Self-medication in the Bahian population during the Covid-19 pandemic period

Automedicação na população Baiana durante o período de pandemia da Covid-19

Automedicación en la población bahiana durante el período de pandemia de Covid-19

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Abstract
Objective: To analyze the prevalence and possible factors associated with self-medication in the population of Bahia during the pandemic caused by Covid-19. *Methods*: This is an exploratory research that has a descriptive character, with a quantitative nature and approach. The research universe was composed of residents of the State of Bahia. The study was approved by the Research Ethics Committee (CEP) under protocol 4.941.863. The collected information was tabulated using Microsoft Office Excel® and the statistical analysis was carried out in a descriptive, univariate way using the Statiscal Package For Social Science (SPSS) software. *Results*: There were five hundred and thirty participants in this research. Among the medications contained in the questionnaire, the most used was Vitamin D, being used by 41.7% of respondents. Among the reasons for using the drug, the most prevalent was Cold/Flu with 18.4%, followed by regular consumption as cause (18.0%). *Conclusion*: More studies need to be carried out to confirm the effectiveness of the drugs both as prophylaxis and for the treatment of SARSCoV-2 to avoid the dissemination of information without scientific basis.
Keywords: Self-medication; Covid-19; Pandemic.

Resumo
Objetivo: Analisar a prevalência e os possíveis fatores associados à automedicação na população Baiana durante o período de pandemia causado pela Covid-19. *Métodos*: Trata-se de uma pesquisa exploratória que possui caráter descritivo, com natureza e abordagem quantitativa. O universo de pesquisa foi composto por moradores do Estado da Bahia. O estudo foi aprovado pelo Comitê de Ética em Pesquisa (CEP) sob o parecer 4.941.863. As informações coletadas foram tabuladas através de planilha construída no Microsoft Office Excel® e as análises estatísticas realizadas de forma descritiva, univariada, com o software Statiscal Package For Social Science (SPSS). *Resultados*: Houve quinhentos e trinta participantes nessa pesquisa. Dentre os medicamentos contidos no questionário o mais utilizado foi a Vitamina D, sendo utilizada por 41,7 % dos entrevistados. Dentre os motivos para o uso dos medicamentos o mais prevalente foi por Resfriado/Gripe com 18,4%, seguido pelo consumo regular como causa com 18,0%. *Conclusão*: Mais estudos necessitam ser realizados para confirmação da eficácia dos medicamentos tanto como profilaxia quanto para o tratamento do SARSCoV-2 no intuito de evitar a disseminação de informações sem embasamento científico.
Palavras-chave: Automedicação; Covid-19; Pandemia.

Resumen
Objetivo: Analizar la prevalencia y los posibles factores asociados a la automedicación en la población de Bahía durante el período de pandemia provocada por la Covid-19. *Métodos*: Se trata de una investigación exploratoria, de carácter descriptivo, con carácter y enfoque cuantitativo. El universo de la investigación fue compuesto por residentes del Estado de Bahía. El estudio fue aprobado por el Comité de Ética en Investigación (CEP) bajo el parecer 4.941.863. La información recolectada se tabuló en una hoja de cálculo construida en Microsoft Office Excel ® y el análisis estadístico se realizó de forma descriptiva, univariada utilizando el software Statiscal Package For Social Science (SPSS). *Resultados*: Hubo quinientos treinta participantes en esta investigación. Entre los medicamentos contenidos en el cuestionario, el más utilizado fue la Vitamina D, siendo utilizada por el 41,7% de los encuestados. Entre los motivos de uso de medicamentos, el más prevalente fue el Resfriado/Gripe con un 18,4%, seguido del consumo habitual como causa con un 18,0%. *Conclusión*: Es necesario realizar más estudios para confirmar la efectividad de los medicamentos tanto como profilaxis como para el tratamiento del SARSCoV-2 a fin de evitar la difusión de información sin base científica.
Palabras clave: Automedicación; Covid-19; Pandemia.

