Biosafety, life and COVID-19: Online questionnaire

Cadari, Micael Borges¹*, Cachoni, Anna Clara¹, Toledo Neto, João Lopes¹, Jassi, Fabrício José¹, Colête, Juliana Zorzi¹, Foggio, Augusto Alberto¹,², Silva, Douglas Fernandes¹,²

¹Health Sciences Center, State University of Northern Parana, Jacarezinho, Parana, Brazil
²Medical and Dental Institute of Phototherapy Foggio, Jacarezinho, Parana, Brazil
*Corresponding author

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Abstract — COVID-19 or SARS-CoV-2 is a disease caused by a highly transmitted virus that led to the development of a pandemic in 2019-2020 causing many deaths and behavioral changes. Due to this high degree of infection risk, it is extremely necessary to disseminate information on biosafety and the correct compliance with social isolation, aiming at the non-transmission of the pathogen. The general objective of this study was to evaluate the population's knowledge about the means of biosafety used to prevent the spread of the SARS-CoV-2 virus and emotional state and habits in the face of the COVID-19 pandemic. For that, an exploratory-quantitative field research was carried out in a sample of 170 individuals, through a questionnaire via Google Forms. The data collected were evaluated using the IBM SPSS Statistics 25 software and dependence between variables was assessed using Pearson’s Chi-square test. as a result, it was found that the interviewees used mainly fabric masks, the use of alcohol 70% was satisfactory, access to information about COVID-19 is vast and the levels of stress and anxiety were obtained. Therefore, it was concluded that a large part of the sample has knowledge and practices of biosafety, probably due to the intense work of social media, which, however, generated panic in most respondents.

Keywords — Biosafety, SARS-CoV-2, Questionnaire, Quantitative exploratory analysis, Health education.

I. INTRODUCTION

COVID-19 or SARS-CoV-2 is a disease caused by a virus with high transmission and its main sign and symptom is Severe Acute Respiratory Syndrome (SARS) ¹. Thus, due to the high degree of risk, it is necessary to have a good care concern in order not to transmit this pathogen, and one of the ways of coping with COVID-19 is information ².

The SARS-CoV-2 virus can promote direct transmission, through droplets expelled during coughing or sneezing and indirectly, through contact with contaminated surfaces ³. Thus, due to the simple form of transmission, social isolation and prophylactic measures are necessary to combat the spread of the disease ⁴⁵.

In the search for a fight against the pandemic, several media published information about COVID-19 and gave instructions on ways to prevent the spread of the virus ⁶. According to the WHO ⁷, several means of combating the SARS-CoV-2 Pandemic and infection control can be cited, such as using disposable masks or tissue, practicing efficient hand hygiene, using the alcohol gel and gloves. According to a set of rules stipulated in the fourth edition of the biosafety manual of the World Health Organization (WHO) laboratory ⁸ the need for adequate disinfectants with proven activity against enveloped viruses, such as the use of alcohol and hypochlorite, was shown.

Moreover, the pandemic brought about changes that caused extensive job losses, consequently threatening the livelihood of millions of people. As a result, companies were forced to close to control the spread of the virus ⁹. Ordinary life has undergone severe changes, such as the government decree on paralyzing on-site teaching in schools and universities and many employees being forced to work from home ⁹.

In clinical and laboratory practice, professionals are required to use Personal Protective Equipment (PPE),
which seeks to avoid cross-infection. Among the biosafety rules for coping with COVID-19, the new edition of the WHO laboratory biosafety manual, such as: washing hands, using 70% alcohol, hypochlorite and social distance is extremely necessary. The WHO also states that, for health professionals and for care aimed at the safety of the population, in addition to the hygiene methods mentioned above, it is necessary to use Personal Protective Equipment (PPE).

PPE is just one of many means necessary to prevent COVID-19. In the current context, several means of combating the SARS-CoV-2 pandemic and controlling acute respiratory infections can be cited; such as the use of medical mask N95 or with disposable upper protection, practice necessary hand hygiene, avoid contact with eyes, nose and mouth and use of gel alcohol. The current challenge is to strictly follow the biosafety protocol. Thus, it is necessary to mobilize the entire population to contain the progress of this disease.

