social media and folders which resulted in a large audience during the scientific disclosures. In addition, daily live programs featuring statements by the Mayor and the president of CIPEC have approached the population with discussions regarding COVID-19, encouraging the population's belief in the preventive measures that have been implemented. Thus, it was possible to mobilize a large portion of the Lavras' community, encouraging preventive measures and active participation in the battle against covid.

An individual's trust in an institution can occur when the institution offers benefits to the individual, such as accountability of decision-making consequences (HENDRIKS et al., 2016; LARSON et al., 2018; SIEGRIST, 2021). In this regard, the responsibility that the municipality's management assumed facing the pandemic, as well as frequent communication between the authorities and the community strengthened trust and adherence to the control measures.

An essential feature in preventing the spread of SARS-CoV-2 infection is to increase the number of tests, identify cases and undertake the necessary measures (GÜNER, HASANOĞLU, AKTAS, 2020). The partnership established between the city council and the university allowed the structuring of a molecular diagnostic laboratory for mass testing, LabCovid, which assisted in the fight against COVID-19. Once again, the creation of the LabCovid in the municipality of

Lavras brought more assurance to the population about the municipal measures that were then being implemented. Furthermore, recent studies have shown that mass testing, contact tracing, and isolation were effective infection control mechanisms (BEN-SHMUEL et al., 2020; CHEREM, 2022).

During the pandemic's peak, several adaptations were necessary to ensure the delivery of healthcare. One of the initiatives in Lavras was the insertion of TeleCovid, a telehealth initiative. Since its introduction in June 2020, TeleCovid has performed more than 3,000 assists. While telehealth is not suitable for all health problems, it is appropriate for scenarios where the infrastructure remains intact and doctors are available to work (MONTELONGO et al., 2021). It was also observed that TeleCovid was effective in spreading information to patients and also in reducing in-person medical care, preventing the collapse of health systems. This project allowed several patients to be assisted and referred for diagnosis in leading laboratories, even during the acute increase in SARS-CoV-2 infection.

3.2 QUESTIONNAIRE ANALYSIS

After the online questionnaire was conducted, it was found that the respondents were distributed in four different countries: Brazil, United States, Italy, and Germany. The respondents residing in Brazil were divided in eight states: Pará, Ceará, Pernambuco, São Paulo, Rio de Janeiro, Paraná, Mato Grosso, and Minas Gerais. Considering that the objective of the questionnaire was to understand the aspects related to the measures implemented in the municipality of Lavras, the analyses were focused on the 8,874 questionnaires answered only by the residents of the city.

Among those respondents who live in Lavras, it was noted that there was representation from all regions of the municipality, with a total of 139 neighborhoods included in this survey. The highest frequency of response was seen in residents of the central neighborhood of the municipality, corresponding to 19% of the total number of questionnaires. The representativeness of the remaining 138 neighborhoods ranged from 0.1 to 4%. These data, associated with the high number of respondents indicate that the results obtained are representative of the population who participated in the survey.

As for the profile of the respondents, 31.64% (2,808) were men, 68.15% (6,047) were women, and 0.21% (19) declared "another option". The predominant age group was 25 to 39, with 42.2% (3,745) of the answers, followed by 40 to 59, with 35.7% (3,168) of the answers. Also, regarding the means of transportation most used during the pandemic, it was found that 77.8% (6,904) of respondents use their own vehicles, 11.6% (1,029) use public transportation,

and 10.5%(931) answered "other".

When participants were asked whether they are respecting the social distance measures, 7,452 (84.1%) of the participants in this survey answered "yes." Only 170 people (1.9%) answered that they are not following the measures adopted by the municipality, with 1,252 (13.9%) answering "sometimes." Furthermore, the 14 to 17-year-old group was the least adherent to the social distance rules, among all age groups surveyed. A total of 73.2% of respondents in this age group stated that they follow the distancing. Therefore, even though this age group exhibits low adherence, the results found corroborate with other research conducted on similar dates (MOORE et al., 2021).

The elderly and women corresponded to groups with higher adherence to social distancing. The adherence among the elderly was 93.5% and among women 87.1%. Additionally, among women, 96.4% considered social distance an important measure, although the percentage among men was only slightly lower (89.1%). Also regarding social distance, about 56.8% of people left home in search of essential services and only 4.8% of them left in search of health care.

When analyzing the answers inherent to individual care and prevention measures, it was found that hand washing with soap and water was the most frequent, reported by 94.3% (8,368) of respondents. The following actions were also mentioned: avoid hugging, kissing, or shaking hands (92.4%); use hand sanitizer (90%); wear masks (78%); avoid touching eyes and mouth (68%); take off shoes before entering the house (60.8%). All of these responses corroborate with the safety measures that were being shared across countries during the beginning of the pandemic (SHARMA et al., 2021).

