

ASSESSMENT OF MEDICATION USE IN STUDENTS DURING THE COVID-19 PANDEMIC

*AVALIAÇÃO DO USO DE MEDICAMENTOS EM ESTUDANTES DURANTE A
PANDEMIA DA COVID-19*

*EVALUACIÓN DEL USO DE MEDICAMENTOS EN ESTUDIANTES DURANTE LA
PANDEMIA DE COVID-19*

✉ Mariana Rabelo Pimentel¹ e ✉ Werlissandra Moreira de Souza²

ABSTRACT

To assess self-medication among humanities students during the COVID-19 pandemic. The study was conducted at the Federal University of Western Bahia (UFOB). Of the 863 humanities students who met the pre-established inclusion and exclusion criteria, 270 students formed the sample. A questionnaire was administered covering demographic characteristics, knowledge, causes and practices of self-medication. The study was approved by the UFOB Research Ethics Committee, CAAE No. 59217822.0.0000.8060. The majority of participants were aged between 18 and 24, predominantly female and single. Although the majority reported knowledge, the results of the questionnaire showed little or insufficient knowledge. The main reasons for self-medication were fear of infection and influence from friends and the media. Among the main drugs mentioned, there was a high prevalence of self-medication with the use of vitamin C and azithromycin. The need to raise awareness about the risks of self-medication and interventions to promote the responsible use of medicines among students during the pandemic is highlighted.

Keywords: *Self-medication; University Students; COVID-19.*

RESUMO

Avaliar a automedicação em estudantes da área de humanas durante a pandemia de COVID-19. O estudo foi conduzido na Universidade Federal do Oeste da Bahia (UFOB). Dos 863 discentes da área de humanas que atenderam os critérios de inclusão e exclusão pré-estabelecidos, 270 estudantes formaram a amostra. Um questionário foi aplicado abordando características demográficas, conhecimentos, causas e práticas da automedicação. O estudo foi aprovado pelo Comitê de Ética em Pesquisa da UFOB, CAAE nº 59217822.0.0000.8060. A maioria dos participantes tinha entre 18 e 24 anos, predominantemente do sexo feminino e solteiros. Embora a maioria ter relatado conhecimento, o resultado do questionário evidenciou pouco conhecimento ou conhecimento insuficiente. As principais causas para a automedicação foram medo de infecção e influência de amigos e mídia. Dentre os principais medicamentos mencionados, destaca-se a alta prevalência de automedicação com o uso de vitamina C e azitromicina. Destaca-se a necessidade de conscientização sobre os riscos da automedicação e intervenções para promover o uso responsável de medicamentos entre estudantes durante a pandemia.


Descritores: *Automedicação; Universitários; COVID-19.*

RESUMEN

Evaluar la automedicación entre estudiantes de humanidades durante la pandemia de COVID-19. El estudio fue realizado en la Universidad Federal del Oeste de Bahia (UFOB). De los 863 estudiantes de humanidades que cumplieron los criterios de inclusión y exclusión preestablecidos, 270 estudiantes formaron la muestra. Se administró un cuestionario que abarcaba características demográficas, conocimientos, causas y prácticas de automedicación. El estudio fue aprobado por el Comité de Ética de la Investigación de la UFOB, CAAE nº 59217822.0.0000.8060. La mayoría de los participantes tenía entre 18 y 24 años, eran predominantemente mujeres y solteras. Aunque la mayoría declaró tener conocimientos, los resultados del cuestionario mostraron conocimientos escasos o insuficientes. Las principales razones para automedicarse fueron el miedo a la infección y la influencia de los amigos y los medios de comunicación. Entre los principales fármacos mencionados, destaca la alta prevalencia de automedicación con el uso de vitamina C y azitromicina. Se destaca la necesidad de concienciar sobre los riesgos de la automedicación y de realizar intervenciones para promover el uso responsable de los medicamentos entre los estudiantes durante la pandemia.

Descriptores: *Automedicación; Estudiantes Universitarios; COVID-19.*

¹ Universidade Federal do Oeste da Bahia, Barreiras/BA - Brasil. 

² Universidade Federal do Oeste da Bahia, Barreiras/BA - Brasil. 

INTRODUCTION

According to the World Health Organization (WHO)¹, self-medication is characterized by the self-selection and self-administration of drugs to treat self-diagnosed diseases or conditions. Although the individual intends to take care of himself with this practice, this can generate risks and bring future problems, especially with regard to drug interaction, adverse reactions, therapeutic failures, and medication errors, which is pointed out as the main responsible for drug poisoning recorded in Brazil². In Brazil, eighty million people choose to self-medicate, exposing themselves to the risks mentioned above. Thus, the indiscriminate use of medicines is one of the major barriers faced by public health in the country^{3,4}.

