

Original Article

## Evaluation of the knowledge, prevention practices and control of covid-19 among users of primary care in the city of São José dos Campos

Mariana Araújo Mendes Silva , Paula Dayana Simões Barbosa , Juliane Mota Torres , Alessandra Lorenti Ribeiro 

Faculty of Medical Sciences of Sao Jose dos Campos – FMSSJC|Humanitas, Medicine. Sao Jose dos Campos-SP, Brazil.

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**Corresponding author:**

Mariana Araújo Mendes Silva

E-mail: [marianaaraujo.ilha@hotmail.com](mailto:marianaaraujo.ilha@hotmail.com)

Institution: FMSSJ|Humanitas SJC-SP

Address: Av. Isaur de Pinho Nogueira, 5900. Vila Tatetuba. CEP: 12220-061. S.J. dos Campos-SP, Brazil.

Evaluation of the knowledge, prevention practices and control of covid-19 among users of primary care in the city of São José dos Campos

Silva MAM, Barbosa PDS, Torres JM, Ribeiro AL

## ABSTRACT

**Introduction:** By June 1<sup>st</sup>, 2021, 16,625,572 cases of covid-19 have been confirmed, with 465,312 deaths in Brazil. The Southeast region concentrated 6,191,324 of the covid-19 cases, with 213,245 deaths, being the first region in the country in the number of cases. In the city of São José dos Campos, there were 72,576 confirmed cases of covid-19 and 1,496 deaths. People's adherence to prevention and control measures was affected by their knowledge, attitudes, and practices regarding covid-19.

**Material and Methods:** This is a cross-sectional observational field study that evaluated primary care users' general knowledge about covid-19 and their respective practices and control of the disease in the city of São José dos Campos. To do this, we used a printed questionnaire distributed in the Basic Health Units (BHU). **Results:** The studied population demonstrated assertive knowledge about covid-19 prevention and control practices; however, regarding the transmission and treatment of the disease, this knowledge proved less assertive. **Conclusion:** Users of BHU showed relevant knowledge about covid-19, its prevention and control practices. A long-term re-evaluation is also suggested.

**KEY WORDS:** Covid-19, Knowledge, Prevention, and Control.

## RESUMO

**Introdução:** Até o dia 1<sup>º</sup> de junho de 2021 foram confirmados 16.625.572 casos de Covid-19, com 465.312 óbitos no Brasil. A região Sudeste concentrou 6.191.324 dos casos de Covid-19, com 213.245 óbitos, sendo a primeira região do país em número de casos. No município de São José dos Campos, foram confirmados 72.576 casos de Covid-19 e 1.496 óbitos. A adesão das pessoas às medidas de prevenção e controle foi afetada por seus conhecimentos, atitudes e práticas em relação à Covid-19.

**Material e Método:** Trata-se de um estudo de campo observacional de tipologia transversal no qual avaliou-se o conhecimento geral dos usuários da atenção básica sobre a Covid-19 e as respectivas práticas e controle da doença no município de São José dos Campos. Para tal, utilizou-se um questionário impresso distribuído nas Unidades Básicas de Saúde. **Resultados:** A população estudada demonstrou um conhecimento assertivo acerca das práticas de prevenção e controle da Covid-19, porém, no que diz respeito à transmissão e ao tratamento da doença, esse conhecimento mostrou-se menos assertivo. **Conclusão:** Os usuários das Unidades Básicas de Saúde (UBS) demonstraram um conhecimento relevante sobre a Covid-19 e suas práticas de prevenção e controle. Sugere-se ainda uma reavaliação a longo prazo.

**PALAVRAS-CHAVE:** Covid-19, conhecimento, prevenção e controle.

## INTRODUCTION

On December 31, 2019, the World Health Organization (WHO) was informed of cases of pneumonia of unknown cause in the city of Wuhan, China. On January 7, 2020, a new coronavirus was identified as the cause of the disease by Chinese authorities and was temporarily named 2019-nCoV and later renamed to Sars-CoV-2. On January 30, the growth in the number of cases in countries reporting confirmed cases was noted, leading to the declaration of the outbreak by the WHO as a Public Health Emergency of International Concern (PEMI).<sup>1,2</sup>

In Brazil, according to the federal government, on February 26, 2020, the first case of coronavirus was confirmed. As of June 1<sup>st</sup>, 2021, 16,625,572 cases of covid-19 have been confirmed, with 465,312 deaths. The Southeast region concentrated 6,191,324 of these cases, with 213,245 deaths, being the first region in the country in number of cases. In the city of São José dos Campos, 72,576 cases of covid-19 have been confirmed, and 1,496 deaths occurred.<sup>3,4,5</sup> In view of this situation, it is necessary to produce researches that address the population knowledge level about prevention and control of the new coronavirus and, consequently, of the disease resulting from it, covid-19, and, based on research such as this, to develop a health education plan according to the population's needs.

