



The role of health surveillance in the face of self-medication in the context of Covid-19: A literature review

El papel de la vigilancia de la salud ante la automedicación en el contexto de Covid-19: revisión bibliográfica

Fernanda Abrantes de Oliveira^{1}, Ingrid Emanuely Nogueira Ramalho², Marla Rodrigues Sarmiento³,
Letícia Gabriel Furtado de Abrantes⁴ & Danielle Rocha Silva⁵*

Abstract: The politicization of the disease led to misinformation and the use of unproven treatments, such as the “COVID Kit”. The National Health Surveillance Agency (ANVISA) took important measures, including management and planning, health risk control, regulation, monitoring of suspected and confirmed cases, as well as information, communication and health education. Therefore, the general objective of this research is to demonstrate how the National Health Surveillance Agency (ANVISA) acted in the face of self-medication in the context of COVID-19. To this end, a literature review was carried out over the last five years on self-medication, pandemics, health surveillance, using databases such as PubMed, Google Scholar, Scientific Electronic Library Online (SciELO), Manuals from the Ministry of Health and the World Health Organization Inclusion criteria were adopted, such as articles published in Portuguese or English, primary studies and literature reviews, while studies that did not meet the general objective of the work and publications prior to 2019 were excluded. Regarding the results, ANVISA played an important role in the control and regulation of medicines during the pandemic, classifying chloroquine as a special control medicine and carrying out more than 30 thousand inspections to ensure compliance with clinical protocols to combat the disease. Finally, the pandemic brought challenges for health surveillance professionals, in order to contain the spread of the coronavirus, especially regarding the inappropriate use of medicines and other products subject to health assessment.

Keywords: *Self-medication; COVID-19; Health surveillance.*

Resumen: La politización de la enfermedad ha llevado a la desinformación y al uso de tratamientos no probados, como el "Kit COVID". La Agencia Nacional de Vigilancia Sanitaria (ANVISA) ha tomado medidas importantes, incluyendo la gestión y la planificación, el control de los riesgos sanitarios, la regulación, el seguimiento de los casos sospechosos y confirmados, así como la divulgación de información y comunicaciones sanitarias pertinentes. Con esto en mente, el objetivo general de esta investigación es describir cómo la Agencia Nacional de Vigilancia Sanitaria (ANVISA) ha actuado frente a la automedicación en el contexto del COVID-19. Para ello, se realizó una revisión bibliográfica de investigaciones y trabajos publicados en los últimos cinco años sobre automedicación, pandemia y vigilancia sanitaria, utilizando bases de datos como PubMed, Google Scholar, Scientific Electronic Library Online (SciELO) y manuales del Ministerio de Salud y de la Organización Mundial de la Salud. Se adoptaron criterios de inclusión como: artículos publicados en portugués e inglés, estudios primarios,

* Corresponding Author

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¹ Pharmacist – UNIFSM. fernandaabrantess1@gmail.com; ORCID: <https://orcid.org/0009-0009-0427-7545>;

² Generalist Pharmacist – UNIFSM. ingridemanuely201@gmail.com; ORCID: <https://orcid.org/0009-0007-6805-088X>;

³ Pharmacist – UNIFSM. Postgraduate in Clinical Cytology; marlasarmiento260@gmail.com; ORCID: <https://orcid.org/0009-0000-4365-1979>

⁴ Pharmacist – UNIFSM. Postgraduate in Aesthetics; leticiagfabrantess17@gmail.com; ORCID: <https://orcid.org/0000-0002-8938-0112>;

⁵ Pharmacist – UEPB. Doctor of Pharmaceutical Sciences; prof.daniellerocha@gmail.com; ORCID: <https://orcid.org/0000-0002-2949-2008>.

monografías y revisiones bibliográficas, mientras que se excluyeron los estudios que no cumplían el objetivo general del trabajo y las publicaciones anteriores a 2019. En cuanto a los resultados obtenidos, se observa que la ANVISA ha desempeñado un papel importante en el control y la regulación de los medicamentos durante la pandemia, clasificando la cloroquina como medicamento de control especial y realizando más de 30.000 inspecciones para garantizar el cumplimiento de los protocolos clínicos en la lucha contra la enfermedad. Por último, también está claro que la pandemia ha supuesto muchos retos para los profesionales de la vigilancia sanitaria a la hora de contener la propagación del coronavirus, especialmente en lo que se refiere al uso inadecuado de medicamentos y otros productos sujetos a evaluación sanitaria.