Based on this knowledge, the present study sought to assess knowledge about biosafety and to analyze the influences of this pandemic scenario in the life of each individual, through the application of an online questionnaire; seeking to evaluate the population's knowledge about biosafety in facing cross-infection with the SARS-CoV-2 virus.

II. METHODS

This study consisted of a field research with a defined universe, being classified as a quantitative exploratory analysis. The data were collected through an online questionnaire about biosafety and the influences of the pandemic on the life of each individual. The sample consisted of 170 participants. As inclusion criteria, they should be at least 18 years old and without maximum age, without gender and race restrictions.

The questionnaire was composed of closed questions about knowledge of ways to reduce infection by the SARS-CoV-2 virus, biosafety, emotional state and the daily life of the general population, based on several articles and was applied from October to December 2020 through Google Forms. The questionnaire was summarized below (fig. 1).

The interviewees were also instructed about the research and signed the Free and Informed Consent Term (ICF). The variables addressed in the questionnaire were: age, sex, education level, health professionals and students, use of mask and gloves, use of alcohol 70 as a disinfectant, and the observation of health professionals' biosafety by the population, daily during the pandemic, the probability of contracting the virus, taking the vaccine against the virus, means that information was acquired, level of stress and anxiety, physical activity and weight fluctuation during the pandemic.

For data analysis, the software IBM SPSS Statistics 25 was used and, through the chi-square test, dependence between variables can be verified, with the level of statistical significance being p<0.05.

III. RESULTS

Table 1 presents several data, for which the sample consisted of 63.5% female participants and 36.5 male participants. We can also observe, regarding the age group, most of the sample or 73.5% represented individuals aged 18 to 25 years; 12.5%, from 26 to 35 years old; 7.6% from 36 to 45 years old and 6.5% from 46 years old or more.

When the participants were investigated in relation to any procedure in the health area: “Passed or accompanied someone in some type of health care procedure during the pandemic: did the professional take appropriate precautions to prevent the spread of COVID-19?”; only 56.5% of them stated that the professional performed all biosafety practices, while of the interviewees 15.9% reported that the professionals left something to be desired (Table 1). The rest of the sample (27.6%) did not pass or follow any health procedure.

Regarding whether or not you know that only 70 alcohol is effective against microorganisms - "Did you know that only 70% alcohol is effective for disinfecting?” - 97.1% of respondents reported having such knowledge and the remainder or 3.9% said they didn’t know (Table 1). Regarding the use of disinfectant to perform hand hygiene (Table 2) - "Do you use 70% alcohol to perform hand hygiene?" - 80% reported always using alcohol and 20% use it when necessary. When correlating with age, no statistical differences were obtained (p<0.05); however, its use is more widespread among younger people. Of the sample, those who answered “Yes Always”, 74.3% were 18–25 years old, against 11%, 8.1% and 6.6% for the others.
Table 2 also presents the results on what types of individual protection the interviewee used - “Have you used any type of protection when leaving home and / or getting in touch with other people?” Most of the total sample or
79.4% responded using only fabric masks, however when asked about disposable masks, only 17.1% said they used them. Regarding the use of disposable gloves, it was found that 1.2% of the survey participants used disposable gloves, both relating to fabric masks and disposable masks. In addition, when correlating with age, it became evident that these forms of protection are more used by younger people (p<0.05).

Table 3 presents the results in the way that the participants obtained knowledge about COVID-19 - “Which social media platform (s) do you use to get news and information about COVID-19?” - of the 170 respondents, 94.1% or 160 individuals stated that they had obtained information about the SARS-CoV-2 or COVID-19 pandemic through the media and/or social platforms. The “Instagram” and “Facebook” platforms were the most sought after, with 58.6% and 55% respectively. “WhatsApp” and “YouTube” reached close values, 37.3% and 32% respectively. The other information media, such as websites, blogs, Twitter and other digital platforms obtained 32.5% of utilization in the search for information about COVID-19. And, in addition, only 5.9% said they did not seek information on digital media or social platforms.

