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Original Article

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Drug consumption during the covid-19 pandemic

Consumo de medicamentos durante a pandemia da Covid-19

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Resumo
INTRODUÇÃO: O início da pandemia do covid-19 implicou isolamento social, o que dificultou o acesso a serviços de saúde, o que poderia gerar aumento de consumo de medicamentos, por conta própria ou prescrição médica. Ressalta-se também a influência de propagandas popularizando medicamentos sem eficácia comprovada. OBJETIVO: O presente estudo analisou se ocorreu maior frequência do uso de medicamentos durante o isolamento social, correlacionando o fato com fatores como idade, sexo, classes medicamentosas, aumento da posologia dos fármacos e consumo com ou sem indicação. MATERIAIS E MÉTODOS: O estudo foi aprovado pelo Comitê de Ética da UNIFAE, CAAE 36933020.7.0000.5382. Trata-se de uma pesquisa transversal realizada através de um questionário no Google Forms, com questões abertas e fechadas. Para verificação de dados foram utilizadas ferramentas de análises estatísticas descritivas. RESULTADOS: Foram analisadas 566 respostas do questionário, foi constatado que 49,82% dos participantes utilizam medicamentos de uso contínuo, das quais 19,85% necessitaram aumentar a dose. Ademais, 57,06 % dos participantes relataram uso de algum outro tipo de medicamento durante a pandemia, sendo estes 74,6 % analgésicos, 48,91% vitaminas, 48,29% antitérmicos, 42,72% anti-inflamatórios, 24,76% antidepressivos e ansiolíticos, 17,95% antibióticos, 16,71% ivermectina, 4,02% nitazoxanida e 1,54% cloroquina. CONCLUSÕES: Conclui-se, portanto, que as principais classes de medicamentos utilizadas foram os analgésicos, antitérmicos e vitaminas, com aumento na frequência de consumo. Tal utilização emergiu do intuito de reforçar o sistema imunológico, tratar sintomas febris, e tratar queixas relacionadas a dores, mesmo sem prescrição médica.
Palavras-chave: aumento; automedicação; consumo de medicamentos; covid-19; medicamentos; pandemia.

Abstract
BACKGROUND: The beginning of the covid-19 pandemic implied social isolation, and made it difficult to access health services, which could lead to an increase in the consumption of medicines, on their own or with a doctor's prescription. The influence of advertisements popularizing drugs with no proven efficacy is also highlighted. OBJECTIVE: The present study analyzed whether there was a greater frequency of medication use during social isolation, correlating the fact with variables such as age, sex, drug classes, increased drug dosage and consumption with or without indication. METHODS: The study was approved by the Ethics Committee of UNIFAE, CAAE 36933020.7.0000.5382. This is a cross-sectional survey carried out through a questionnaire on Google Forms, using both multiple choice and discursive questions. To verify the data, descriptive statistical analysis tools were used. RESULTS: A total of 566 responses to the questionnaire were analyzed, and it was found that 49,82% of the participants use medication for continuous use, of which 19,85% needed to increase the dose. In addition, 57,06% of the participants reported using some other type of medication during the pandemic, 74,6% of which were analgesics, 48,91% vitamins, 48,29% antipyretics, 42,72% anti-inflammatory drugs, 24,76% antidepressants and anxiolytics, 17,95% antibiotics, 16,71% ivermectin, 4,02% nitazoxanide and 1,54% chloroquine. CONCLUSIONS: It is concluded that the main classes of drugs used were analgesics, antipyretics and vitamins, with an increase in the frequency of consumption. Such use emerged with the aim of strengthening the immune system, treating feverish symptoms, and treating pain-related complaints, even without a medical prescription.
Keywords: increase; automedication; drug use; covid-19;medication; pandemics.

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Introduction

At the end of December 2019, numerous cases of a type of pneumonia of unidentified origin appeared in Wuhan, China. After local studies, Chinese scientists identified a new virus, named "SARS-CoV-2", which would be the cause of COVID-19[1].

It is a disease that presents varied symptoms, the main ones being fever, cough, hypogeusia, systemic pain and some gastrointestinal symptoms. In its most advanced form, it can progress to Severe Acute Respiratory Syndrome (SARS)[2].