Palabras clave: *Automedicación; COVID-19; Vigilancia sanitaria.*

INTRODUCTION

At the end of 2019, in the city of Wuhan, China, the onset of a respiratory disease outbreak was observed, causing great concern among the population who until then were unaware of its cause. Subsequently, the etiology of the disease was identified as a new coronavirus, which was named Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-CoV-2) (Guimarães; Carvalho, 2020). Its transmission occurs from person to person, mainly through droplets from the cough or exhalation of an infected person. This new infection, called COVID-19, spread rapidly worldwide, and by the end of January 2020, the World Health Organization (WHO) declared COVID-19 as an epidemic; shortly after, in March 2020, with the alarming number of infected cases, it was declared a pandemic (Predêncio; Marques, 2019).

With the increasing number of people infected by the new coronavirus, the fear of the unknown and the limited knowledge about this etiological agent, health authorities have adopted prophylactic measures capable of preventing contagion among people, such as: the use of masks, frequent hand hygiene, social distancing, among others. However, the issue surrounding COVID has become politicized, leading some leaders around the world to not adopt preventive measures such as social isolation, for example, and to advocate for the use of medications without scientific basis for disease management (Guimarães; Carvalho, 2020).

In this context, the COVID-19 pandemic has placed Brazil in a situation of high vulnerability, since the virus has a high transmission rate and there were no investments in scientific research and health capable of promoting the adoption of measures to eradicate the disease, such as a vaccine, for example. In this context, the population is vulnerable to the false information that emerged, which promised a cure for the disease through drugs that had no relation to the good prognosis of the disease, aggravating the problem of self-medication (Wirowski, et al., 2022).

According to the World Health Organization (WHO), the term "self-medication" refers to the act of selecting and using medications (including herbal teas) to treat self-diagnosed symptoms or diseases on

one's own initiative or at the recommendation of a person without technical competence. In Brazil, the National Health Surveillance Agency (ANVISA) defines self-medication as the use of medications without a prescription, guidance, or supervision from a doctor or dentist (ANVISA, 2001). However, the practice of self-medication is not limited to Brazil alone, becoming a global public health issue (Melo, et al., 2021). Consequently, self-medication was exacerbated in the context of the pandemic through the dissemination of false news combined with the population's urgent desire for a miraculous cure.

During the pandemic caused by the new coronavirus, the internet became the main medium through which people, mostly laypersons, sought and acquired information about what was happening in Brazil and worldwide. In this context, through social/digital media, there was the spread of false and/or manipulated materials, which in some way negatively influenced individuals' actions. The politicization of the disease led people to believe in statements made by politicians that were not always scientifically grounded, such as the encouragement of the use of certain substances, known as the "COVID kit," as a form of early treatment.

In this context, circumstances became increasingly sensitive when certain medications became targets for the cure and promises of a good prognosis for the disease. Some substances such as Hydroxychloroquine, Chloroquine, Ivermectin, Nitazoxanide, and Azithromycin were at the center of discussions and widely publicized by the media regarding the cure of the disease (Guimarães; Carvalho, 2020).

In general, hydroxychloroquine and chloroquine are antimalarial drugs but are also used to treat rheumatic diseases and lupus; however, hydroxychloroquine has a safer usage profile. Azithromycin is an antimicrobial from the macrolide class that was widely used in combination with hydroxychloroquine (Predêncio; Marques, 2019). Ivermectin, like nitazoxanide, is an antiparasitic agent, widely promoted by the media, with broad-spectrum activity, which in *in vitro* studies showed viral inhibition of COVID-19, but without human studies to date (WONG, 2020). The dissemination of these drugs by the media and political authorities led to an unprecedented rush to pharmacy counters and drugstores.

Therefore, it was observed that there was an increase in the intensity of research related to the previously mentioned drugs, during which shortages of these medications, intoxications, and even the deaths of some individuals were observed. In light of this, the National Health Surveillance Agency (ANVISA) needed to adopt some measures to curb the unbridled purchase of these substances in pharmacies, establishing control actions for the medications.