Moreover, when related to information obtained from social media and/or platforms with possible emotional changes - “Did the news on social media about COVID-19 spread panic among people?” - Table 1 showed that 55.9% of the interviewees believed that the news caused panic in society, 21.18% said that they did not and 22.94% responded as neutral. Despite this point, when comparing the age and the panic that the news from COVID-19 may have caused, table 2 shows that the youngest are the most susceptible, with 75.8% for the 18-25-year-old age group, while older - age group 46 or older - only 6.3% said that news received from the SARS-CoV-2 pandemic caused panic. However, when analyzing the entire sample, there were no statistical differences (p>0.05).

Regarding the levels of stress and anxiety during the pandemic, table 1 shows that 43.5% of the interviewees stated that they were “Moderate”, 28.8% as “Severe”; 11.8% as “Light”; 8.8%, “Extremely severe”; and only 7.1% said they had no stress or anxiety due to the pandemic. When the participants were asked about their daily lives during the pandemic (Table 4) - “In relation to your daily life: during the quarantine, what has changed?” - most of the sample or 61.8% reported leaving home only to perform essential tasks, 23.5% answered leaving only for work and 1.8%, reported not leaving the house under any circumstances, 12.9% of the total sample answered that nothing has changed and work and/or maintain social life normally. Therefore, it presented statistical differences when compared to age, for all the statements raised (p<0.05).

| Questions                                                                 | Answers                      | Frequency | Percentage |
|---------------------------------------------------------------------------|------------------------------|-----------|------------|
| Gender                                                                    | Female                       | 108       | 63.5%      |
|                                                                           | Male                         | 62        | 36.5%      |
| Age Range                                                                 | 18-25                        | 125       | 73.5%      |
|                                                                           | 26-35                        | 21        | 12.4%      |
|                                                                           | 36-45                        | 13        | 7.6%       |
|                                                                           | 46 or more                   | 11        | 6.5%       |
| Are you a health professional?                                            | No                           | 42        | 24.7%      |
|                                                                           | Yes                          | 128       | 75.3%      |
| Passed or accompanied someone in some type of health care procedure during the pandemic: did the professional take appropriate precautions to prevent the spread of COVID-19? | He took proper care          | 96        | 56.5%      |
|                                                                           | He left something to be desired | 27      | 15.9%      |
|                                                                           | Not applicable               | 47        | 27.6%      |
| Did you know that only 70% alcohol is effective for disinfecting?         | Yes                          | 165       | 97.1%      |
|                                                                           | Not so far                   | 5         | 2.9%       |
| Did the news on social media about COVID-19 spread panic among people?    | Yes                          | 95        | 55.9%      |
|                                                                           | No                           | 36        | 21.2%      |
Table 2: Crossing of the variables "type of protection used when contacting other people", "Did the news on social media about COVID-19 spread panic among people?" and "Do you use 70% alcohol for hand hygiene?" with "Age group".

| Questionnaires | Age range | Total |
|----------------|-----------|-------|
|                |          | 18-25 | 26-35 | 36-45 | 46 or more |       |  |       |
| A. Have you used any type of protection when leaving home and/or getting in touch with other people? | Disposable mask | n | %** | n | %** | n | %** | n | %** | 29 | 17.1% |
|                | Fabric mask* | 110 | 81.5% | 15 | 11.1% | 3 | 2.2% | 7 | 5.2% | 135 | 79.4% |
|                | Mask and gloves, both disposable | 1 | 50.0% | 0 | 0.0% | 1 | 50.0% | 0 | 0.0% | 2 | 1.2% |
|                | Fabric mask and disposable gloves | 0 | 0.0% | 1 | 50.0% | 0 | 0.0% | 1 | 50.0% | 2 | 1.2% |
|                | Other | 0 | 0.0% | 0 | 0.0% | 2 | 100% | 0 | 0.0% | 2 | 1.2% |
| B. You use 70% alcohol to perform hand hygiene? | Yes always | 101 | 74.3% | 15 | 11.0% | 11 | 8.1% | 9 | 6.6% | 136 | 80.0% |
|                | Yes sometimes | 24 | 70.6% | 6 | 17.6% | 2 | 5.9% | 2 | 5.9% | 34 | 20.0% |
|                | I never use | 0 | 0.0% | 0 | 0.0% | 0 | 0.0% | 0 | 0.0% | 0 | 0.0% |
| C. Did the news on social media about COVID-19 spread panic among people? | Yes | 72 | 75.8% | 9 | 9.5% | 8 | 8.4% | 6 | 6.3% | 95 | 55.9% |
|                | No | 22 | 61.1% | 7 | 19.4% | 4 | 11.1% | 3 | 8.3% | 36 | 21.2% |
|                | Neutral | 31 | 79.5% | 5 | 12.8% | 1 | 2.6% | 2 | 5.1% | 39 | 22.9% |