In January 2020, the World Health Organization (WHO) announced that the epidemic in China was a case of Public Health Emergency of International Concern (PHEIC). As the virus progressed, the first official case was found in Brazil in February 2020. The disease outbreak was characterized as a pandemic in March[2].

In this scenario, Brazilian health authorities have declared the need to comply with social isolation, as a preventive measure for the spread of the virus. The pandemic presented itself as a threat to global health, both in physical and emotional aspects [3].

Bearing in mind the constant anxiety caused by isolation, as well as the non-alignment between body and mind, it is clear that the search for a cure can bring with it an increased drug use in order to alleviate symptoms. Changes in routine, stress, tension, physical inactivity, idle periods, among other causes, can result in physical manifestations such as headaches, muscle pain, malaise and other occurrences. Such disorders that cause a decrease in quality of life lead to recurrence of self-medication. However, over-the-counter and easily accessible drugs are not exempt from causing intoxication and adverse effects if consumed irrationally, such as analgesics, which, if taken in excess, can lead to headache chronicity[4].

Despite the emergence of vaccination in 2021, which in Brazil was carried out slowly until the second half of that year, many physicians and lay people believe in "early treatment" as a way to prevent infection or avoid the most serious symptoms of the disease, based on "off-label" drug use, such as anthelmintics and antimalarials, which have shown antiviral activity in in vitro trials that are effective and safe for COVID-19, but which, however, are not effective in vivo. Thus, it is important to emphasize that this use is at odds with rational drug use, a fundamental principle of pharmacotherapy promoted by the WHO. The greatest concern with this use is the possible cardiac effects and risk of death in the population[5].

Based on these aspects, there is a need to measure the impact of the pandemic on drug consumption and self-medication as well as its possible effects. Therefore, it is extremely important that the drug is prescribed by a physician or pharmacist, in order to avoid a possible overdose[4].

The present study aimed to analyze consumption and dosage, showing over-the-counter drugs and continuous use, during the pandemic, assessing indications, possible side effects and consequences to the body, as well as analyzing the classes of drugs that were most consumed during the pandemic period, by sex, class, monthly income and level of education. Moreover, it was verified whether using such drugs was made by medical prescription or self-medication and the reasons that led people to consume the drug on their own.

Materiais e Métodos

Sample and study design

The present work was submitted to UNIFAE's Research Ethics Committee via *Plataforma Brasil*. This study complied with the requirements for research involving human beings, in accordance with Resolution 466 of 2012 of the Brazilian National Congress of Research Ethics.

Study design

It was carried out through a questionnaire made available, from September to November 2020, to the sample of the general population through Google. The access link was made available via social networks. It is inferred that the present study foresees minimal risks and/or discomforts for participants, such as tiredness or boredom due to having to answer the questionnaire, which has 94 open- and closed-ended questions, with a minimum of 7 questions to be answered, if all answers are negative. However, the number of questions answered varied according to each answer, taking approximately 25 minutes. In preparing the questions, a brief personal profile was drawn up and, subsequently, an investigation was carried out in relation to using various classes of drugs before and during the pandemic and indications.

Inclusion and exclusion criteria

We included participants of both sexes and over 18 years old. We excluded those who did not accept the free and informed consent form. All had their identity kept confidential, they were guided on the study procedure and justification of the importance of research. Descriptive statistical analysis tools were used for data analysis, by determining the mean, standard deviation, absolute and relative frequency. Data statistical analysis was performed using Microsoft Excel 2010.

Procedures

The drugs mentioned in the research were organized in a table according to the ATC classification (Anatomical Therapeutic Chemical Code), which is adopted by the WHO and consists of classifying drugs into different groups according to the organ or system on which they act and according to their chemical, pharmacological and therapeutic properties (WHO, 2015).

Results

Based on Table 1, it was exposed that, among the 566 participants, 49.82% (n=282) claimed to use drugs for continuous use, the majority being women (37.27%; n=211) and with a range of aged 18-39 years (24.91%; n=141). With regard to education, the largest share of people who use continuous drug has completed higher education, accounting for 21.02% (n=119).