1. Introduction

Covid-19 has emerged in December 2019 in a seafood market in Wuhan, a city located in southern China. The disease quickly spread across the world and was declared, on January 30, 2020, a public health emergency of international concern by the World Health Organization (WHO) (Ahmad, 2020). There were 49,053 confirmed cases and 1,381 deaths worldwide in February 14, 2020 (Harapan et al., 2020). Two years later, in April 2022, Brazil had already registered more than 30 million cases and about 662 thousand deaths, which represents more than 10% of deaths worldwide (Costa, 2022).

In Brazil, the first case confirmed by the Ministry of Health (MS) was on February 26, 2020 in the State of São Paulo (SP) and, since then, there has been a wide spread throughout the country, with some regional differences (Lobo et al., 2020). Approximately 14 million cases and 389,000 deaths have been registered in the country on April 25, 2021 (Cossa et al., 2021).

Due to the alarming numbers since the beginning of the pandemic, and a future perspective of progressive worsening, many governments have instituted a variety of control measures in attempt to minimize these impacts. Measures such as closing shops, impeding the operation of non-essential activities, curfews, and in some places, lockdown, permeated almost every moment of the pandemic (Silva et al., 2021). Although restrictive measures are crucial for specific situations, and beneficial from a health prophylactic point of view, empirically they have caused various social impacts on the population, especially regarding the mental health of individuals. In this scenario, the practice of self-medication, which occurs naturally, has become even more common in the pandemic context (Ornell et al., 2020).

Self-medication consists of the individual act of spontaneously selecting and using a drug that they consider appropriate to solve a health issue, or to prevent it, without prescription from a qualified health professional. It is a frequent practice among numerous groups of different age groups, gender, ethnicities, education, socioeconomic and cultural class (Gama & Secoli, 2017). Studies indicate that the practice of self-medication can cause several adverse impacts on the health of practitioners due to the use of incorrect dosage, incorrect diagnosis, inappropriate route of administration, time of use, hypersensitivity to components and improper storage of drug (Onchonga et al., 2020).

Furthermore, the interest in self-medication during the Covid-19 pandemic pointed to an upward trend in the practice. An increase in the amount of self-medication searches around the world since the pandemic was declared, and this would be an indication of increased interest in self-medication worldwide. It is important to point out that to date, there is still no clinically proven treatment based on scientific evidence (Cavalcante et al., 2022).

However, numerous discourses about potentially effective drugs, but without scientific evidence, were publicized, especially on social networks, which caused a growing demand and use of these constituent drugs of the so-called Covid-19 kit. Thus, it is obvious that the use of some of these drugs, without a medical prescription, increased significantly during this period (Costa et al., 2022).

In this sense, considering the pandemic scenario as a possible factor associated with the practice of self-medication, this work aimed to analyze the prevalence and possible factors associated with self-medication in the population of Bahia during the pandemic period caused by Covid-19.

2. Methodology

This research had theoretical and empirical nature. Theoretical, because it was based on the light of the literature to discuss and understand the topics covered. Empirical regarding the search for data in the field, collecting strategic information to answer the research question. In addition, it was an exploratory research that has a descriptive character, with a quantitative nature and approach objectiving to obtain more knowledge about an issue, thus making it possible to build hypotheses (Mussi et al., 2019; Sousa et al., 2020).

In the case of this research, it was the self-medication of the Bahian population during the Covid-19 pandemic. It was also classified as descriptive, since it described a certain phenomenon, in addition to establish a relationship between the variables presented, in this case, it described and portrayed self-medication during the Covid-19 pandemic by the studied population (Gomes & Okano, 2019; Mussi et al., 2019).

The research universe was composed of residents of the State of Bahia, and the research participants were citizens aged 18 or over, of both sexes, who inhabited the region of Bahia from March 2020 to May 2021, permanently or temporarily.