Data from the Federal Council of Medicine indicate that 77% of Brazilians use medicines without any medical advice⁵. In this context, during the COVID-19 period, the Unified Health System (Sistema Único de Saúde - SUS) faced a significant increase in demand, resulting in congestion and a critical situation that hindered access to health services⁴. In addition, the pandemic has triggered a growing search for methods to prevent coronavirus infection, including the use of drugs without proven efficacy and without a medical prescription. This scenario was exacerbated by fear, anxiety, and other psychological manifestations observed during the health emergency period⁶.

In this context, the most used drugs during the pandemic, in this period, were: ivermectin, hydroxychloroquine sulfate, ibuprofen, paracetamol, sodium dipyrone, cholecalciferol (vitamin D) and ascorbic acid (vitamin C), which pose health risks to people who use them without medical indication. For example, ivermectin and hydroxychloroquine sulfate, whose inappropriate use can impair liver function⁷. In this context, the main risks caused by the practice of self-medication are undue accumulation of the drug in the body, potential drug interactions, dosage error, inadequate treatment time, occurrence of serious adverse effects, and incorrect self-diagnosis⁸.

Thus, medications were attributed as important in the process of prophylaxis, cure and/or treatment of the disease, generating an increase in the practice of self-medication in relation to some drugs and, consequently, may subject the patient to dangers to their health generated by the infodemic⁹. The prescription and use of these off-label drugs to treat or prevent COVID-19 received contours of great credibility, when the "early treatment" and the "COVID-kit" were publicized and their use widely encouraged on social media (WhatsApp, Facebook, and Instagram) by medical professionals, public authorities and on the official websites of Health Secretariats, Ministry of Health and Federal Government of Brazil¹⁰.

In this way, the National Drug Policy – PNM seeks to make individuals make the rational use of medicines. It encompasses as a concept a set of government guidelines that aims to ensure fair and safe access to medicines by the population, addressing regulation, production, distribution, quality control and promotion of the rational use of medicines. Its objective is to promote equity in access to drugs, monitoring the production chain, encouraging research and education on the appropriate use of medicines. In addition to these factors, the pharmacist plays a very valuable role, promoting the efficacy, quality,

and safety of patients in the dispensing of medicines, ensuring awareness and reduction of self-medication in the Brazilian population¹¹.

In the meantime, understanding the extent of self-medication among university students can be a valuable contribution to the Ministry of Health and higher education institutions, providing essential data for the development of effective monitoring and prevention strategies¹². In addition, it can assist in the application of appropriate measures to reduce the inappropriate use of medicines in pandemic situations due to infectious diseases, as was the case with COVID-19¹³. Therefore, this study aimed to evaluate self-medication in students in the humanities during the COVID-19 pandemic.

METHODS

This is a descriptive, observational, cross-sectional study that aims to evaluate the practice of self-medication among students in the humanities during the COVID-19 pandemic. This study has a larger proportion, encompassing two other students from the university. They are researching and analyzing the other two centers in force at UFOB, which are: The Center for Biological and Health Sciences and the Center for Exact Sciences and Technologies. In this context, it focused only on students from the federal institution located in the city of Barreiras, Bahia.

The research took place with students in the humanities area of the Federal University of Western Bahia, from August to December 2023, with the current courses, namely: Law, Administration, Interdisciplinary Bachelor's Degree in Humanities, History (Bachelor's and bachelor's degree) and Geography (Bachelor's and bachelor's degree).

The sample composition was the number of students enrolled in the 7 (seven) undergraduate courses, identified at the institution itself: 863 by December 2023. Thus, the minimum sample was calculated considering a sampling error of 5% and a confidence interval of 95%, totaling 270 university students.

Data were obtained via a printed multiple-choice questionnaire. It was created from data in the literature, with questions related to Demographic Characteristics, Knowledge about Self-medication, Causes of Self-medication during the COVID-19 pandemic and Self-medication Practice. The questions were applied to the study participants by the student responsible for the research from class to class.