Table 1 – Need for dosage increase in users of continuous drug

	Use continuous drug				Needed to increase continuous drug dosage			
	No		**Yes**		**No**		**Yes**	
	n	%	n	%	n	%	n	%
Sex								
Female	181	31.97%	211	37.27%	166	78.67%	45	21.32%
Male	103	18.19%	71	12.54%	60	84.50%	11	15.49%
Education								
Complete elementary school	6	1.06%	5	0.88%	5	100%	0	-
Incomplete elementary school	1	0.17%	0	-	0	-	0	-
Incomplete high school	3	0.53%	4	0.70%	2	50%	2	50%
Complete high school	58	10.24%	55	9.71%	41	74.54%	14	25.45%

Incomplete higher education	108	19.08%	79	13.95%	58	73.41%	21	26.58%
Complete higher education	93	16.43%	119	21.02%	102	85.71%	17	14.28%
Master's degree	13	2.29%	17	3.00%	15	88.23%	2	11.76%
Doctoral degree	2	0.35%	3	0.53%	3	100%	0	-
Age group								
18 to 39 years	210	37.10%	141	24.91%	99	70.21%	42	29.78%
40 to 59 years	65	11.48%	94	16.60%	84	89.36%	10	10.63%
60 to 79 years	9	1.59%	45	7.95%	41	91.11%	4	8.88%
580 to 99 years	0	-	2	0.35%	2	100%	0	-
Income								
Up to 1 minimum wage	18	3.18%	12	2.12%	10	83.33%	2	16.66%
1 to 3 wages	75	13.25%	68	12.01%	56	82.35%	12	17.64%
3 to 6 wages	46	8.12%	53	9.36%	49	92.45%	4	7.54%
Above 6 minimum wages	65	11.48%	91	16.07%	70	76.92%	21	23.07%
No income	80	14.13%	58	10.24%	41	70.68%	17	29.31%

The drugs were separated according to the Anatomical Therapeutic Chemical (ATC) classification, observing a predominance in using agents to treat disturbances in the cardiovascular system, totaling 30.85% (n=87), 28.01% (n=79), antidepressants, 21.63% (n=61), hormonal contraceptives for systemic use, 12.41% (n=35) preparations of thyroid hormones.

Of the participants who used some continuous use drug, 19.86% (n=56) felt the need to increase dosage, which were 80.35% (n=45) women and 19.65% (n=11) men. Dosage increase among 62.50% (n=35) of patients was done under medical guidance, while 37.50% (n=21) decided to increase dosage on their own.

According to the information obtained through the analysis of the collected data, of the total of 566 participants, 323 reported having used some type of drug during the pandemic, with 42.83% being women and 14.13% men.

According to Table 2, a total of 138 interviewees (24.08%) used anti-inflammatory drugs during this period. Reasons for use include headache, sinusitis, torticollis, tonsillitis, gingivitis, dental surgery, bursitis, tendinitis, low back pain, dysmenorrhea and insect bites. Among these, 39.13% (n=54) people used it on medical prescription and 60.14% (n=83) on their own. Of these (6.5%), they reported not being influenced by social networks, friends, family, internet and television for ingestion, and were influenced by friends (15.66%) and the internet (3.61%). Of all people, 93% reported improvement when using the drug and (2.17%) reported adverse reactions, such as gastralgia, headache, tiredness and sleepiness.

Table 2 – Anti-inflammatory and antipyretic drug use during the pandemic

	Anti-inflammatory				Antipyretic			
	No		**Yes**		**No**		**Yes**	
	n	%	n	%	n	%	n	%
Sex								
Female	142	43.96%	101	31.26%	117	36.22%	126	39.00%
Male	43	13.31%	37	11.45%	50	15.47%	30	9.28%
Education								
Complete elementary school	6	1.85%	0	-	2	0.61%	4	1.23%
Incomplete elementary school	0	-	0	-	0	-	0	-
Incomplete high school	2	0.61%	2	0.61%	1	0.30%	3	0.92%
Complete high school	41	12.69%	35	10.83%	39	12.07%	37	11.45%
Incomplete higher education	60	18.57%	51	15.78%	52	16.09%	59	18.26%
Complete higher education	64	19.81%	45	13.83%	64	19.81%	45	13.93%
Master's degree	11	3.40%	3	0.92%	7	2.16%	7	2.16%
Doctoral degree	1	0.30%	2	0.61%	2	0.61%	1	0.30%