The population's adhesion to prevention and control measures was affected by their knowledge, attitudes, and practices regarding covid-19. The literature shows that people of relatively high socioeconomic and cultural levels have good rates of knowledge, prevention and control practices regarding covid-19. Chinese residents of relatively high socioeconomic status, particularly women, had good knowledge, optimistic attitudes, and appropriate practices regarding covid-19 during the rapid upsurge period of the disease outbreak.<sup>6</sup>

A survey showed that the population knowledge level can differ according to the sub-theme discussed in the research: "In general, participants had better knowledge about prevention, transmission, and social distancing" (GUIMARÃES, 2021, p. 24756).<sup>7</sup>

The purpose of this study is to quantify and evaluate the knowledge of primary care users about covid-19 prevention and control practices in the city of São José dos Campos.

## METHODS

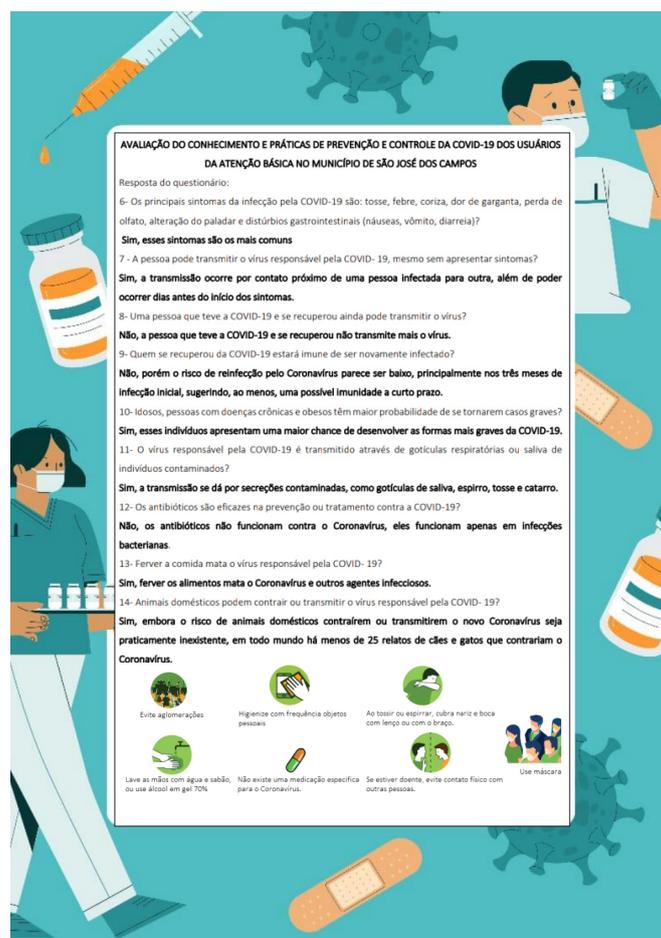
The design of this field study is of observational of cross-sectional type, and aimed to assess the general knowledge of primary care users about covid-19 in the municipality of São José dos Campos, and subsequently question them regarding the prevention and control practices adopted

as a way to fight the disease. The data collection was carried out between September 2021 and May 2022, in which 946 users were interviewed, corresponding to 0.5% of the total population registered in the Basic Health Units (BHU) selected for the research, which were: BHU Campos São José, BHU Eugênio de Melo, BHU Vista Verde, BHU Buquirinha, BHU Santana, BHU Jardim das Indústrias, BHU Jardim Paulista, BHU Putim, BHU Interlagos, and BHU Jardim Satélite. It is noteworthy that BHUs from different areas of the city of São José dos Campos were selected, adding, thus, a greater diversity of socioeconomic profile to the present study.