After analyzing the answers related to leaving home and the reasons for doing so, it was found that only 9.5% of the respondents did not leave home in the week before the questionnaire was applied; 69% had left home four times in the previous week, and 17.2% of the respondents had left home more than seven times in the previous week. The main reason for leaving home was to seek services considered essential, such as supermarkets, bakeries, and pharmacies, accounting for 52% of the answers. Medical appointments and other health-related reasons accounted for only 4.8% of the responses. A total of 24.4% of people justified their departure for work-related reasons. Together, beauty salons, transportation of people, commercial activities, and banking services reported less than 3% of the justifications. When analyzing people's reasons for leaving home, a high acceptance of the social distance measures recommended by the local government was shown, since seeking essential services was the most frequent cause for leaving home.

A worrying finding is a fact that only a small percentage (4.8%) of people have left home to seek health services. These data require further analysis to see if the low demand is due to the absence of illness, restrictions imposed by distance measures, or health care abandonment. Delays or evasions in medical care can increase the mortality risk associated with treatable health conditions and may contribute to excess COVID-19-related deaths (CDC, 2020). Also, the prospect of low demand for medical services must be considered since, during the pandemic, COVID-19 was considered an emergency, and other illnesses were pushed aside by citizens themselves. Additionally, during the pandemic period, the fear of going to hospitals may have contributed to the decrease in the search for healthcare units. The same profile has been related by other authors. By June 30, 2020, due to concerns about COVID-19, an estimated 41% of US adults had delayed or avoided medical care (CZEISLER et al., 2020).

A total of 57.4% of the participants reported that the social distancing measures compromised their family income. However, despite the impact of this economic compromise on these families, 93.82% believe that the measures applied are important. When correlating the compromise of family income with adherence to social distancing, it was possible to verify that 81.8% of the people who reported a loss of income are following the mayor's recommendations. Furthermore, 74% of these people agree with the measures employed. Likewise, it was evidenced that 86.9% of the families whose family income was not compromised, also follow and agree with the recommendations of social distancing. Although some studies bring reluctance in acceptance to social distancing (Pandi-Perumal et al., 2021), in the present study, high acceptance was observed regarding the measures applied by the mayor of Lavras.

When assessing the impact of social distancing measures on the employment situation of the population of Lavras, it was found that before the start of the pandemic, 12.5% of respondents were unemployed and 1.7% were fired. In total, 49% of the respondents were working, either normally or with adjustments, when they answered the survey. A total of 22% of individuals lost their jobs due to the pandemic. Importantly, removal from work activities is planned for hypertensives, diabetics, cardiac patients, those with chronic kidney or respiratory disease, the immunosuppressed, and the elderly (ANDERSON et al., 2020). COVID-19 is not only a global pandemic and public health crisis; it has also severely affected the global economy, financial markets (PAK et al., 2020) and the mental health of the population subjected to pandemic conditions (DE OLIVEIRA et al., 2022).

According to the data analyzed, it was found that the lowest adherence to social distancing occurred in the group of people who work normally. This situation was expected, since fulfilling a work day away from home can lead to people not being able to fulfill all the

recommended measures due to the work itself. A total of 32.33% of people who are in their normal work routine do not follow the recommended measures.

When respondents were asked about having visited someone in the past seven days, 25.4% of respondents said "yes." In addition, 25.2% of respondents said "yes" when asked if they had received a visit from someone in the last seven days prior to the survey.

When evaluating the responses about delivery services, the majority of respondents answered that they have been buying food through home delivery services. Even though delivery services increased during the pandemic, the scenario intensified food insecurity (SANTOS et al., 2022). This finding supports the recommended measures for trade and service establishments, as they were recommended to use delivery services. Nevertheless, restaurants and bars, travel and transportation, entertainment, and sensitive manufacturing are among the sectors most affected by the COVID-19 quarantine measures (DEY, LOEWEISTEIN, 2020).

As for the acceptance and agreement with the measures used in the municipality of Lavras, it was found that 76.4% of the population fully agreed with the measures employed and 11.1% partially agreed with such measures. Regarding those who disagree (partially or totally) with the measures to confront COVID-19, a qualitative analysis of the data was carried out through the indicators "commerce" and "business", with the objective of knowing the public opinion about the municipal measures for local commerce. A total of 557 matches were found for the indicators and the analyses carried out, corresponding to 6.27% of the respondents. Thus, when the topic was negotiated, about 80% of the responses were negative regarding the return of commerce.

The findings of the present study demonstrate that due to the efforts of the Lavras City Hall and the Universidade Federal de Lavras, the city presented an informed and attentive population to the measures recognized as technically correct for confronting COVID-19. It was found that the population of Lavras recognized and approved measures of social distancing and individual prevention to combat SARS-CoV-2. Furthermore, the high adherence to the prevention model used is possibly due to the population's confidence in the actions taken by UFPA and the city hall during the pandemic.