The inclusion criteria required to participate in the research were: being 18 years of age or older and being actively enrolled in the course. Regarding the exclusion criteria, students who were under the age of majority (18 years old), students from another center and students with limitations that prevented them from understanding and answering questions and who, for whatever reason, refused to participate in the research were excluded from the study. The data obtained were analyzed using the Software Package for Social Sciences (SPSS for Windows, version 19.00) and Excel (Microsoft Corp. United States), allowing the processing, analysis and tabulation of data and the construction of graphs and tables of the research.

The research project was submitted to and approved by the UFOB Research Ethics Committee under CAAE No. 59217822.0.0000.8060, with opinion No. 6.033.418. In addition, it is noteworthy that the research complied with Resolution No. 466/2012, which

comprises scientific research with human beings. It should be noted that the anonymity of the participating volunteers and the freedom to continue or not participate in the project were guaranteed. In addition, human dignity was validated as well as the rights and duties of those included.

This research provided important data for the academic society, as well as the possibility of serving as a basis for possible interventions with the competent bodies and new research with the same thematic axis.

RESULTS

A total of 270 students participated in the study, 54 from each course, from the five undergraduate courses in the humanities area of the Federal University of Western Bahia. Regarding the age of the participants, it was shown that the majority were between 18 and 24 years old, 208 (77%). The most significant gender in the sample was female (n=170; 63%); single marital status, 256 (94.8%); and the majority did not test positive for COVID-19, 116 (43%), as can be seen in Table 1.

Table 1 - Demographic characteristics of students in the humanities at UFOB in 2023 (n=270).

Age		
Variable	N	%
<24	208	77
25-34	54	20
35-44	7	2,6
45-54	1	0,4

Gender		
Variable	N	%
Female	170	63
Male	100	37

Marital status		
Variable	N	%
Married	14	5,2
Single	256	94,8

Have you had COVID?		
Variable	N	%
No	116	43
Yes	94	34,8
I don't know	60	22,2

Source: Survey data (2023).

In the data shown in Table 2, knowledge about self-medication among students in the humanities area of UFOB is evidenced. Most of the students have heard about self-medication, 261 (96.7%), but they have insufficient knowledge, 158 (58.5%), with a higher frequency of grade 5 attributed to the evaluation of their knowledge, 59 (21.9%) and most are aware that self-medication can cause damage to health, 256 (94.8%).

Table 2 - Knowledge about self-medication of students in the humanities at UFOB in 2023 (n=270).

Have you ever heard about self-medication?		
Variables	N	%
No	7	2,6
Yes	261	96,7
I don't know	2	0,7

What is your knowledge about self-medication?		
Variables	N	%
Insufficient knowledge	158	58,5
Sufficient knowledge	112	41,5

Rate your knowledge from 1 to 10, with 10 being your complete mastery of self-medication for COVID-19		
Variables	N	%
1	22	8,1
2	13	4,8
3	27	10
4	41	15,2
5	59	21,9
6	34	12,6
7	39	14,4
8	24	8,9
9	3	1,1
10	8	3

Can the practice of self-medication cause damage to health?		
Variables	N	%
No	3	1,1
Yes	256	94,8
I don't know	11	4,1

Source: Survey data (2023).

Table 3 presents the causes of self-medication during the COVID-19 pandemic, showing that students were afraid of becoming infected or having contact with a suspected or known case of the disease, 189 (70%); fear of isolation and quarantine, 144 (53.3%); had at least one symptom related to COVID-19, 165 (61.1%); delay in receiving treatment at health units, 123 (45.6%); influence of friends or relatives to practice self-medication and prevent the disease, 142 (52.6%); the influence of television, radio, newspapers and social media was also an aggravating factor, 137 (50.7%).

Table 3 - Causes of self-medication during the COVID-19 pandemic of humanities students at UFOB in 2023 (n=270).

Fear of infection or contact with suspected or known COVID-19 case		
Variables	N	%
No	49	18,1
Yes	189	70
I don't know	32	11,9

Fear of being quarantined or isolated if I contract COVID-19		
Variables	N	%
No	97	35,9
Yes	144	53,3
I don't know	29	10,7

Had at least one symptom related to COVID-19		
Variables	N	%
No	86	31,9
Yes	165	61,1
I don't know	19	7

Delay in receiving treatment at health facilities		
Variables	N	%
No	91	33,7
Yes	123	45,6
I don't know	56	20,7

Influence of friends or relatives to practice self-medication and prevent COVID-19		
Variables	N	%
No	105	38,9
Yes	142	52,6
I don't know	23	8,5

Influence of television, radio, newspaper, and social media can lead to self-medication for COVID-19		
Variables	N	%
No	113	41,9
Yes	137	50,7
I don't know	20	7,4

Source: Survey data (2023).