***Percentage referring to the total sample, that is, 170 participants; **Percentage in relation to the total number of participants who responded to the analyzed statement; *Cloth factory masks.
Table 3: Social media in which the sample obtained information about COVID-19

| Which social media platform(s) do you use to get news and information about COVID-19? | Frequency* | Percentage** |
|---|---|---|
| Facebook | 93 | 55.0% |
| WhatsApp | 63 | 37.3% |
| Instagram | 99 | 58.6% |
| YouTube | 54 | 32.0% |
| I don't use social networks | 10 | 5.9% |
| Other | 55 | 32.5% |

*Frequency for the total sample, that is, 170 participants; **Percentage referring to the total sample, that is, 170 participants.

Table 4: Crossing of variable “In relation to your daily life: during the quarantine, what has changed?” with “Age range”

| Age range | Total |
|---|---|
| 18-25 | 26-35 | 36-45 | 46 or more |
| n | %* | n | %* | n | %* | n | %* | n | %** |
| In relation to your daily life: during the quarantine, what has changed? | | | | |
| Anything. I work and / or maintain my social life normally | 18 | 81.6% | 4 | 18.2% | 0 | 0.0% | 0 | 0.0% | 22 | 12.9% |
| I leave home just for work | 21 | 52.5% | 5 | 12.5% | 7 | 17.5% | 7 | 17.0% | 40 | 23.5% |
| I leave home just to do essential tasks | 83 | 79.0% | 12 | 11.4% | 6 | 5.7% | 4 | 3.8% | 105 | 61.8% |
| I don't leave the house under any circumstances | 3 | 100% | 0 | 0.0% | 0 | 0.0% | 0 | 0.0% | 3 | 1.8% |
| Total | 170 | 100% |

p<0.05 (p=0.008)

**Percentage referring to the total sample, that is, 170 participants; *Percentage in relation to the total number of participants who responded to the analyzed statement.

In this study, 75.29% of the sample consisted of health professionals or students and 24.7% of non-professionals (Table 1). However, when the crossing of the variables "Are you a health professional or student?” and “According to a personal analysis of your daily practices, how likely are you to contract COVID-19?” (Table 5), it was identified that both groups have statistically equal concerns about the probability of contracting COVID-19 (p>0.05). 16.7% - non-professionals and 16.4% - health professionals answered that they had little fear that their daily activities could cause contamination of COVID-19. In this study, 75.29% of the sample consisted of health professionals or students and 24.7% of non-professionals (Table 1). However, when the crossing of the variables "Are you a health professional or student?” and “According to a personal analysis of your daily practices, how likely are you to contract COVID-19?” (Table 5), it was identified that both groups have statistically equal concerns about the probability of contracting COVID-19 (p>0.05). 16.7% - non-professionals and 16.4% - health professionals answered that they were very afraid of contracting the disease; 54.8% - non-professional and 54.7% - health professionals reported having moderate fear; and 28.6% - non-professionals and 28.9% - health professionals said they had little fear that their daily activities could cause contamination of COVID-19.
54.7% - health professionals reported having moderate fear; and 28.6% - non-professionals and 28.9% - health professionals said they had little fear that their daily activities could cause contamination of COVID-19.