In summary, health education and communication between the authorities and the population were key to facing the pandemic in Lavras. Thus, the understanding and active participation of the community during the decision-making process is fundamental to achieving success in the control of any disease. Moreover, the pandemic facing in this city corroborated the belief that increased confidence in science can generate social benefits (SULIK et al., 2021).

REFERENCES

Anderson, R. M., Heesterbeek, H., Klinkenberg, D. and Hollingsworth, T. D.: How will country-based mitigation measures influence the course of the COVID-19 epidemic?, *Lancet.*, 395, 931–934, doi: 10.1016/S0140- 6736(20)30567-5, 2020.

Ben-Shmuel A, Brosh-Nissimov T, Glinert I, et al. Detection and infectivity potential of severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) environmental contamination in isolation units and quarantine facilities. *Clin Microbiol Infect* 2020;26(12):1658-1662.

Bicchieri C, Fatas E, Aldama A, Casas A, Deshpande I, Lauro M, Parilli C, Spohn M, Pereira P, Wen R (2021) In science we (should) trust: expectations and compliance across nine countries during the COVID-19 pandemic. *PLoS ONE* 16(6):e0252892

CDC, National Center for Health Statistics. Excess deaths associated with COVID-19. Atlanta, GA: US Department of Health and Human Services, CDC, National Center for Health Statistics; 2020. https://www.cdc.gov/nchs/nvss/vsrr/covid19/excess_deaths.htm.

Cherem, J. Investigação de um surto de COVID-19 em uma instituição de longa permanência para idosos, em um município do sul do estado de Minas Gerais, Brasil. 2022. 78 p. Dissertação (Mestrado em Ciências da Saúde) – Universidade Federal de Lavras, Lavras, 2022.

Czeisler MÉ, Marynak K, Clarke KE, et al. Delay or Avoidance of Medical Care Because of COVID-19–Related Concerns — United States, June 2020. *MMWR Morb Mortal Wkly Rep* 2020;69:1250–1257. DOI: <http://dx.doi.org/10.15585/mmwr.mm6936a4> de Oliveira AS, Lopes A dos S, de Menezes KSM, Ribeiro MN, Ferreira MRL, Figueiredo SN, Coêlho PDL, Monteiro LB. Impactos psicológicos da Covid 19: fatores que afetaram a saúde mental da equipe de saúde de uma UBS em Manaus-AM / Psychological impacts of Covid 19: factors that affected the mental health of the health team of a UBS in Manaus-AM. *Braz. J. Hea. Rev.* [Internet]. 2022 Jun. 22 [cited 2023 Feb. 2];5(3):11540-58. Available from: <https://ojs.brazilianjournals.com.br/ojs/index.php/BJHR/article/view/49546>

Dey M, Loewenstein M. How many workers are employed in sectors directly affected by COVID-19 shutdowns, where do they work, and how much do they earn? *Monthly Labor Rev.* (2020). doi: 10.21916/mlr.2020.6.

Güner, R., Hasanoğlu, İ. and Aktaş, F.: COVID-19: Prevention and control measures in community, *Turkish J. Med. Sci.*, 50, 571–577, doi: 10.3906/sag-2004-146, 2020.

Hendriks, F., Kienhues, D., Bromme, R. 2016. Trust in science and the science of trust. In: Blöbaum B (ed) *Trust and communication in a digitized world*. Springer, pp. 143–159.

Hallal PC, Hartwig FP, Horta BL, Victora GD, Silveira MF, Struchiner CJ, et al. Remarkable variability in SARS-CoV-2 antibodies across Brazilian regions: nationwide serological household survey in 27 states. *medRxiv* [Internet]. 2020 Jan 1;2020.05.30.20117531. Available from: <http://medrxiv.org/content/early/2020/05/30/2020.05.30.20117531.abstract> Kaur, S. P. and Gupta, V.: COVID-19 Vaccine: A comprehensive status report, *Virus Res.*, 288-198114, doi: 10.1016/j.virusres.2020.198114, 2020.

Kissler, S., Tedijanto, C., Lipsitch, M. and Grad, Y.: Social distancing strategies for curbing the COVID-19 epidemic, doi:10.1101/2020.03.22.20041079, 2020.

Larson, H.J., Clarke, R.M., Jarrett, C., Eckersberger, E., Levine, Z., Schulz, W.S., Paterson, P. 2018. Measuring trust in vaccination: a systematic review. *Hum Vaccines Immunother* 14(7):1599–1609

Montelongo A, Becker JL, Roman R, de Oliveira EB, Umpierre RN, Gonçalves MR, Silva R, Doniec K, Yetisen AK., 2021. The management of COVID-19 cases through telemedicine in Brazil. *PLoS One*. 2021 Jul 14;16(7):e0254339. doi:10.1371/journal.pone.0254339. PMID: 34260644; PMCID: PMC8279372.