As a data production instrument, a semi-structured virtual questionnaire was used, prepared on the free Google Forms platform, and sent to participants via e-mail or WhatsApp individually and with restricted access to the specified participant, together with the free and informed consent form (IC). The study was approved on 08/30/2021by the Research Ethics Committee (CEP) under protocol 4.941.863, and collection started only after approval, following the Resolution No. 466/2012 of the National Health Council of Brazil (CNS) which guides research involving human beings. It is important to highlight that the IC was read and approved by the research participant before answering the questionnaire.

The collected information was tabulated using Microsoft Office Excel ® and the statistical analysis was carried out in a descriptive, univariate way using the Statiscal Package For Social Science (SPSS) software version 20, with their results placed in tables divided by categories in the article results

3. Results and Discussion

There were five hundred and thirty participants in this survey, representing 0.0035% of the Bahian population (IBGE, 2021), carried out from an online questionnaire, 32.6% of the participants were male, 65.6% were female and 1.6% did not identify their gender. The mean age was approximately 31 years-old, with a standard deviation of 12.7. With 93.9% of participants living in the state of Bahia. In respect to marital status, 65.1% of respondents were single, while 21.9% were married (Table 1).

Regarding education, 50.4% of the participants had incomplete higher education, 93.7% worked and/or studied and the most prevalent profession was student (52.6%). In addition, 27.3% had monthly family income between 2-5 minimum wages (Table 1).

Table 1 - Sociodemographic aspects of respondents.

VARIABLES	FREQUENCIES	
	N	%
Gender		
Feminine	348	65.6
Male	173	32.6
They did not answer	9	1.6
Age	31,4 ± 12,7*	-
Status of housing ser a bahia	498	93.9
Marital status		
Not married	345	65.1
Married	116	21.9
Stable union (live together)	46	8.7

Divorced	16	3.0
Widower	1	0.2
Rather not answer	1	0.2
Fiancee	1	0.2
They did not answer	4	0.7
Education	0	0
Illiterate	6	1.1
Complete high school	54	10.2
Complete Higher Education	54	10.2
Incomplete Higher Education	267	50.4
graduate	135	25.5
Rather not answer	0	0
Others	6	1.1
They did not answer	5	0.9
Do you work? Do you study		
Yes	497	93.7
Not	29	5.5
They did not answer	4	0.7
Profession		
Student	328	52.6
autonomous	38	6.1
Business	15	2.4
Construction	4	0.6
Education	120	19.2
Entertainment	3	0.5
Police	1	0.2
Health	54	8.7
Public service	33	5.3
Telecommunications	1	0.2
Transport	3	0.5
Rather not answer	1	0.2
Otthers	14	2.2
They did not answer	9	1.4
Total	624	100.0
Monthly family income		
0-1 minimum wage	47	8.9
1-2 minimum wages	101	19.0
2-5 minimum wages	145	27.3
5-10 minimum wages	100	18.9

More than 10 minimum wages	99	18.7
there is no income	6	1.1
Rather not answer	28	5.3

*Values are mean and standard deviation. Source: Author's own research.

These demographic data show that more than half of the public participating in the research is composed of incomplete higher education students. Therefore, it can be deduced that most of the participants are qualified people, from the point of view of academic training.

Participants were asked if they had taken medication in the last year and 95.7% reported having taken it, but 50.6% of respondents do not use medication constantly. Among the medications contained in the questionnaire, the most used was Vitamin D, representing 41.7% of respondents followed by ivermectin with 21.5%, azithromycin with 18.9% and chloroquine/hydroxychloroquine with 3,0% (Table 2).

Table 2 - Aspects related to the use of medication by respondents.