Table 4 shows how these students self-medicated during the pandemic, with the following relevant results: 177 (65.6%) self-medicated for COVID-19 or another health problem in the last two years without a prescription from a qualified professional. The most used medications in this period were vitamin C 64 (23.7%), azithromycin 44 (16.3%), herbal products 38 (14.1%), vitamin D 13 (4.8%), 87 (32.2%) were recommended by a friend or relative. Of the medications used, 79 (29.3%) were self-prescribed, 228 (84.5%) purchased them from pharmacies and 267 (98.9%) do not continue to use any medication for COVID-19.

Table 4 - Self-medication practice of humanities students at UFOB in 2023 (n=270).

Have you self-medicated for COVID-19 or another health issue in the past 2 years without a prescription from a qualified professional?		
Variables	N	%
No	92	34,1
Yes	177	65,6
I don't know	1	0,4
What did you use to self-medicate?		
Variables	N	%
Antidepressants	13	4,8
Azithromycin	44	16,3
Chloroquine	3	1,2
Hydroxychloroquine	9	3,3
Ivermectin	8	3
Other	43	15,9
Plant-based products	38	14,1
Muscle relaxants	26	9,6
Vitamin C	64	23,7
Vitamin d	13	4,8
Zinc	9	3,3
Who referred the medication(s) to you?		
Variables	N	%
Pharmacy attendant	18	6,7
Eu	79	29,3
Pharmacist	42	15,5
Health unit doctor	44	16,3
A friend or relative	87	32,2
Where did you get the medicine?		
Variables	N	%
Pharmacy	228	84,5
Hospital	16	5,9
Internet	1	0,4
Other	22	8,1
Peddler	3	1,1

Source: Survey data (2023).

DISCUSSION

Self-medication is a very frequent practice, considered universal among different societies and different populations, regardless of the degree of socioeconomic development¹³. In this context, two studies have also shown that this practice is high among students^{14,15}. Franco *et al.* (2009)¹⁶ observed that in all the undergraduate courses he investigated, regardless of the area of knowledge and the year in question of the course, the result of the practice of self-medication was significant¹⁴. By correlating the findings of this study with previous research in the literature, it is possible to identify several similarities and contributions to the understanding of the demographic characteristics of students. According to data from the Higher Education Census, collected by the National Institute of Educational Studies and Research Anísio Teixeira (INEP), the number of women who entered higher education exceeds that of men, according to a survey released in 2022. INEP also confirms that this strong female presence is linked to human sciences courses. Another corresponding factor is age, which ranges from 19 to 23 years in face-to-face educational institutions¹⁷.

Regarding knowledge about self-medication, Melo *et al.* (2021)¹² highlight the lack of educational and awareness programs on the responsible use of medications, especially during health crisis situations. This gap in health education was evidenced in this study, in which a significant proportion of students indicated that they had insufficient knowledge about self-medication and its associated risks. Therefore, the findings of this study corroborate the need to develop and implement effective health education strategies to prevent self-medication among university students.

By comparing the results of this study with previous research in the literature, it is feasible to recognize several similarities and advances that contribute to the understanding of self-medication during the COVID-19 pandemic among university students. Previous studies, such as the one conducted by Alves *et al.* (2022) and Branco *et al.* (2023)^{18,19}, have also highlighted the prevalence of over-the-counter drug use among young adults during the pandemic context. The results found by these authors corroborate the findings of this study, evidencing a widespread concern with self-medication among university students.

In addition, Silva, Jesus, and Rodrigues (2021)²⁰ point to the influence of social and media factors on the practice of self-medication, which is in line with the results of this study, which showed that the influence of friends, relatives, and social media was identified as one of the reasons for self-medication among students. This finding reinforces the importance of addressing not only individual aspects, but also the social and cultural contexts that influence individuals' health decisions. In addition, Viana (2020)²¹ reports that the demand for psychological services and other areas of health has increased significantly in the last five years, according to data presented in his article. This growth has led regulatory agencies to develop measures to adjust the provision of these services, with the aim of expanding access for the population and ensuring the quality of care.

Correlating the results, in a study conducted in Peru, 51.3% (n=368) of the participating university students had self-medicated with COVID-19-related medications due to symptoms such as headache, sore throat, and fever²². Another study, conducted in

Paraná, showed that 52.54% (n=59) of university students self-medicated with any of the drugs speculated for COVID-19 and still reported believing in its efficacy despite the fact that there was no proven clinical result in humans²³. Of these, 35.59% still believe that there is no harm to health in the use of these drugs, showing a worrying result due to the potential to cause adverse effects that all drugs have.