Age group								
18 to 39 years	131	40.55%	98	30.34%	107	33.12%	122	37.77%
40 to 59 years	41	12.69%	30	9.28%	43	13.31%	28	8.66%
60 to 79 years	13	4.02%	10	3.09%	17	5.26%	5	1.85%
80 to 99 years	0	-	0	-	0	-	0	-
Income								
Up to 1 minimum wage	11	3.40%	9	2.78%	6	1.85%	14	4.33%
1 to 3 wages	48	14.86%	30	9.28%	43	13.31%	35	10.83%
3 to 6 wages	27	8.35%	24	7.43%	27	8.35%	24	7.43%
Above 6 minimum wages	51	15.78%	34	10.52%	42	13.00%	43	13.31%
No income	48	14.86%	41	12.69%	49	15.17%	40	12.38%

Analyzing antipyretic use, based on Table 2, it was found that 48.29% (n=156) of participants used these drugs, 14.74% (n=23) of these reported a medical prescription, while 85.25% (n=133) took the drug on their own, 23.07 (n= 36) needed to increase antipyretic dosage or use more often. Reasons reported by participants for use include fever, headaches and body aches, migraine, sinusitis, menstrual cramps, muscle aches, toothaches, cold or flu, COVID-19, tonsillitis, osteoarthritis, postoperative, premenstrual syndrome, dengue, food poisoning and Raynauld's syndrome. Among the total number of people 97.43% (n=152) reported improvement with the drug, only 2.56% (n= 4) did not feel improvement. Regarding adverse reactions, 96.79% (n=151) denied their presence and only 3.20% (n=5) reported the following reactions: stomach pain, vomiting, cacosmia and hypotension.

As shown in Table 3, 241 participants (74.6%) answered yes to analgesic use, with higher consumption among females, 58.82% (n= 190). Among the main reasons for use, the following causes were mentioned: headache, migraine, muscle pain, menstrual pain, back pain, abdominal pain, toothache, joint pain, febrile states, COVID-19 symptoms, post-surgical use, sinusitis, heart attack, kidney colic and dengue fever. In all, 83.40% (n=201) claimed to consume the drug on their own and 16.60% (n=40) by medical prescription. Among the participants who consumed it on their own, 90.45% (n=218) stated that they had not been influenced in any way, and the majority, 7.88% (n=19), stated that they had been influenced by friends. Moreover, 94.20% (n=227) felt better with use and 5.80% (n=14) did not improve. Thus, 20.33% (n=49) felt the need to increase dosage, while 79.67% (n=192) did not feel the need to increase dosage. Moreover, 4.15% (n=10) felt some type of adverse reaction, such as hypotension, drowsiness, nausea, vomiting, stomach pain, difficulty thinking, emotional lability and cacosmia.

Table 3 – Analgesic, antidepressant and anxiolytic use during the pandemic

	Analgesic				Antidepressant and anxiolytic			
	No		**Yes**		**No**		**Yes**	
	n	%	n	%	N	%	n	%
Sex								
Female	53	16.40%	190	58.82%	173	53.56%	70	21.67%
Male	29	8.97%	51	15.78%	70	21.67%	10	3.09%
Education								
Complete elementary school	1	0.30%	5	1.54%	5	1.54%	1	0.30%
Incomplete elementary school	0	-	0	-	0	-	0	-
Incomplete high school	1	0.30%	3	0.92%	1	0.30%	3	0.92%
Complete high school	20	6.19%	56	17.33%	57	17.64%	19	5.88%
Incomplete higher education	29	8.97%	82	25.38%	91	28.17%	20	6.19%
Complete higher education	25	7.73%	84	26.00%	77	23.83%	32	9.90%
Master's degree	6	1.85%	8	2.47%	11	3.40%	3	0.92%
Doctoral degree	0	-	3	0.92%	1	0.30%	2	0.61%
Age group								
18 to 39 years	57	17.64%	172	53.25%	177	54.79%	52	16.09%

40 to 59 years	17	5.26%	54	16.71%	51	15.78%	20	6.19%
60 to 79 years	8	2.47%	15	4.64%	15	4.64%	8	2.47%
80 to 99 years	0	-	0	-	0	-	0	-
Income								
Up to 1 minimum wage	6	1.85%	14	4.33%	14	4.33%	6	1.85%
1 to 3 wages	20	6.19%	58	17.95%	58	17.95%	20	6.19%
3 to 6 wages	10	3.09%	41	12.69%	39	12.07%	12	3.71%
Above 6 minimum wages	23	7.12%	62	19.19%	61	18.88%	24	7.43%
No income	23	7.12%	66	20.43%	71	21.98%	18	5.57%