VARIABLES	FREQUENCIES	
	N	%
Ingested medication in the last year		
Yes	507	95.7
Not	15	2.8
Maybe	5	0.9
They did not answer	3	0.6
Constantly use any drug		
Yes	241	45.5
Not	268	50.6
Maybe	0	0
They did not answer	21	3.9
Drugs used		
Azithromycin	100	18.9
Chloroquine/Hydroxychloroquine	16	3.0
Ivermectin	114	21.5
Vitamin D	221	41.7
Zinc	94	17.7
Other Antibiotics	14	2.6
Dipyrone	24	4.5
Ibuprofen	6	1.1
Paracetamol	5	0.9
Corticosteroids	93	17.5
Did not respond	173	32.6

Source: Author's own research.

It is noticed that almost all participants used some medication in the period. Demonstrating the importance and prevalence of medicines in our society. Vitamin D being the most used, followed by ivermectin and azithromycin. Such drugs were much debated and publicized during the pandemic period (Carvalho & Guimarães, 2020).

Among the reasons for using the drug, the most prevalent was Cold/Flu with 18.4%, followed by regular consumption as the cause with 18.0%. Regarding the use related to Covid-19 symptoms and who self-medicated, there were 5.9% of participants, while 2.4% of respondents used any drug because they had diagnosis of Covid-19, and 15.6% used the drugs as "prophylaxy" for Covid-19. Almost one third (34.3%) of participants reported to use a prescription to purchase the drug, and the doctor as the major influencer in the cases (35.1%) followed family or friends adivices (13.8%) (Table 3).

Table 3 - Aspects related to the cause and influences on the use of medication by the interviewees.

VARIABLES	FREQUENCIES	
	N	%
Reason for use of medicines		
Cold/flu	78	18.4
without any symptoms	35	8.3
How to prevent COVID-19	66	15.6
COVID-19 symptoms and self-medication	25	5.9
Diagnosis of COVID-19 with self-medication	10	2.4
regular consumption	76	18.0
Prescribed by medical professional	59	13.9
Used for treatment or prevention of another disease	74	17.5
Total		
	423	100.0
Used a medical prescription to purchase medicines		
Yes	182	34.3
Not	148	27.9
They did not answer	200	37.7
Influence on the decision to take medicines		
Relative or friend	84	13.8
Previous prescriptions	57	9.4
Doctor	214	35.1
Other health professionals	26	4.3
TV advertising/news	8	1.3
Internet sites	8	1.3
Social networks	7	1.1
Did not answer	205	33.7
Total	609	100.0

Source: Author's own research.

Regarding the perception of respondents on the effectiveness of the reported medication, regardless of the reason for which it was used, most of participants did not know to respond the question, 6.2% perceived no relief of symptons, while around 12% reported to have a relief of one or all symptons. From this population, 53.9% declared to have no side effects by using these drugs but 42.4% did not respond this question precisely (Table 4).

In respect to confirmation or perception of symptoms related to Covid-19, 43.4% of the participants declared not have Covid-19, while 17.5% reported to have Covid-19 with confirmed diagnosis. Regarding thr vaccination against Covid-19, 43.4% of participants have taken two doses or a single dose vaccine while 20.6% has taken only the first dose (Table 4). Of note, during the survey the complete vaccination scheme included only two doses or the single dose vaccine.

Table 4 - Aspects related to the use of medication and COVID-19 in relation to respondents.

VARIABLES	FREQUENCIES	
	N	%
Relief of symptoms with the use of medicines		
I notice that it alleviated all the symptoms.	30	5.7
I found that it relieved most of the symptoms.	15	2.8
I noticed that it alleviated some of the symptoms.	16	3.0
I notice that it relieved only one symptom.	8	1.5
I notice that it did not relieve any of the symptoms	33	6.2
Not applicable	162	30.6
They did not answer	266	50.2
Any problem related to the ingested drug		
Yes	19	3.6
Not	286	53.9
They did not answer	225	42.4
Covid-19 numbers		
Yes, through confirmation of exams and/or diagnosis by a doctor	93	17.5
Not	230	43.4
I had symptoms of COVID-19 but did not get tested or see a doctor for confirmation	18	3.4
I don't know how to inform	21	3.9
They did not answer	168	31.7
Vaccination for Covid-19		
Yes, only the first dose	109	20.6
Yes, the 2 doses (or single dose)	230	43.4
Not yet	9	1.6
I prefer not to answer	1	0.2
Did not answer	198	37.3

Source: Author's own research.