The questionnaire used in the survey was organized into three (3) blocks of information. The first one referred to the identification of the participant, with the following fields for completion: name, general registration number (RG) or individual taxpayer number (CPF), age group (with the following response options: 18 to 19 years; 20 to 29 years; 30 to 39 years; 40 to 49 years; 50 to 59 years; and over 60 years), sex (female or male), education (with the following response options: complete or incomplete elementary school; complete or incomplete high school; or complete or incomplete college education), and monthly income (with the following response options: up to 1 minimum wage; between 1 and 2 minimum wages; 2 to 10 minimum wages; and above 10 minimum wages). The second block of information concerned general knowledge about covid-19 and the third one concerned prevention and control measures against this disease taken by the users. It should be noted that the questionnaire was made available in printed form.

The students involved in the research distributed the printed questionnaire during the visits to the BHUs. It is important to point out that all users received an Informed Consent Form (ICF) together with the questionnaire, and that they were instructed to read it before filling it out. At the end of the questionnaire, the participants received a health education strategy, which consisted of a printed A4 sheet with the complete answer sheet with the justified answers to all the questions, which allowed the participant to review his/her knowledge about them. The template used in this research is illustrated below ([Figure 1](#)).

Figure 1. Template.



Source: Elaborated by the author.

Subsequently, the collected data was organized, and the information obtained was digitized via the digital platform Google Forms by the students involved in the research.

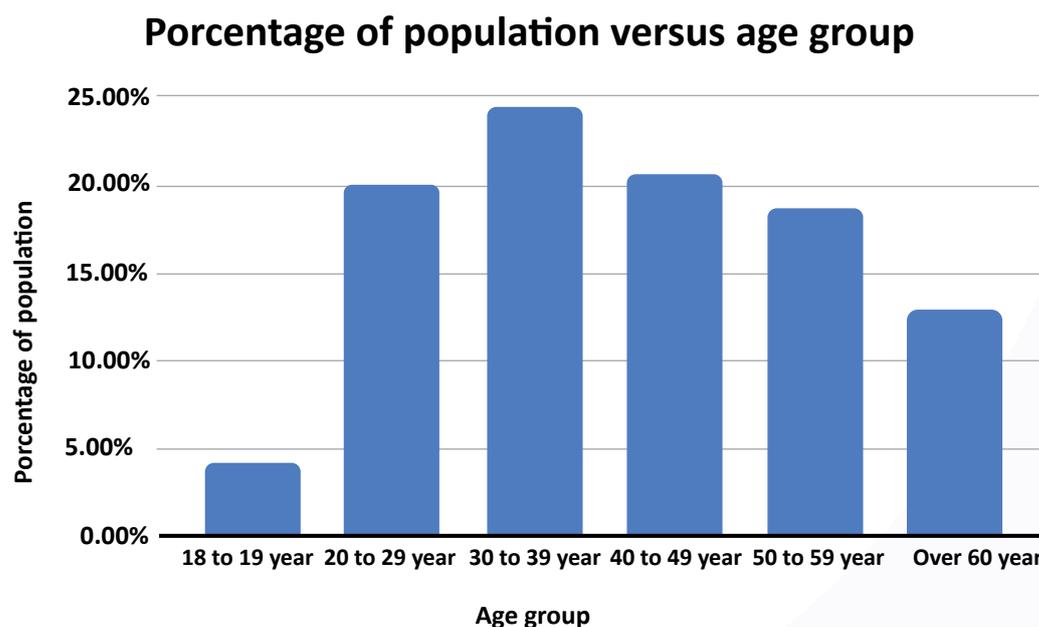
It is important to point out that the researchers obtained authorization from the permanent education committee of the São José dos Campos city hall to carry out the research, and that it was completed according to the standards required by the Helsinki Declaration and approved by an ethics committee recognized by the National Research Ethics Commission – Conep (opinion number: 5.003.523), linked to the National Health Council (NHC).