Table 5: Crossing of the variable "I According to a personal analysis of your daily practices, how likely are you to contract COVID-19" with "Are you a health professional or student?"

| Are you a health professional or student? | According to a personal analysis of your daily practices, how likely are you to contract COVID-19? | Total |
|----------------------------------------|---------------------------------|-------|
|                                        | High   | Reasonable | Low   |       |
| No                                     | n      |            |       |       |
| %                                      | 16.7%* | 54.8%*     | 28.6%*| 24.7%***|
| Yes                                    | n      |            |       | 128   |
| %                                      | 16.4%**| 54.7%**    | 28.9%**| 75.3%***|
| Total                                  | n      |            |       | 170   |
| %                                      | 16.5%***| 54.7%***  | 28.8%***| 100.0%***|

*p>0.05 (p=0.999)

***Percentage in relation to the total sample, that is, 170 participants; **Percentage in relation to 128 health professionals; *Percentage in relation to 42 non-health professionals.

IV. DISCUSSION

The biosafety assessed in this study, as reported in others in the literature 15,16, confirmed that the entire sample uses some type of facial protection, either through disposable or tissue masks. Arruda et al. 16 conducted a questionnaire among health students from a public university in Brazil and also reported that the entire sample used a mask for protection. Erthal et al. 15 conducted a study that the sample was composed of health professionals and non-professionals in the area; in its results it was also verified the satisfactory use of the mask by the evaluated population.

Furthermore, in this study, mainly young people, use tissue masks, as recommended by the World Health Organization (WHO) 5, as an effective and low-cost means for individual protection. In addition, social isolation and hygiene measures must be strictly followed so that maximum control of the spread of the virus occurs 4, as the vaccine against SARS-CoV-2 is currently unavailable, broadly and unrestrictedly.

As already reported, general hygiene precautions are crucial to minimize the risk of contamination, and it is necessary to emphasize the use of gloves, especially for medical teams 17. An infected health professional is a potential vehicle for the spread of the virus, as stated by Solomom et al. 17 and protecting the hands with disposable gloves minimizes the spread of COVID-19 9. In this study, although the use of a mask is recurrent, the portion interviewed who uses gloves for protection is very small.

As for those who underwent or accompanied someone in some type of health care procedure during the pandemic, a significant portion reported that the professional left something to be desired in the practice of biosafety, worrying data, because the situation at the moment the world lives in calamity and intense spread of the virus. However, several official health institutions, such as the Ministry of Health of Brazil 18 and the Federal Council of Dentistry 19, affirm the need that professionals follow biosafety guidelines for coping with the disease. WHO 20 has established several protocols for health professionals such as the use of Personal Protective Equipment (PPE) (boots, long-sleeved gown, heavy-duty gloves, mask, and goggles or a face shield) and hand and surface hygiene with 70% alcohol.

On different types of inanimate surfaces, the virus can remain infectious from 2 hours to 9 days at room temperatures 21. That is, this is the time that a person can be infected by touching a contaminated object if they don’t perform hand hygiene later. In the study by these same authors, it was identified that ethanol (78 and 95%), 2-propanol (70 and 100%), the combination of 2-propanol (45%) with 1-propanol (30%), glutaraldehyde (0.5 and 2.5%), formaldehyde (0.7 and 1%), povidone iodine (0.23
and 7.5%), sodium hypochlorite (minimum concentration of 0.21%) and hydrogen peroxide (0.5%) had satisfactory antimicrobial action against strains identical to human coronavirus. Currently there are several studies and searches to provide cleaning of difficult surfaces, as described in the work of Queiroz et al. 22, which suggests the possibility of using photodynamic therapy as a possible disinfecting action for surfaces and combating SARS-CoV-2. However, chemicals that are easily accessible to the population are more effective and faster tools, such as 70% alcohol and its high effectiveness in combating the new coronavirus.

When approached the subject of the use of 70% alcohol for hand and surface hygiene, it was observed that no individual answered that “never uses”, something positive to the study since this disinfectant is essential in fighting COVID-19 and preventing cross-infection 20. The knowledge that only 70% alcohol is effective against the microorganism has shown positive results, reaching the mark above 90%. Thus, it is of great importance to emphasize this point, since the concentration of this disinfectant used in society has an excellent microbial control action, as demonstrated in the studies by QUEIROZ et al 23, GRAZIANO et al. 24 and KANF et al. 21. However, negative values were also found when a considerable number of individuals said to use this tool only sometimes. That is, in general, the sample understands the importance of using 70% alcohol, but many don’t use it routinely.