In light of the findings of this study, it is clear that the use of medications during the COVID-19 pandemic was alarming, given the amount of information regarding substances promising a cure and/or early treatment of the disease. Therefore, this work addresses the guiding question of how the country's

health authorities intervened to mitigate any forms of irrational medication use by the population, thereby reducing the number of intoxications caused by them.

Thus, the main objective of this research is to describe how the National Health Surveillance Agency (ANVISA) acted in response to self-medication in the context of COVID-19.

THEORETICAL BASIS

According to the World Health Organization (WHO), self-medication is a widely discussed topic in the medical-pharmaceutical field because it is a concerning issue in the society we live in, given the irrational use of medications, coupled with the consequences of various undesirable effects. During the COVID-19 pandemic, the rates of self-medication among the population increased, drawing greater attention to this issue. This occurred largely due to the propagation of "cures," such as the so-called "COVID kit" or "early treatment," which involved the use of a combination of medications without scientific evidence, leading to an increase in drug sales and their inappropriate use, facilitating self-medication, bacterial resistance, and adverse reactions (Melo et al., 2021).

Given this scenario, which caused great apprehension in the population, COVID-19 resulted in many uncertainties and vulnerabilities in public health, intensifying the use of medications without prescription, guidance, or medical supervision, whether through over-the-counter drugs or through irregular commerce. Additionally, there was a strong influence in the dissemination of fake news regarding medications with alleged potential in the prevention and/or treatment of COVID-19 already existing in the market. However, promising research in *in vitro* analyses proved ineffective for the disease when subjected to clinical studies in humans. Other studies showed that the rampant search for medications such as ivermectin, hydroxychloroquine, and the illicit trade of azithromycin increased considerably, both in open-air markets and in small pharmacies, without the requirement of specialized medical prescriptions (Costa; Carvalho; Coelho, 2021).

Thus, self-medication is defined as part of self-care. In Brazil, the National Health Surveillance Agency (ANVISA) defines self-medication as the use of medications without prescription, guidance, or medical supervision. In the context of the COVID-19 pandemic, the increase in the consumption of these medications in Brazilian territory was highly significant.

Due to this growth, health authorities have adopted strategic measures, such as the creation and publication of resolutions to restrict access to and prescription of medications such as chloroquine, hydroxychloroquine, ivermectin, among others. According to RDC number 405 of July 22, 2020, this regulation established control measures for obtaining these medications, which required a specific

prescription regime on white two-way prescription forms, as well as the acquisition of medications containing the substance ivermectin, which should be included in transmissions to the SNGPC.

Self-medication is a practice present in our daily lives, but in reality, this practice is not harmless. Self-medicating can entail various health risks, such as adverse reactions to medications and, in more serious cases, lead to intoxications.

The fact is that this practice intensified during the social isolation promoted by the COVID-19 pandemic. It is important and essential that the population always seek out a qualified professional, whether their doctor or pharmacist, to clarify their doubts and provide safe and reliable information (Prudêncio; Marques, 2020).

METODOLOGY

The present study is a literature review that aimed to discuss, essentially, the role of Brazilian health surveillance in addressing self-medication during the COVID-19 pandemic. Literature review is a widely used method since it allows researchers to explore databases and scientific portals on a particular topic, thereby reviewing the creation of new perspectives, discussions, and opinions on a previously studied subject (Mariano, Rocha; 2017). Data collection was conducted using PubMed, Google Scholar, and Scientific Electronic Library Online (SciELO) databases, using the following keywords: self-medication, pandemic, health surveillance, all indexed in the Health Sciences Descriptors (DeCS). In addition to searching the aforementioned databases, articles found in the reference lists of selected studies were also searched.

Inclusion criteria adopted were: articles published in the last five years that met the overall objective of the review, studies published in Portuguese and English, primary research publications, and other literature reviews. Excluded studies were those that did not meet the overall objective of the work and those with a publication date before 2019.

RESULTS AND DISCUSSION

After combining the descriptors without using the inclusion and exclusion criteria, a total of 120 studies were identified. However, after applying the inclusion and exclusion criteria, a total of 60 articles were included, with 52 being excluded for not meeting the study's purpose.

BOARD 01: Information about the articles selected for the research.