Some drugs have been presented as the solution to combat the disease, however, the use of drugs without strong evidence to prove their benefits can generate risks and irreversible consequences for the patient's health²⁴. Chloroquine and hydroxychloroquine are drugs used in the treatment of malaria, rheumatological diseases, and lupus²⁵. However, due to the dissemination of information about studies involving chloroquine and hydroxychloroquine as a treatment for COVID-19, there was a significant increase in sales of these drugs. In 2019, 55 million boxes were sold against 91.6 million boxes in 2020¹².

Thus, the importance of guidance on the use of medicines correctly and without risks to the person who consumes them is evident. The pharmacist is one of those responsible for ensuring protection for the citizen, in order to encourage greater care. It plays a crucial role in controlling medications and guiding those who need them. Pharmaceutical care, characterized by constant vigilance in monitoring patients, plays a key role in reducing self-medication, both during pandemics and in regular periods. This approach focuses on the humanization of health care related to the use of medications, going beyond the symptoms or condition presented at the time. It involves an in-depth knowledge of the patient, including medical, family, and environmental history.

Thus, the main responses to the study objectives highlight the importance of raising awareness about the risks of self-medication, identifying, and addressing the behavioral determinants for this action, and developing effective interventions to promote responsible medication use among university students during a pandemic period and in the daily lives of these students. These findings have significant implications for public health and may guide future research and health policies aimed at reducing self-medication and promoting health among this specific population.

CONCLUSION

It was observed that self-medication is quite common in this population of students in the area of Human Sciences at UFOB, in Barreiras-BA. An important contribution of this study concerns the influences that lead to the practice of self-medication. That is, friends, neighbors and family, advertising, pharmacists, or pharmacy employees who significantly influence students in the humanities. The study brought some limitations, such as the difficulty of obtaining the number of students for the survey because it is a printed questionnaire. I suggest that new surveys be done via online questionnaire, so that it facilitates the search for this data. The need to raise awareness about the risks of self-medication and interventions to promote the responsible use of medicines among students is highlighted. Finally, these data can be used in the production of teaching and research strategies aimed at promoting the rational use of medicines and raising awareness about the practice of self-medication, not only in pandemic periods, but also in everyday life.