The COVID-19 pandemic resulted in several ways to decrease the transmission of the virus, one of which was social isolation 25, with this, the rate of stress and anxiety increased moderately in most participants and a significant portion opted for the severe increase option. As indicated by Wang et al. 26, many people report anxiety and stress symptoms after experiencing outbreaks of infectious diseases. Therefore, the COVID-19 pandemic hasn’t only threatened physical health, but also the mental health of society.

In view of the great movement of the media and social networks on the subject, the majority of the interviewees stated that the news about SARS-CoV-2 led to the population’s panic, as reported, since the sudden change in social habits led to the fear increased by the abnormal 10. Other studies are consistent with this study 27,28, where a large part of the sample is scared and under post-traumatic stress.

About the situation of labor crisis that the pandemic caused29, a significant portion of the interviewees continued to follow their tasks normally, showing a higher value among the younger population. In this work it was also noticed that a higher percentage continues to just go out to work showing the economic need of the population. According to the literature 30-33, attitudes that don’t follow social isolation and that prioritize economics above all, as the political position of Brazil president of the current year - 2020, contribute to a greater number of hospitalizations and deaths resulting from COVID-19.

It is of great relevance to remember that oral health professionals show higher rates of COVID-19 infection, since the transmission of the virus is through aerosols and this was shown in the study according to a personal analysis by health professionals 34. In this study, a large part of the sample was composed of professionals and students of dentistry. The percentage of responses from these in the item “high” for the probability of contracting COVID-19, was 3 times higher than the percentage of responses from the other interviewees.

Furthermore, the dental surgeon is significantly vulnerable to contagion due to the unique characteristics of dental procedures 11, because, due to direct contact with droplets of the infected patient's saliva, the risk of cross-infection is increased among these professionals and the patient. Thus, WHO 7 affirms the importance of using protective equipment and hygiene measures. Thus, professionals and other people guarantee greater security for themselves and for others.

V. CONCLUSION

Therefore, this research found that the concern about the probability of contracting the SARS-CoV-2 virus isn’t related to being a health professional or not. The virus has a high rate of transmission and this makes the disease more worrying and even more contagious. For this reason, hand hygiene care and the use of masks is extremely important. Most of the people who composed this study are practicing biosafety measures and have a close knowledge of the subject, such as the effectiveness of gel alcohol. In addition, this work showed the interviewees’ concern and fear about the virus and panic due to the intense production of news, which resulted in high levels of stress and anxiety.

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REFERENCES

[1] Shereen, M. A., Khan, S., Kazmi, A., Bashir, N., & Siddique, R. (2020). COVID-19 infection: Origin, transmission, and characteristics of human coronaviruses. Journal of Advanced Research, 24, 91–98.
https://doi.org/10.1016/j.jare.2020.03.005

[2] Xavier, A. R., Silva, J. S., Almeida, J. P. C. L., Conceição, J. F. F., Lacerda, G. S., & Kanaan, S. (2020). COVID-19: manifestações clínicas e laboratoriais na infecção pelo novo coronavírus. Jornal Brasileiro de Patologia e Medicina Laboratorial, 56, 1–9.

[3] Franco, A. G., Amorim, J. C. F., De Carvalho, G. A. P., Dias, S. C., & Franco, A. B. G. (2020). Importância da conduta do cirurgião-dentista frente à contaminação e prevenção do Covid-19. InterAmerican Journal of Medicine and Health, 3. https://doi.org/10.31005/iajmhm.v3i0.86

[4] GÜNER, R., HASANOĞLU, İ., & AKTAŞ, F. (2020). COVID-19: Prevention and control measures in community. TURKISH JOURNAL OF MEDICAL SCIENCES, 50(SI-1), 571–577. https://doi.org/10.3906/sag-2004-146

[5] World Health Organization. (2020). Considerations for quarantine of contacts of COVID-19 cases. World Health Organisation, 1–6.