With regard to vitamin use, 48.92% (n=158) of participants reported using vitamins, of which 30.38% (n=48) used 2 or more types concomitantly, 46.20% (n=73) made use of vitamin D, 36.07% (n=57) of vitamin C, 32% (n=40) of multivitamins with minerals. Among the main reasons for such use, the desire to improve the immune system was cited by 33.54% (n=53), and professional recommendation and/or laboratory alterations by 45.32% (n=40). Using drug on medical recommendation was 45.57% (n=72) and self-initiated consumption was by 54.43% (n=86) of participants. Additionally, 88.61% (n=140) increased vitamin dosage, and 73.42% (n=116) claimed to feel improvement in symptoms.

As for antidepressants and anxiolytics, Table 3 shows that it is not possible to state that there was an increase in the frequency of consumption, based on the fact that only 80 participants reported their use. It draws attention to the fact that consumption was significantly higher among females, taking a ratio of 7:1 when compared to males. Another relevant data was that using this class was higher among the 18-39 age group, representing 16.09%. Already relating to other factors such as education and wage income, use in participants with complete higher education (9.90%) and with income above 6 minimum wages (7.43%) stands out. Its indication was carried out in 92.5% of cases by medical prescription, to treat symptoms resulting from anxiety and depression, 27 participants reported dosage increase in this period.

Only 13 participants reported nitazoxanide use, with the majority being female, 3.4% (n=11), as shown in Table 5. Analyzing the indication, 84.61% (n=11) used a medical prescription for deworming, the other 15.38% (n=2) used it on their own, claiming influence from the internet and friends, in order to deworm or because of the belief that the drug could prevent COVID-19.

Regarding corticosteroid use, 14.85% (n=48) of interviewees claimed to use them, 12.38% (n=40) were women and 2.47% (n=8) were men. The main reasons that led the participants to use corticosteroids were allergic crises, asthma, COVID-19 prevention and treatment, flu symptoms and pain. Of the 48 people who used some type of corticosteroid, 79.16% (n=38) took drug with a medical prescription, while 20.16% (n=10) practiced self-medication, 79.16% (n=38) did not feel the need to increase drug dosage, 95, 43% (n=46) felt better after using the drug, 12.5% (n=6) reported weight gain, drowsiness and stomach pains.

In all, 1.55% (n=5) of participants reported using hydroxychloroquine, with 0.62% (n=2) female and 0.93% (n=3) male. Regarding education, 0.62% (n=2) of participants had completed primary education, 0.62% (n=2) completed higher education and 0.31% (n=1) had a master's degree. The age group with the highest occurrence of use of this class was between 40 -59 years old, corresponding to 0.93% (n=3) of respondents. The 5 people claimed to receive more than 6 minimum wages and claimed to be by medical prescription, with the aim of acting as an early treatment for COVID-19.

A total of 16.71% (n=54) of participants reported having used ivermectin, 66.66% (n=36) women and 33.33% (n=18) men. Of these, 7.12% (n=23) had completed higher education, 4.95% (n=16) had incomplete higher education, 2.16% (n=7) completed high school and 1.54% (n= 5) had a master's degree. Regarding the age group, 8.66% (n=28) are between 18-39 years old, 33.33% (n=18) did it through prescription. Among the reasons cited, the most

frequent were related to the belief that this drug is effective in preventing cases of COVID-19, and others were ticks, lice and worming. As possible influences, friends were cited by 35.18% (n=19), internet by 7.40% (n=4) and social networks by 3.70% (n=2).

Thus, 17.95% (n=58) of participants reported using antibiotics, with the predominant age group being 18-39 years and wage income predominating above 6 wages. Of the total used, 53 (91.37%) were by medical prescription and 5 (8.62%) on their own. Furthermore, 89.65% (n=52) of interviewees declared that they were effective with use and 86.2% (n=50) had no adverse reactions.