Moore RC, Lee AY, Hancock JT, Halley MC, Linos E. Age-Related Differences in Experiences With Social Distancing at the Onset of the COVID-19 Pandemic: A Computational and Content Analytic Investigation of Natural Language From a Social Media Survey. *JMIR Hum Factors*. 2021 Jun 9;8(2):e26043. doi: 10.2196/26043. PMID: 33914689; PMCID: PMC8191726.

Nwagbara UI, Osual EC, Chireshe R, Bolarinwa OA, Saeed BQ, Khuzwayo N, Hlongwana KW. Knowledge, attitude, perception, and preventative practices towards COVID-19 in sub-Saharan Africa: A scoping review. *PLoS One*. 2021 Apr 19;16(4):e0249853. doi: 10.1371/journal.pone.0249853. Erratum in: *PLoS One*. 2021 Jun 22;16(6):e0253833. PMID: 33872330; PMCID: PMC8055009.

Pak, A., Adegboye, O.A., Adekunle, A.I., Rahman, K.M., McBryde, E.S., Eisen, D.P. 2020. Economic Consequences of the COVID-19 Outbreak: the Need for Epidemic Preparedness. *Front Public Health*. 2020 May 29;8:241. doi: 10.3389/fpubh.2020.00241. PMID: 32574307; PMCID: PMC7273352.

Pandi-Perumal SR, Vaccarino SR, Chattu VK, Zaki NFW, BaHammam AS, Manzar D, Maestroni GJM, Suchecki D, Moscovitch A, Zizi F, Jean-Louis G, Narasimhan M, Ramasubramanian C, Trakht I, Seeman MV, Shneerson JM, Maes M, Reiter RJ, Kennedy SH. 'Distant socializing,' not 'social distancing' as a public health strategy for COVID-19. *Pathog Glob Health*. 2021 Sep;115(6):357-364. doi: 10.1080/20477724.2021.1930713. Epub 2021 May 30. PMID: 34057046; PMCID: PMC8592617.

Parikh, S. 2021. Why we must rebuild trust in science. *Trend Mag Winter*. 8–12 <https://www.pewtrusts.org/en/trend>.

Santos JAM, Xavier BL de C, Silva FG da, Bordin CCD, Cardoso CGL do V, Passos XS, Silva NM. Covid 19 e o Brasil no caminho de volta ao mapa da fome: Covid 19 and Brazil in the path back of to the hunger map . *Braz. J. Hea. Rev.* [Internet]. 2022 Dec. 14 [cited 2023 Feb. 3];5(6):24386-94. Available from: <https://ojs.brazilianjournals.com.br/ojs/index.php/BJHR/article/view/55370>

Scolforo, J. R. S., Von Pinho, E. V. R., Chaulfun-Júnio, A., Freire, A. H., Naves, L. C., Ladeira, M. M.: How the environmental planning of the Universidade Federal de Lavras impacts higher education, *E3S Web Conf.*, 48, 2–4, doi: 10.1051/e3sconf/20184806004, 2018.

Sharma A, Ahmad Farouk I, Lal SK. COVID-19: A Review on the Novel Coronavirus Disease Evolution, Transmission, Detection, Control and Prevention. *Viruses*. 2021 Jan 29;13(2):202. doi: 10.3390/v13020202. PMID: 33572857; PMCID: PMC7911532.

Siegrist, M. 2021. Trust and risk perception: a critical review of the literature. *Risk Anal* 41(3):480–490.

Sinclair, R. R., Allen, T., Barber, L., Bergman, M., Britt, T., Butler, A., Ford, M., Hammer, L., Kath, L., Probst, T., and Yuan, Z.: Occupational Health Science in the Time of COVID-19: Now more than Ever, *Occup. Heal. Sci.*, 4, 1–22, doi: 10.1007/s41542-020-00064-3, 2020.

Sulik, J., Deroy, O., Dezechache, G. *et al.* Facing the pandemic with trust in science. *Humanit Soc Sci Commun* 8, 301 (2021). <https://doi.org/10.1057/s41599-021-00982-9>.

Werneck, G. L. and Carvalho, M. S.: A pandemia de COVID-19 no Brasil: Crônica de uma crise sanitária anunciada, *Cad. Saude Publica.*, 36, 5–8, doi: 10.1590/0102-311x00068820, 2020.

WHO.: Critical preparedness, readiness and response actions for COVID-19: WHO/2019-nCoV/Community Actions/2020.3., 1–3, 2020.