[6] Hernández-García, I., & Giménez-Júlvez, T. (2020). Assessment of Health Information About COVID-19 Prevention on the Internet: Infodemiological Study. JIMIR Public Health and Surveillance, 6(2), 1. https://doi.org/10.2196/18717

[7] World Health Organization. (2020). Rational use of personal protective equipment for coronavirus disease 2019 (COVID-19). World Health Organization, 27(February), 1–7.

[8] World Health Organization. (2020). Laboratory biosafety guidance related to the novel coronavirus (2019-nCoV). World Health Organisation, February, 1–12.

[9] Saadat, S., Rawtani, D., & Hussain, C. M. (2020). Environmental perspective of COVID-19. Science of the Total Environment, 728, 138870. https://doi.org/10.1016/j.scitotenv.2020.138870

[10] Rohan, H. A., & Byrareddy, S. N. (2020). The epidemiology and pathogenesis of coronavirus disease (COVID-19) outbreak. In Journal of Autoimmunity. https://doi.org/10.1016/j.jaut.2020.102433

[11] Meng, L., Hua, F., & Bian, Z. (2020). Coronavirus Disease 2019 (COVID-19): Emerging and Future Challenges for Dental and Oral Medicine. Journal of Dental Research, 99(5), 481–487. https://doi.org/10.1177/0022034520914246

[12] Ahmad, A. R., & Murad, H. R. (2020). The Impact of Social Media on Panic During the COVID-19 Pandemic in Iraqi Kurdistan: Online Questionnaire Study. Journal of Medical Internet Research, 22(5). https://doi.org/10.2196/19556

[13] Modi, P. D., Nair, G., Uppe, A., Modi, J., Tuppekar, B., Gharpure, A. S., & Langade, D. (2020). COVID-19 Awareness Among Healthcare Students and Professionals in Mumbai Metropolitan Region: A Questionnaire-Based Survey. Cureus. https://doi.org/10.7759/cureus.7514

[14] Talaee, N., Varahram, M., Jamaati, H., Salimi, A., Attarchi, M., Kazempour dizaji, M., Sadr, M., Hassani, S., Farzanegan, B., Monjazebi, F., & Seyedmehdhi, S. M. (2020). Stress and burnout in health care workers during COVID-19 pandemic: validation of a questionnaire. Journal of Public Health. https://doi.org/10.10771/0389-020-01313-z

[15] Erthal, D. P., Erthal, R. P., Foggiaito, A. A., Toledo Neto, J., L., & Silva, D. F. (2020). POPULATION KNOWLEDGE ABOUT PREVENTIVE MEASURES AGAINST SARS-COV-2 (COVID-19) IN NORTHERN PARANÁ – BRAZIL. Revista CPAQV, 12(12), 2–9.

[16] Arruda, I. T., Foggiaito, A. A., Neto, J. L. T., & Silva, D. F. (2020). BIOSAFETY AND KNOWLEDGE ABOUT CROSSINFECTION AMONG UNDERGRADUATE DENTISTRY STUDENTS IN A PUBLIC BRAZILIAN UNIVERSITY. International Journal of Development Research, 10(10), 41770–41775.

[17] Solomon, H. V. (2020). COVID-19 checklist: Mask, gloves, and video chatting with grandpa. Psychiatry Research, 288(April), 112986. https://doi.org/10.1016/j.psychres.2020.112986

[18] MINISTÉRIO DA SAÚDE. (2020). Recomendações de proteção aos trabalhadores dos serviços de saúde no atendimento de COVID-19 e outras síndromes gripais. https://www.sciencedirect.com/science/article/pii/

[19] Comitê de Odontologia AMIB/CFO de enfrentamento ao COVID-19. (2020). Recomendações AMIB/CFO para enfrentamento da COVID-19 na Odontologia.