Discussion

The questionnaire was answered by 566 people, of which 57.06% (n=323) claimed to consume drug during the COVID-19 pandemic, with 75.23% (n=243) of these responses being women and 24.76 % (n=80) of men.

In this research, people who have no income represent the majority who used some drug during the pandemic, accounting for 15.72% (n=89) of the results obtained. However, it is necessary to emphasize that, among the participants who have no income, the highest occurrence was in the age group between 18 and 25 years old, with 91.57% (n=76) of these people. This fact can be explained due to the younger age group, often not having income yet because they are studying. The second class of people who most consumed drug were those with more than 6 minimum wages, 15.01% (n=85). The population with less than 1 minimum wage is the one that consumed the least amount of drug, 3.53% (n=10).

With regard to education, the present study found that who most used drug during the pandemic were those with complete secondary education, 13.42% (n=76), incomplete higher education, 19.61% (n=111) and completed higher education, 19.25% (n=109). According to the WHO[6] the term self-medication is associated with self-diagnosis of diseases and symptoms by people who choose and use drugs. Self-medication became more common than expected in the 21st century, and was mostly observed during the COVID-19 pandemic. Precisely because of the large number of factors that interfered with the population's discernment and others that facilitated the purchase of various drugs, not only in the Brazilian scenario.

In this study, 19.83% (n=56) of participants who used drug continuously felt the need to increase dosage. Dosage increase of 62.50% (n=35) of patients was done under medical guidance, while 37.50% (n=21) participants decided to increase dosage on their own. Among the main classes of drugs, whose dosage increase was performed on their own are anxiolytics, sedatives and antidepressants. According to a document published by the Ministry of Health, one of the dangers of self-medication and indiscriminate use of drugs is the risk of intoxication. Analgesics, antipyretics, anti-inflammatory drugs and benzodiazepines represent the classes of drugs that most intoxicate[7].

It was also found in the present study that a small proportion, 2.8% (n = 8), used continuous drugs on their own without medical indication. Among them, contraceptives stand out, which can be purchased in Brazil through consultation with professionals in public or private services, or over the counter of pharmacies without the need to present a medical prescription; however, it is necessary to pay attention to the risks, benefits and possible contraindications of its use[8].

In addition to the continuous use of contraceptives on their own, it was also evident in this study the high sporadic consumption of several over-the-counter drugs without a medical prescription, and the most cited were vitamins, antipyretics, anti-inflammatories and analgesics. According to a Portuguese study, there is a growing trend in the market for so-called over-the-counter (OTC) drugs globally, influenced mainly by the accessibility provided by ready-to-use

drugs. In addition, it is also very likely that consumers rely on the pharmacist's opinion for self-medication practice[9]. Similarly, according to a study on the consumption of drugs without a medical prescription in Porto Alegre (RS), pharmacy clerks have acted as prescribers, acting in a way that favors the inappropriate consumption of drugs, worrying factor when considering the context that makes the population opt for drugs as a source of health and pharmacies to replace health services and physicians[10].

Non-steroidal anti-inflammatory drugs (NSAIDS) are currently recognized as the most widely used class around the world. Its properties are characterized by encompassing analgesic, anti-inflammatory and antipyretic effects, thus, they can be widely used for complaints related to joint pain, inflammation and fever. The fact that some of these drugs appear as OTC drugs, ends up creating a false feeling, especially in the lay population, that this class has no risks regarding consumption, facilitating its irrational use[11].

As for the reasons that lead the population to use NSAIDs, the main ones are migraine and pain in the musculoskeletal system. According to a study conducted by Rankel et.al[11], it was concluded that 75% of participants used this drug class. When asked about the treatment indication, it was found that 29% used it to treat muscle pain, followed by 27% for headache, 9% for sore throat, 8% for the spine[11].

NSAIDS, when used improperly, can have unpleasant side effects. Also, in the analysis by Rankel et al.[11], 60% of participants claimed that they were aware of risks and side effects brought about by using this class while 40% denied it. Furthermore, participants reported some adverse effects with its use, with 59% reporting having stomach aches, 14% experiencing headaches, 14% experiencing nausea and vomiting, and 4% feeling nothing[11].