## RESULTS

In total, 946 printed questionnaires were applied among the users of the BHU participants. The interviewees correspond to 0.5% of the total population registered in these BHU. Of the 946 questionnaires applied, 108 (one hundred and eight) users refused to participate in the survey and 96 (ninety-six) did not fill out the questionnaire properly (more specifically, they did not register their general registration number [RG] and/or did not sign in the space indicated). Considering that the agreement to participate in the research and the complete completion of the questionnaire are part of the inclusion criteria, and that the disagreement to participate in the research or the incomplete completion of the questionnaire are part of the exclusion criteria, 742 (seven hundred and forty-two) questionnaires were therefore considered for the purposes of the results, discussion, and conclusion of the study.

The questions in the identification block were listed and numbered 1 (one) to 5 (five), and, about these, the age groups of the interviewed users varied in the percentages identified in Graph 1.

**Graph 1.** Percentage of population versus age group.

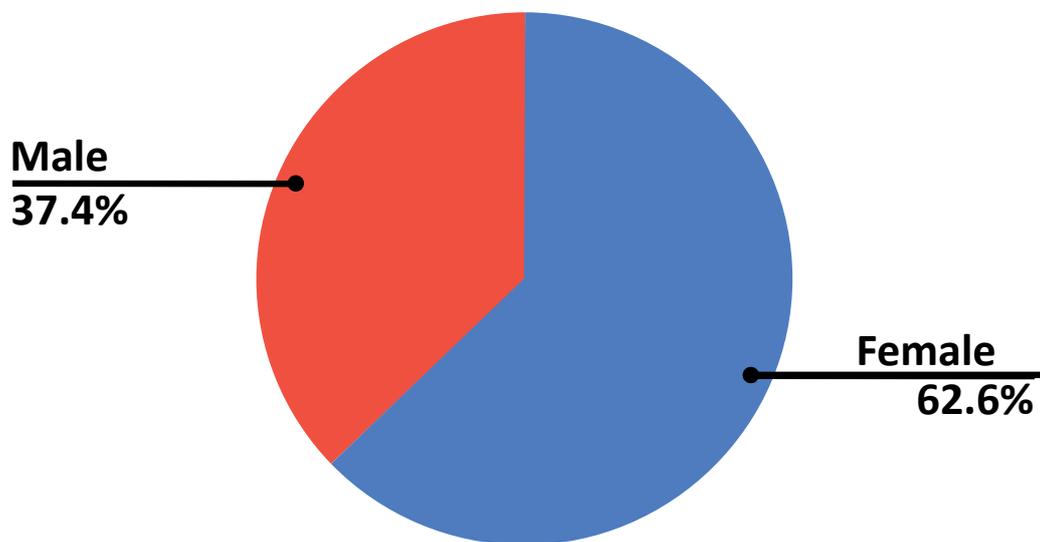


Source: Elaborated by the author.

The majority of the survey participants were women, as illustrated in [Graph 2](#).

Graph 2. Percentage of population versus gender.

## Percentage of population

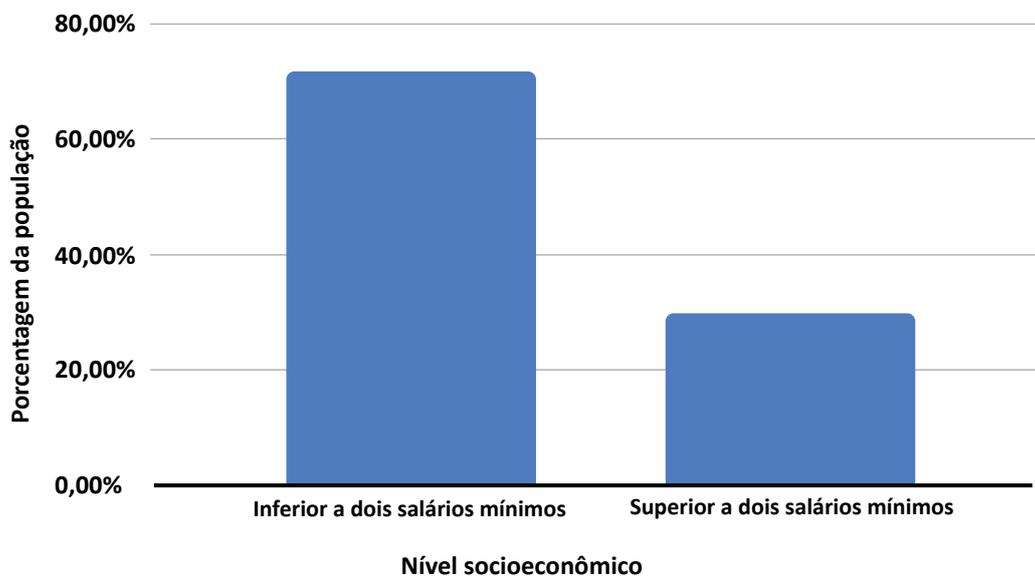


Source: Elaborated by the author.