REFERENCES

1. Organização Mundial da Saúde. O papel do farmacêutico no autocuidado e na automedicação: relatório do 4º Grupo Consultivo da OMS sobre o Papel do Farmacêutico, Haia, Holanda, 26-28 de agosto de 1998.
2. Oliveira A, et al. Intoxicação medicamentosa relacionada à tentativa de autoextermínio. *Rev Inic Cient Ext.* 2019;2(2):102-8.
3. Souza TT, et al. Morbidade e mortalidade relacionadas a medicamentos no Brasil: revisão sistemática de estudos observacionais. *Rev Ciên Farm Bás Aplic.* 2014 out.;35(4):519-32. Disponível em: <https://rcfba.fcfar.unesp.br/index.php/ojs/article/view/82>. Acesso em: 12 agosto 2023.
4. Nogueira D, et al. Pandemia por covid-19 no Brasil: análise da demanda e da oferta de leitos hospitalares e equipamentos de ventilação assistida segundo diferentes cenários. *Cad Saúde Públ.* 2020;36(6).
5. Noronha T. Pesquisa aponta que 77% dos brasileiros têm o hábito de se automedicar [Internet]. *Crfsp.org.br*. Disponível em: [<https://www.crfsp.org.br/noticias/10535-pesquisa-aponta-que-77-dos-brasileiros-tem-o-habito-de-se-automedicar.html>]. Acesso em: 20 maio 2024.
6. "Kit Covid é eficaz? Quais são os riscos? – Hospital Santa Helena". Disponível em: [<https://hospitalsantahelenagoiania.com.br/sem-categoria/kit-covid-e-eficaz-quais-sao-os-riscos/>]. Acesso em: 27 maio 2024.
7. Prudencio JVL, Marques JHM. Risks of self-Medication during covid-19. *Rev Cient,* 2022;1(1).
8. Mergulhão A, Castro R. Aplicativo de Pazuella sugere “tratamento precoce” com cloroquina para sintomas de Covid-19. *Época.* 2021 Jan 20.
9. DIB Instituto de Desenvolvimento Institucional Brasileiro [Internet]. IDIB. 2019 [27 de dezembro de 2023]. Disponível em: <https://idib.org.br/>.
10. Medicamentos D. Política Nacional [Internet]. 2001. Disponível em: https://bvsm.sau.gov.br/bvs/publicacoes/politica_medicamentos.pdf.
11. Yasmin, et al. Self-medication practices in medical students during the Covid-19 pandemic: a cross-sectional analysis. *Front Pub Health.* 2022;9:803937.
12. Melo, et al. Automedicação e uso indiscriminado de medicamentos durante a pandemia da Covid-19. *Cad Saúde Públ.* 2021;37(4).
13. Dhamer T, Dal-Molin AP, Helfer AP, Carneiro M, Possuelo LG, Kauffmann C, Moura Valim AR. A automedicação em acadêmicos de cursos de graduação da área da saúde em uma universidade privada do estado do Rio Grande do Sul. *Rev Epidemiol Control Infect.* 2012;2(4):138-40.
14. Jesus APGAS, Yoshida NCP, Freitas JGA. Prevalência da automedicação entre acadêmicos de farmácia, medicina, enfermagem e odontologia. *Rev Elet Farm.* 2013;40(2):151-64.
15. Damasceno D, et al. Automedicação entre graduandos de enfermagem, farmácia e odontologia da Universidade Federal de Alfenas. *REME: Rev Min Enferm.* 2007;11(1):48-52.
16. Franco IS, Rangel MP, Mella Junior SE. Avaliação da automedicação em universitários. In: *Anais do IV Encontro Internacional de Produção Científica.* Maringá: Centro Universitário de Maringá; 2009.
17. Instituto Nacional de Estudos e Pesquisas Educacionais Anísio Teixeira (INEP). Censo da Educação Superior - Resultados. Disponível em: [<https://www.gov.br/inep/pt-br/areas-de-atuacao/pesquisas-estatisticas-e-indicadores/censo-da-educacao-superior/resultados>]. Acesso em: 27 maio 2024].
18. Alves LF, et al. O consumo de zolpidem durante a pandemia da COVID-19: benefícios e consequências. *Rev Liberum Accessum.* 2022;14(4):42-52.
19. Branco L, et al. Automedicação durante a pandemia de Covid-19 e fatores associados. *Research, Society and Development.* 2023 jan.;12(2):e11212239924. DOI: <http://dx.doi.org/10.33448/rsd-v12i2.39924>. Disponível em: <https://rsdjournal.org/index.php/rsd/article/view/39924>. Acesso em: 27 maio 2024.
20. Silva AF, Jesus JSP, Rodrigues JL. G. Automedicação na pandemia do novo coronavírus. *Rev Ibero-Amer Hum, Ciên Educ.* 2021 abr.;7(4):2675-3375. DOI: <https://doi.org/10.51891/rease.v7i4.1038>. Disponível em: <https://periodicorease.pro.br/rease/article/view/1038>. Acesso em: 7 setembro 2023.

21. Vista do atendimento psicológico online no contexto da pandemia de covid-19 [Internet]. Ce.gov.br. 2024 [citado 2024-08-13]. Disponível em: <https://cadernos.esp.ce.gov.br/index.php/cadernos/article/view/399/215>.
22. Miñan-Tapia A, Conde-Escobar A, Calderon-Arce D, Cáceres-Olazo D, Peñarios AJ, Donoso-Romero RC. Factores asociados a la automedicación con fármacos relacionados a COVID-19 en estudiantes de ciencias de la salud de una ciudad peruana. Pre-print. 2020. DOI: 10.1590/SciELOPreprints.1225.
23. Andrade EA, Moreno VG, Lopes-Ortiz MA. Profile of use of medicines and self-medication, in a university population, in front of Covid-19 pandemic. Braz J of Development. 2021;7. DOI:10.34117/bjdv7n7-516.
24. Souza ASR, Amorim MMR, Melo ASO, Delgado AM, Florêncio ACMCC, Oliveira TV, et al. Aspectos gerais da pandemia de COVID-19. Rev Bras Saúde Matern Infant [Internet]. 2021 Acesso em: 27 maio 2024];21(1):29-45.
25. De Freitas S, De Jesus A, Pinho JS, Rodrigues JLG. Automedicação na pandemia do novo coronavírus. Rev Ibero-Ame Hum, Ciên Educ.2021;7(4):938-43.