3.1 Discussion

Covid-19 pandemic presented a framework of uncertainties and in this scenario, many concerns became present, including the issue focused on population well-being. Self-medication is an antecedent and recurrent problem of the Brazilian population, which routinely takes medication. After the pandemic, individuals increased this consumption and began to self-prescribe in search of drugs that would alleviate their health condition, without, however, having adequate support to substantiate this conduct (Andrade et al., 2021).

Based on this assumption and from the results presented, there is a prevalence of self-medication is a habit of the Brazilian population who usually take medication routinely. After the Covid-19 pandemic, individuals increased this consumption and began to self-prescribe and look for a medicine that would alleviate their health condition, without having adequate support (Silva et al., 2021).

From the above results, there was a prevalence of female participants, young and single adults. Regarding these data, in a cross-sectional study carried out in Brazil during the Covid-19 pandemic, the prevalence of self-medication in women, aged between 27 and 35 years, with more than 70% of the sample in a marital situation mentioned as single (Wirowski et al., 2022). This was corroborated by another survey conducted through interviews with academics in the health area, with a predominance of single young female population (Andrade et al., 2021).

Still in this context, the schooling with the highest response was incomplete higher education, and about 50% were students. Family income remained in the range of 2 to 5 minimum wages. Pitta et al. (2021) described a similar prevalence in a

previous work on self-medication in Brazil during Covid-19. There was a report in the literature about self-medication in a young adult population, with a medium level of education, which can be alarming given the indiscriminate use of drugs without proper prescription (Júnior et al., 2018).

Therefore, there was a considerable increase in the use of self-medication in Brazil, in which the young, economically active population adopted this habit to avoid complications of the disease and improve its symptoms. The pandemic has created an alarming situation, with the female population more associated with medical care, in which they tend to seek more health services or even take medication to treat routine illnesses. Another issue is the salary condition that influences the ability to buy medicines quickly and affordably. As a result, the sociodemographic profile ends up influencing the acquisition of new drugs during the pandemic (Costa et al., 2022).

Indeed, more than 90% of respondents used some medication to relieve their signs and symptoms of any disease. It is worth to mention the importance of adequate guidance regarding the use of medicines that can be sold without a medical prescription, given the seriousness that Covid-19 can result in those affected by the disease. A previous study showed a linking between false information, called as fake news, with the popular belief in a miraculous product that would be capable of preventing Covid-19, reflecting in an increase in the abuse of off-label substances and self-medication (Ailva et al., 2022; Rocha & Brandão, 2021).

Among the most reported substance in this study, vitamin D was the most routinely used drig, but with no scientific basis regarding its efficacy and safety so far. This fact may be associated with increased supplementation by the population of this vitamin with prophylactic purpose against SARSCoV-2, but further studies are still needed to demonstrate such efficacy. (Alves et al., 2021 & Souza et al., 2021) Some studies mentioned other substances used during the pandemic such as hydroxychloroquine, chloroquine, ivermectin and azithromycin, and our participants have declared to use them as well. Likewise, there are no scientific basis to support their practice during the pandemic (Carvalho & Guimarães, 2020; Ruiz et al., 2021).

Cold/flu was the most prevalent response among the reasons for using a medicine. Due to the inconvenience caused by nasal obstruction, the population tends to look for drugs capable of relieving their symptoms and allowing their breathing to be optimized. Cavalcante et al. (2022) described that individuals tend to self-medicate when they already know the signs and symptoms previously, through their own experiences, or due to lack of financial condition, or even, because they consider the medical appointment unnecessary. In addition, there is a fear regarding the outcome of the disease by population, which led to the seek for drugs to quickly alleviate the symptoms, associated with psychological disorders such as anxiety, depression that intensified this behavior (Costa et al., 2021).