Regarding the socioeconomic level, the information obtained about the monthly income of the population participating in the survey is shown in Graph 3.

Graph 3. Percentage of population versus socioeconomic level.

## Porcentagem da população versus nível socioeconômico



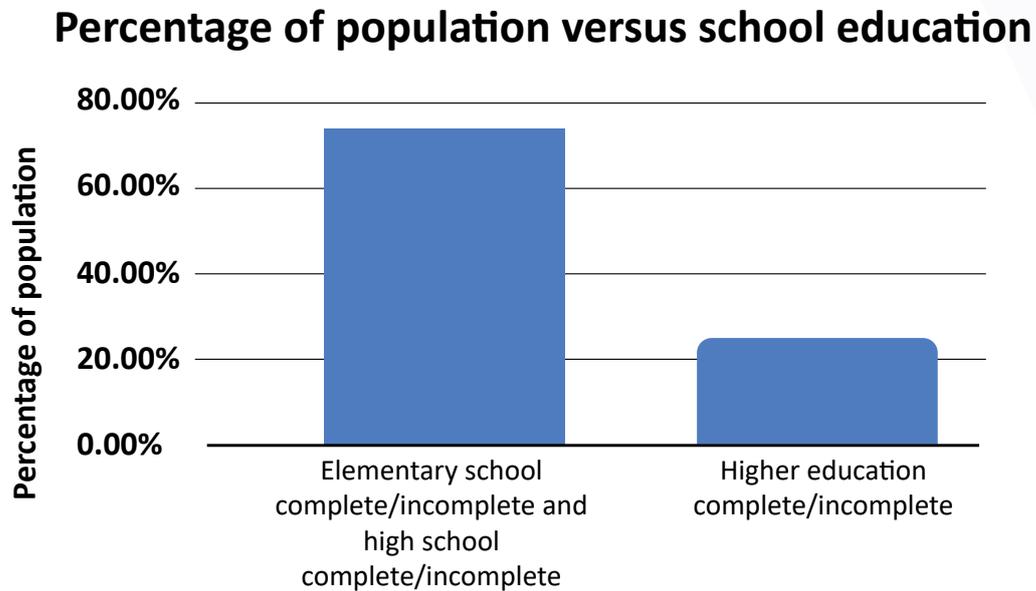
Source: Elaborated by the author.

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The levels of education also varied, but a large portion of the users marked options such as complete or incomplete high school education, and only a smaller portion marked options such as complete or incomplete college education, as shown in Graph 4.

**Graph 4.** Percentage of population versus school education.

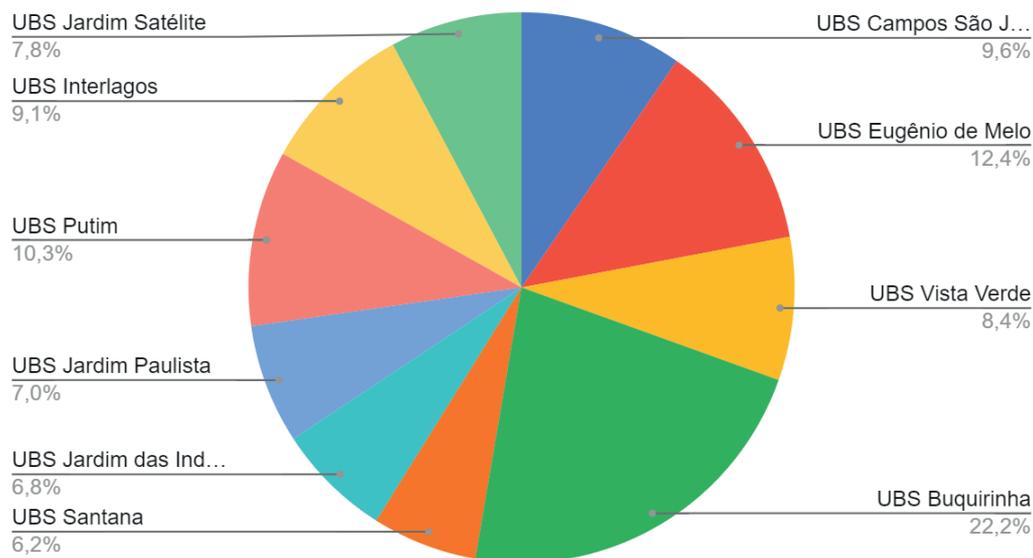


Source: Elaborated by the author.