In a context of the COVID-19 pandemic, a strong social, economic and political impact on the general population's life is expected. The period of social isolation imposed by the presence of SARS-CoV-2 and the fear of the disease that plagues the population are factors that trigger anxiety and depressive symptoms. According to Wang et al.[12], a study of 1,210 participants aged 21 to 30 in China found that about 53.8% of participants rated the psychological impact of quarantine as moderate or severe and reported moderate or severe symptoms of anxiety (28.8%), depression (16.5%) and stress (8.1%), with significant differences for females[12]. Citing the study by Barros et al.[13], which brings a perspective of the Brazilian reality during this period, it was found that about 40.4% of Brazilians felt sad or depressed often or always and 52.6% reported feeling anxious or nervous always or almost always. Insomnia was also highlighted, noting that 43.5% of participants started to present the problem and 48.0 had the previous problem aggravated[13].

Currently, antidepressant drugs are considered the first line of support in depressive state treatment, bringing not only the alleviation of symptoms but also eliminating them. Among the agents that make up this class, there are selective serotonin reuptake inhibitors (SSRIs), tricyclic antidepressants (TCA) and monoamine oxidase enzyme inhibitors (MAOIs). [14]. Using this drug class must be cautious since, when used by patients without indication, they do not bring benefits, but on the other hand they can bring an increased risk of severe side effects. In general, the inappropriate antidepressant use can culminate in suicidal behaviors, sexual dysfunction, dependence and withdrawal syndrome[14].

In this study, as well as in the study carried out by Oliveira[14], in 2018, it was possible to draw a profile of the population using this pharmacological class. It was revealed, in both, that sex, education and income are factors that influence antidepressant use[14]. According to the data obtained, female participants were the ones who used this type of drug the most. Increased education and income is directly proportional to increased antidepressant consumption. This fact may also be a reflection of greater access to medical and therapeutic resources brought about by greater purchasing power[15].

According to the article "The Role of Vitamin C, Vitamin D, and Selenium in Immune System against COVID-19" 2020, vitamin C (ascorbic acid) has positive effects on the immune response, and ascorbic acid is believed to inhibit the hyperactivation of cells responsible for the immune response[16]. It is noted through results obtained in this research that, of 158 participants who use vitamins, 46.20% (n=73) and 36.07% (n=57) make use of vitamins D and C, respectively. Among the main reasons cited by participants, there is the desire to improve the immune system and also a low concentration of serum vitamin D, indicated in laboratory tests, often caused by low exposure to the sun, a fact that was exacerbated by the pandemic.

However, it is noteworthy that many randomized clinical studies show that vitamin supplementation does not have benefits in the prevention of chronic diseases that are not related to a nutritional deficiency[17]. In addition to this, a joint report by the Brazilian Medical Association (AMB) and the Brazilian Society of Infectious Diseases (SBI) of 2020 on vaccination and preventive pharmacological treatment[18] points out that, to date, the best scientific evidence has shown that no drug has proven efficacy in COVID-19 prevention or early treatment. The SBI also published another report on COVID-19, which reinforces that there is no proof of benefit from using vitamins C and D and mineral supplements, except in people who have a nutritional deficiency[19].

Focusing on Brazil, there was a significant increase in the purchase of sets of medicines, the so-called "COVID kit" or medicines for the "early treatment" of COVID-19, widely disseminated by social networks, medical professionals, the media and influential authorities in the country without scientific proof for use for this purpose.

Of the 323 study participants who answered yes to using some drug during the pandemic, 1.55% (n = 5) said they had used chloroquine and hydroxychloroquine, for reasons of prevention and treatment of COVID-19.

Chloroquine, a 4-aminoquinoline, is an antimalarial agent, as well as Hydroxychloroquine, which were widely disseminated in Brazil as drugs that prevented and treated the disease caused by the coronavirus, even after several studies showed that this drug had no proven action. According to a report published by the SBI[18], the WHO, the FDA (USA drug regulatory agency), the American Society of Infectious Diseases (IDSA) and the North American National Institute of Health (NIH) recommended that neither chloroquine nor hydroxychloroquine be used for patients with COVID-19 due to lack of proven benefit and potential toxicity. Among the adverse effects of using antimalarials, according to how chloroquine is found: retinopathy, QT prolongation, methemoglobinemia, amnesia, death (at supratherapeutic doses), pruritus, muscle weakness, worsening psoriasis, porphyria, and changes in the gastrointestinal tract[20].