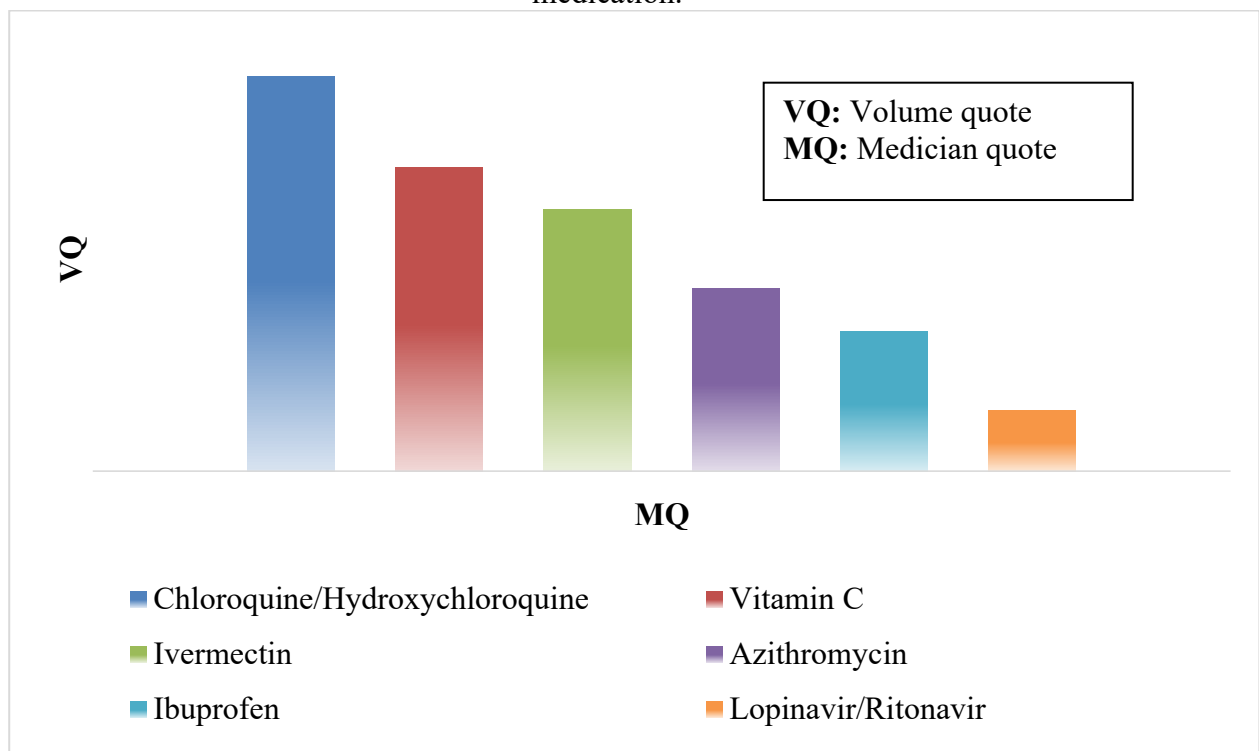
Author and publication year	Type of research	Objective
Carvalho; Guimarães, 2020.	Narrative text.	Social, economic, and global health system impacts caused by COVID-19.
Ferreira et al., 2021.	Exploratory descriptive study, of the experience report type, with a qualitative approach.	The objective of this study is to describe the main actions of health surveillance during the course of the pandemic..
Lacerda et al., 2021.	Descriptive exploratory study with a quantitative approach.	Evaluate the population's access to medications during the pandemic and the use of "therapeutic promises" such as Chloroquine, Hydroxychloroquine, and Ivermectin for the prevention and treatment of Covid-19.
Monteiro et al., 2020.	Narrative text.	Warning about the use of inappropriate medications during the pandemic.
Mallhi et al., 2022.	Narrative text.	Self-medication and adverse effects caused by the use of improper medications during the pandemic period..
Melo et al., 2021.	Narrative text.	Damages caused during the COVID-19 pandemic.
Pitta et al., 2021.	A study of quantitative and qualitative nature, conducted through Google Forms survey.	Dangers caused by self-medication to the individual.
Prudêncio; Marques, 2022.	Literature review.	Risks and adverse effects caused by the improper use of medications in COVID-19, and the importance of the pharmacist professional.