The percentage of participants in each BHU is identified in [Graph 5](#).

**Graph 5.** Percentage of population by BHUs.

### Porcentagem UBSs



Source: Elaborated by the author.

The results of the block on covid-19 knowledge, i.e., questions numbered 6 (six) to 14 (fourteen), their respective percentages of answers, template, and identification of the references of the template delivered to the research population and approved by the Research Ethics Committee are shown in [Table 1](#).

**Table 1.** Participant population's general knowledge about covid-19.

Questions	Responses (%)			Template	Corresponding Reference
	sim	não	não sei		
<b>6- The main symptoms of covid-19 infection are: cough, fever, coryza, sore throat, loss of smell, altered sense of taste, and gastrointestinal disturbances (nausea, vomiting, diarrhea)?</b>	90%	6.50%	3.60%	sim	8
<b>7- Can a person transmit the virus responsible for covid-19 even without showing symptoms?</b>	89.60%	4.70%	5.70%	sim	9
<b>8- Can a person who had covid-19 and recovered still transmit the virus?</b>	41.20%	40.90%	17.9%	não	10
<b>9- Will anyone who recovers from covid-19 be immune from being infected again?</b>	17.60%	77.20%	5.20%	não	11
<b>10- Are the elderly, people with chronic diseases, and obese people more likely to become severe cases?</b>	95.20%	1.70%	3.10%	sim	12
<b>11- Is the virus responsible for covid-19 transmitted through respiratory droplets or saliva of contaminated individuals?</b>	88.90%	2.90%	8.10%	sim	13
<b>12- Are antibiotics effective in preventing or treating covid-19?</b>	30.60%	42.30%	27.40%	não	8
<b>13- Does boiling food kill the virus responsible for covid-19?</b>	29.40%	38.90%	31.70%	sim	14
<b>14- Can domestic animals contract or transmit the virus responsible for covid-19?</b>	25.50%	43.80%	30.70%	sim	15

Source: Elaborated by the author.

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Regarding the block corresponding to prevention and control practices, that is, the questions numbered 15 (fifteen) to 19 (nineteen) and their respective answers are identified in Tables 2 and 3.

**Table 2.** Prevention and control practices: questions 15 to 18.

Question	Respostas (%)	
	Sim	Não
15- In the last week, did you go to closed places with little ventilation?	25,70%	74,30%
16- In the last week, did you use mask or face shield to go out?	95,40%	4,60%
17- In the last week, have you been washing your hands with soap and water for at least 20 seconds as a preventive measure against the virus responsible for covid-19?	90,10%	9,90%
18- In the last few weeks, have you been cleaning surfaces with soap and water (any commonly used soap, such as detergents) or 70% alcohol or 0.1% hypochlorite (bleach) as a preventive measure against the virus responsible for covid-19?	87%	13%

Source: Elaborated by the author.

**Tabela 3.** Prevention and control practices: question 19.

Question 19	Measures						
	Azithromycin	Hydroxy-chloroquine	Zinc Sulfate Chelate	Ivermectin	Vitamina D3	Others	Do not use
19- In the last weeks, have you been using any of these measures in order to prevent covid-19?	2.90%	2%	0.90%	3.60%	10.30%	27.10%	5.40%

Source: Elaborated by the author.

## DISCUSSION

Although it is considered that the questions identified in Tables 2 and 3 do not have a correct answer, because they are only about identifying practices adopted by users, there are attitudes considered recommendable by the Brazilian Department of Health and based on this, [Table 4](#) was structured containing the answer to these questions and the respective bibliographic references.

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**Tabela 4.** Gabarito e bibliografia das questões identificadas nas Tabelas 2 e 3.