In this study, 4.02% (n=13) people used nitazoxanide, and among the reasons were: carrying out annual deworming, doing well for cases of COVID and treating giardiasis. Also, 16.71% (n=54) people used ivermectin due to its supposed therapeutic effect for COVID-19treatment and prevention. Recently, in a study published by the Oxford academy[21], it was concluded that ivermectin has no benefit in the treatment of COVID, especially in mild cases, and it also did not result in any improvement in moderate to severe cases, finally being considered a non-viable option for the treatment of SARS-CoV-2.

Another pharmacological class widely disseminated in the fight against coronavirus were corticosteroids. Exogenous corticosteroids are pharmacological agents used in replacement therapies and also cause suppression of the immune system and have anti-inflammatory action, due to the broad spectrum of action, with great relevance in the treatment of autoimmune and inflammatory diseases. However, constant attention must be paid to dosage, as increase in the level of cortisol in the human body is related to several side effects. Moreover, 10.2% of participants in this research who used corticosteroids during the pandemic did so with a prescription to treat COVID-19. SBI data[17] suggest that there is no evidence of benefit from

corticosteroid use to prevent mild or moderate forms of COVID-19, unless oxygen therapy is indicated. The need for its use should be assessed by a physician individually in order to avoid side effects[18]. So far, it is known that glucocorticoid use for the prevention and treatment of mild to severe cases of COVID is not indicated. According to the Recoveryo group[22], dexamethasone use in critically ill patients who needed respiratory support, the mortality rate decreased. However, according to the same study, among those who did not use respiratory support, dexamethasone use did not interfere with the mortality rate.

In addition to all the above-mentioned drugs, another class widely used as a COVID-19 treatment and prevention was antibiotics, the main one recommended being azithromycin. In this study, 17.95% (n=58) of participants who claimed to use some drug used some type of antibiotic. Also, at the beginning of the pandemic, Pfizer[23], such as accelerating the time for developing bacterial resistance to drugs and warning that antibiotics only fight infections caused by bacteria and that in addition to the side effects caused by the drugs, there is still the danger of decreasing the normal bacterial flora present in the human body, which even acts in a protective way to the body. According to Drugs[22], mild side effects caused by antibiotic use include nausea and vomiting, diarrhea, skin rashes, and vaginal yeast infections. More severe cases include anaphylactic shock, abdominal pain and severe fungal infections.

Guidelines for the pharmacological treatment of COVID-19 (consensus between the Brazilian Association of Intensive Medicine, the SBI and the Brazilian Society of Pulmonology and Phthisiology)[24] also do not recommend using prophylactic antibacterial agents in patients with suspected or confirmed diagnosis of COVID-19 unless there is evidence of associated bacterial infection, due to the absence of clear benefits and possible adverse events, increased antimicrobial resistance and costs. However, despite the recommendations and consensus, in this study it was possible to demonstrate this practice in 15.5% of individuals who used antibiotics during the pandemic, since 9 of the 58 participants who used antibiotics reported that the reason was a medical prescription due to the suspicion or diagnosis of COVID-19. This fact is consistent with an estimate proposed by a study published in the Journal of the American Medical Association[25] in which it is exposed that, in general conditions, around 30% of antibiotic prescriptions analyzed may have been inappropriate[26,27].

Conclusion

It is concluded that the main classes of drugs used were analgesics, antipyretics and vitamins, with an increase in the frequency of consumption, especially among over-the-counter drugs, facilitating the population's access. Regarding vitamins, there was an increase in consumption, mainly of vitamins D, C and multivitamins. The main reason for using vitamins was the desire to improve the immune system. Regarding antidepressants and anxiolytics, use was considerably higher in female patients aged 18 to 39 years. Among the analgesic class, 83.40% (n=201) claimed to consume the medicine on their own, with higher consumption prevailing among women. Thus, 60.14% (n=83) used anti-inflammatories on their own, due to this fact, the importance of care with self-medication is highlighted. Regarding using the three drugs included in the "COVID kit", there was a higher consumption of Ivermectin. It is noted that this attitude is related to the dissemination of false concepts, since it is known that there is no scientific evidence that these drugs are effective and safe for COVID-19, which can be harmful to health.

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