About the relief of symptoms, approximately 6% did not improve with the medication, referring did not to realive any of the symptoms, and approximately 50% of the interviewees did not report any problems related to the use of the medication. Because those affected by SARSCoV-2 do not have adequate medical prescriptions, the symptoms sometimes remained constant and evolved into sequelae, such as shortness of breath, loss of smell, requiring correct medical care to avoid such occurrences. The practice of using medication on their own may lead to clinical worsening due to the postponement of a medical appointment with progression to serious and sometimes fatal conditions. As the drugs may not generate any adverse effects on the users, they may not provide alarms for an active search for a cure. This fact can generate risks and should not be routinely adopted (Melo et al., 2021; Francisco et al., 2021).

Through a literature review, a survey demonstrated the risks associated with taking medications on their own, such as immunosuppression, toxicity and even overdose. It is relevant to inform individuals about the risks of substance use without medical advice, to alert and discourage this practice. Antibiotics, retrovirals, antiprotozoals have specific indications and must be indicated rationally and when necessary, avoiding the excessive use of these substances (Mesquita et al., 2022). In attempt

to prevent or treat signs or symptoms such as fever, body pain, sore throat, or even to avoid an evolution to more serious cases, they use these substances that can cause undesirable effects to the body (Silva et al., 2021).

Most of the interviewees did not have a diagnostic confirmation of Covid-19, but most had already been vaccinated with at least one dose of the vaccine. It is extremely important to carry out the correct diagnosis of the disease to optimize care and prevent its spread and social isolation. In fact, virus spreading can be minimized through simple measures such as hand washing, use of masks and social distancing. In addition, the vaccine approval was fundamental to reduce the cases in brazil and worldwide (Barbosa & Vieira, 2020).

The role of vaccination to reducing morbidity and mortality by Covid-19 is highlighted, as they are effective, with the potential to generate population immunity and reduce contamination statistics. Social awareness is fundamental, and campaigns must persist for adequate vaccination coverage to avoid the rise of new cases. It is fundamental, the awareness of Brazilians, that SARSCoV-2 is still a disease with potential for resurgence and continued care is still necessary. Considering vaccination is still a safe way to prevent contagion by Covid-19, it is mandatory to reinforce the need to take all doses according to the national vaccination program following the age group and respecting the time between doses for a more effective immunological activation (Lima et al., 2021).

Still in this context, awareness is needed, as well as health education for the general population. In addition, the training of health professionals with adequate training to deal with the pandemic situation, as well as its consequences, to avoid the indiscriminate use of drugs with no scientific evidence. Awareness campaigns demonstrating the safe use of medications, as well as the risks of indiscriminate use may be necessary. In the search for guidance, the internet becomes an ally of health users, but the online search for information should be used sparingly due to distorted and unfounded news, leading to a increase in the consumption of substances unduly suitable for Covid-19 (Silva et al., 2021).

4. Conclusion

In conclusion, our data pointed out the prevalence of self-medication by an extract of Bahia population, with a predominance among the female public and young adults, in which they have the habit of using different substances to relieve the signs and symptoms arising from contamination by Covid-19, with emphasis on the Vitamin D. This custom became common during the pandemic, but it should be discouraged, due to the risks of evolving into more serious cases, in addition to harmful health effects. Among the factors that favor the adoption of this habit, its common use stands out, without, however, presenting occasional problems with its administration. Adequate medical and health advice should be encouraged, in addition to carry out diagnostic tests to confirm the disease and to adopt protective measures and social isolation. Therefore, vaccination must be encouraged as the only approved prophylaxis against Covid-19, in addition to raise the awareness among the population for not using medicines on their own. More scientific research needs to be carried out to confirm the effectiveness of the drugs both as prophylaxis and for the treatment of SARSCoV-2 to abolish the dissemination of untrue information in the search for a treatment considered safe and effective.

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