Questions	Template	Identification of the references submitted to the Research Ethics Committee as a guide for the template.
15	no	16
16	yes	16
17	yes	16
18	yes	17
19	no	18

Source: Elaborated by the author.

Most users recognize that the symptoms of covid-19 infection include cough, fever, runny nose, sore throat, loss of smell, altered sense of taste, and gastrointestinal disturbances (nausea, vomiting, and diarrhea), and transmission of the virus is possible even if the host does not exhibit the characteristic symptoms. However, regarding transmission after retrieval, users demonstrated a lower level of knowledge compared to other questions, with a higher number of errors and lack of knowledge on the subject, considering that transmission, according to Umakanthan *et al.* (2019), occurs from a healthy individual to an infected individual, and not necessarily from an individual showing symptoms.<sup>19</sup>

Immunity after recovery was a question with high hit rates. According to Kelvin *et al.* (2021),<sup>20</sup> reinfection by covid-19 virus is possible, so users who have knowledge of this answered correctly, with only a minority not knowing how to answer and/or not answering this question. Another topic that did not generate much doubt was that the elderly, people with chronic diseases, and obese people are more likely to become severe cases. Moreover, the form of transmission also generated little conflicting answers: most of the participants answered correctly in both questions. Also, according to Kelvin *et al.* (2021), transmission occurs via respiratory droplets. Furthermore, Ejaz *et al.* (2020) confirm that elderly people and patients with comorbidities are more susceptible to covid-19: “Sars-CoV-2 infects people of all age groups, but individuals over 60 years, along with comorbidities such as diabetes, chronic respiratory disease, and cardiovascular disease, have a higher risk of developing infection” (EJAZ, 2020, p. 1833-9).<sup>21</sup>

One of the questions showing the most contradictory answers among users concerns the effectiveness of antibiotics in preventing or treating covid-19: although the majority checked “no”, i.e. answered correctly, since “Antibiotic therapy or prophylaxis is not recommended because widespread use of antibiotics can lead to a higher rate of resistance, and increase the burden of disease and deaths” (HIN, 2020, p. 877-88),<sup>22</sup> a significant part answered “yes”, indicating a lower

level of knowledge on this subject. Another question that provoked incorrect answers, and this time the number of errors exceeded the number of correct answers, was that boiling the food would kill the coronavirus, if it was present there: the majority marked “no”, when in fact, according to the literature, boiling food can eliminate the coronavirus.<sup>23</sup> As for the possibility of animals contracting and/or transmitting covid-19, the majority answered “no” wrongly, and according to Haake *et al.* (2020), covid-19 infection and transmission has been identified in domestic animals such as dogs and cats: “Coronaviruses cause significant morbidity and mortality in companion and agricultural animal species, including dogs, cats, ferrets, horses, alpacas, pigs, cattle, and birds, as well as numerous species of wildlife” (HAAKE, 2020, p. 1-22).<sup>24</sup>

Moreover, regarding prevention and control practices, many users reported that they frequented closed places with little ventilation in the week before completing the questionnaire, however, they demonstrated to take due care and precautions using mask or *face shield* when leaving their homes, washing their hands with soap and water and cleaning surfaces, behaviors that are advisable measures to combat covid-19 according to the Brazilian Department of Health.<sup>17</sup> Moreover, regarding the measures used in order to prevent coronavirus infection, i.e., the use of drugs such as azithromycin, hydroxychloroquine, and ivermectin and/or vitamin D and/or zinc chelate sulfate, a minority demonstrated the use of such prophylactic measures, which presents a correct posture of most users, because these measures are not proven with high levels of scientific evidence and, therefore, are not advisable.<sup>18,22</sup>

## CONCLUSION

We conclude that the study population showed assertive knowledge about covid-19 prevention and control practices; however, regarding the transmission and treatment of the disease, this knowledge was less assertive, although still relevant. Such behavior likely stems from the gap and controversy, including in medical circles, regarding the treatment of covid-2019 at that time of survey data collection. Furthermore, the application of the survey questionnaire made it possible not only to unveil the population’s knowledge on the subject, but also to contribute to the dissemination of scientifically based knowledge to the users of the BHUs. It is recommended that in the long term, a new study be done for a reassessment of the population’s knowledge about covid-19, also considering the health education strategy used in this study.

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