SOURCE: Authors' Data (2023).

At the end, after a more thorough reading, 08 articles that met the established criteria were selected. The publications were organized in the format of a summary table (Table 01), which was divided based on criteria such as: author and publication year, type of research, and objective.

Based on the studies investigated and included in this work, there is evidence of an exacerbation caused by the Covid-19 pandemic regarding self-medication. This observation can be seen in the study by Prudêncio and Marques (2021), which addresses the risks of self-medication during Covid-19. In this study, the authors highlight some of the medications that people were self-medicating with the aim of preventing and/or treating the illness caused by the SARS-CoV-2 virus. Among the medications mentioned in the study by Prudêncio and Marques (2021) and which will be used for the discussions in this work are: Chloroquine, Ivermectin, Hydroxychloroquine, and Nitazoxanide. In a more detailed study, Silva, Jesus, and Rodrigues (2021) graphically present their research on self-medication during the pandemic and the quantity of medications most cited in studies on self-medication.

FIGURE 01: Quantity of terms mentioned about the most cited medications in scientific articles on self-medication.



SOURCE: Silva, Jesus, & Rodrigues (2021).

As seen in figure 01, the medications chloroquine/hydroxychloroquine, vitamin C, and ivermectin are the three most mentioned in the studied works. It is likely that these medications are related to the dissemination of early treatments without scientific evidence as an alternative for treating the effects

caused by SARS-CoV-2, with many of these disclosures being made by authorities, sources of information lacking credibility on the subject, as well as websites and social media (Gomes et al., 2020). Therefore, it is important to understand how these medications work and how ANVISA acted in response to these issues of self-medication. Among the medications mentioned, a more detailed discussion will be held on the following medications: Chloroquine, Ivermectin, and Hydroxychloroquine.

According to the studies by Andrade, Moreno, and Ortiz (2020), through observational methodology using a questionnaire sent via the Google Forms platform, it was observed that out of 59 academics who responded to the survey, 84.75% of them stated that they have engaged in self-medication, and many reported believing in medications without proven efficacy. Furthermore, some reported using medications that were promoted by the media and political figures. It was also observed that the most commonly used medications by these academics were analgesics, followed by anti-inflammatories.

Corroborating with the findings of the present research, Melo et al. (2021) present, through their study on self-medication during the pandemic and the role of the media in promoting medications, that hydroxychloroquine and chloroquine saw their prescriptions increase from R\$ 55 million in 2019 to R\$ 91.6 million in 2020. Azithromycin also saw increased sales, according to the database of the National System for Controlled Products Management (SNGPC).

Health surveillance plays an important role in the regulatory space of the state, with responsibilities focused on the sanitary control of processes, environments, services, and products. In their experience report, Ferreira et al. (2021), emphasize the actions of health surveillance, which allowed, during the pandemic, the strengthening of intra-sectoral and inter-sectoral articulations. It was also shown that over a period of seven months, more than 1,500 inspections were carried out, with a trend towards growth in the months of August and September.

Through the results of the present study, it was observed that health surveillance reinforced its actions aimed at the sanitary control of medications during the COVID-19 period. According to the study by Monteiro et al. (2020), the regulatory agency was forced to classify chloroquine as a special control medication, meaning it is only authorized for sale with the presentation of a special medical prescription, as the population was hoarding the medication, leading to its scarcity for those who need to treat other pathologies.

CONCLUSION

A vast journey was undertaken in 2020 by science to find drugs and develop methods capable of preventing and combating the spread of COVID-19. However, the absence of substances capable of

promoting such results led the population to seek "easier" alternatives strongly influenced by the media, such as the use of drugs without a prescription, such as hydroxychloroquine and chloroquine, resulting in their scarcity in pharmacies and drugstores.

Self-medication is a common practice that can hinder diagnosis and treatment, as well as contribute to the maintenance of the chain of transmission of diseases (Pitta et al. 2021). The context of the pandemic brought many challenges to health surveillance professionals in order to prevent the spread of the new coronavirus. Therefore, actions aimed at ensuring the safety of the irrational use of medications and other products subject to health assessment are highlighted. In this context, it is of utmost importance that spaces for discussion about self-medication and its negative effects on society be opened in order to minimize it.

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