[20] World Health Organisation. (2020). Infection prevention and control during health care when COVID-19 is suspected. World Health Organization, 1, 1–5. https://apps.who.int/iris/rest/bitstreams/1272420/retrieve

[21] Kampf, G., Todt, D., Pflaender, S., & Steinmann, E. (2020). Persistence of coronaviruses on inanimate surfaces and their inactivation with biocidal agents. Journal of Hospital Infection, 104(3), 246–251. https://doi.org/10.1016/j.jhin.2020.01.022

[22] Queiroz, G. B., Foggiaito, A. A., Toledo Neto, J. L., & Silva, D. F. da. (2020). PHOTODYNAMIC THERAPY AND POSSIBLE ACTION AGAINST SARS-COV-2. Brazilian Journal of Development, 6(7), 52313–52327. https://doi.org/10.34117/bjdv6n7-761

[23] Queiroz, G. B., Pavoni, R. F., Colête, J. Z., Foggiaito, A. A., Toledo Neto, J. L., & Silva, D. F. (2020). COMPARISON OF DISINFECTION AGENTS AND POSSIBLE APPLICATION AGAINST COVID-19 . ARE DISINFECTANTS REALLY EFFECTIVE? International Journal of Development Research, 10(12), 43033–43038.

[24] Graziano, M. U., Graziano, K. U., Pinto, F. M. G., Bruna, C. Q. de M., Souza, R. Q. de, & Lascala, C. A. (2013). Effectiveness of disinfection with alcohol 70% (w/v) of contaminated surfaces not previously cleaned. Revista Latino-Americana de Enfermagem, 21(2), 618–623. https://doi.org/10.1590/S0104-11692013000200020

[25] O’Shea, S. C. (2020). Isolation. Gender, Work and Organization, 27(5), 717–722. https://doi.org/10.1111/gwoa.12464

[26] Wang, C., Pan, R., Wan, X., Tan, Y., Xu, L., Ho, C. S., & Ho, R. C. (2020). Immediate Psychological Responses and Associated Factors during the Initial Stage of the 2019 Coronavirus Disease (COVID-19) Epidemic among the General Population in China. International Journal of Environmental Research and Public Health, 17(5), 1729. https://doi.org/10.3390/ijerph17051729

[27] Asmundson, G. J. G., Paluszek, M. M., Landry, C. A.,
Rachor, G. S., McKay, D., & Taylor, S. (2020). Do pre-existing anxiety-related and mood disorders differentially impact COVID-19 stress responses and coping? *Journal of Anxiety Disorders, 74*, 102271. https://doi.org/10.1016/j.janxdis.2020.102271

[28] González Ramírez, L. P., Martínez Arriaga, R. J., Hernández-Gonzalez, M., & De la Roca-Chiapas, J. M. (2020). Psychological Distress and Signs of Post-Traumatic Stress in Response to the COVID-19 Health Emergency in a Mexican Sample. *Psychology Research and Behavior Management, Volume 13*, 589–597. https://doi.org/10.2147/PRBM.S259563

[29] Haushofer, J., & Metcalf, C. J. (2020). Which interventions work best in a pandemic? *Science*. https://doi.org/10.1126/science.abb6144

[30] Dave, D., Friedson, A., Matsuzawa, K., McNichols, D., Redpath, C., & Sabia, J. (2020). Risk Aversion, Offsetting Community Effects, and COVID-19: Evidence from an Indoor Political Rally. https://doi.org/10.3386/w27522

[31] Campos, G. W. de S. (2020). O pesadelo macabro da Covid-19 no Brasil: entre negacionismos e desvios. *Trabalho, Educação e Saúde, 18*(3). https://doi.org/10.1590/1981-7746-sol00279

[32] Silva, L., Figueiredo Filho, D., & Fernandes, A. (2020). The effect of lockdown on the COVID-19 epidemic in Brazil: evidence from an interrupted time series design. *Cadernos de Saúde Pública, 36*(10). https://doi.org/10.1590/0102-311x00213920

[33] Lasco, G. (2020). Medical populism and the COVID-19 pandemic. *Global Public Health, 15*(10), 1417–1429. https://doi.org/10.1080/17441692.2020.1807581

[34] Baghizadeh Fini, M. (2020). What dentists need to know about COVID-19. In *Oral Oncology*. https://doi.org/10.1016/j.oraloncology.2020.104741