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https://doi.org/10.22239/2317-269X.01596

Fake news in face of the COVID-19 pandemic

Fake news frente a pandemia de COVID-19

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Received: May 10, 2020
Approved: May 25, 2020

ABSTRACT

Introduction: The pandemic of the new coronavirus (SARS-CoV-2) in the Brazilian scenario has created many uncertainties and fears in the population. However, another opponent of public health has emerged on the topic: the dissemination of fake news, that made difficult coping with the disease. **Objective:** to evaluate the published fakes news about the coronavirus in the Ministry of Health's program named "Health without fake news" and to outline a profile of these news. **Method:** The descriptive research evaluated the "Health without fake news" database. The search for data occurred between January and April, and the news were segmented into four categories: Health products, Notifications of cases, Therapeutics and Information about COVID-19. In addition, the frequency of occurrence of each group in the analyzed period was traced, evaluating the subscription types of media circulations. **Results:** 79 fake news were found, of which the largest class of news was Therapeutics, with 34 occurrences. The content of this class was mostly about the use of hot drinks for prevention and treatment of COVID-19. Regarding the frequency of news appearance, the groups that have been increasing the number of occurrences are Therapeutics and Health products. With regard to news subscriptions, senders are variable, but there is an emphasis on the high number of news signed by health professionals (16). **Conclusions:** The news about COVID-19 should be critically evaluated and attention should be paid mainly to news about therapies and/or information signed by health professionals.

KEYWORDS: Sars-Cov-2; Fake News; Pandemic; Brazil

RESUMO

Introdução: A pandemia do novo coronavírus (SARS-CoV-2) no cenário brasileiro instaurou muitas incertezas e medos na população. Entretanto, outra adversária da saúde pública que surgiu sobre a temática foi a divulgação de *fake news* que dificultaram o enfrentamento da nova doença. **Objetivo:** Avaliar as *fake news* sobre o coronavírus divulgadas no programa "Saúde sem *fake news*" do Ministério da Saúde e traçar um perfil destas notícias. **Método:** A pesquisa de caráter descritivo avaliou o banco de dados "Saúde sem *Fake news*" do Ministério da Saúde. A busca de dados ocorreu entre os meses de janeiro e abril, e as notícias foram segmentadas em quatro grupos: "Produtos para saúde", "Notificações de casos", "Terapêutica" e "Informações sobre a COVID-19". Além disso, traçou-se a frequência de ocorrência de cada grupo no período analisado, avaliando os tipos de assinatura das notícias que circulam na mídia. **Resultados:** Foram encontradas 79 *fake news*, sendo que destas o maior grupo de notícias estava na segmentação "Terapêutica", que totalizou 34 ocorrências. O conteúdo deste grupo foi majoritariamente sobre o uso de bebidas quentes para prevenção e tratamento da COVID-19. Sobre a frequência de aparecimento das notícias, os grupos que estão aumentando em ocorrência são: "Terapêutica" e "Produtos para saúde". Com relação à assinatura das notícias, os remetentes são variáveis, porém ocorre um destaque para o elevado número de notícias assinadas por profissionais da saúde (16). **Conclusões:** As notícias sobre a COVID-19 devem ser avaliadas de forma crítica e deve-se atentar principalmente a notícias sobre terapêuticas e/ou veiculações assinadas por profissionais da área da saúde.

PALAVRAS-CHAVE: Sars-Cov-2; *Fake News*; Pandemia; Brasil

INTRODUCTION

News that spreads untrue content is commonly referred to as fake news. This term can be classified in many ways and characterizes information with poor rational, logical or true content, disseminated at constant rates.[1,2]

The sharing of this type of news is hard to stop, since its content is often structured in a journalistic format so as to inspire trust in the recipients of the message. Thus, mass virtual sharing enables the spread of misinformation and has become a public health problem.[3,4]

In January 2020, the World Health Organization (WHO) declared that the outbreak of a new type of coronavirus (SARS-CoV-2) was a "public health emergency of international concern". Two months later, in March, the WHO declared that the disease had become a pandemic.[5]

The unknown disease soon caused widespread commotion and created an atmosphere of uncertainty and insecurity in part of the population. However, in addition to having to fight the pandemic, another issue of public order deserved attention: the spread of speculations and fake news about the disease.

The big problem of fake news is that the misinformation makes people confused and unsure as to what sources can be trusted. In this way, robust and true news may have less impact in some social contexts.

In addition, the spread of misguided news about the Unified Health System (SUS) and the Ministry of Health (MS) can spread rumors that eventually question the very legitimacy of these organizations. Because of Brazil's political and economic context, these media repercussions can have a strong impact on future decisions by the population.

In order to fight fake news, the MS created a channel called "Health without fake news" to analyze viral news and determine whether it is true or false. To manage the COVID-19 situation more carefully, the ministry created a specific channel for information related to this particular disease. The thorough analysis of these contents allows sharing true information and reducing the credibility of fake news, all in accessible language.[6]

METHOD

The descriptive study included the analysis of fake news about the coronavirus published on the "Health without fake news" page of the MS. The analyzed period was between the months of January and April 2020. In total, 79 news items were retrieved.

The research included the tabulation of all pieces of fake news published on the online portal in Excel 2010® and their categorization into four distinct groups. The categories were created based on information found in the news available on the MS portal and no other sources were used.

The first group of analysis was called "Health products" and includes fake news about health-related products, defined by the National Health Surveillance Agency (Anvisa) as equipment, device, material, article or system of medical, dental or laboratory use or application, aimed at prevention, diagnosis, treatment, rehabilitation or contraception, and that does not use pharmacological, immunological or metabolic means to perform its main function in human beings, although it can be helped in its functions by such means.[7]

The second group, called "COVID-19 case reporting", contains news with false statements about the reporting and publication of epidemiological data on new cases of COVID-19. Furthermore, it includes news about the spread profile of the disease.

The third group, "Treatments", addresses news about preventive or curative methods. It included pharmacological and non-pharmacological news analyzed by the MS database.

The last category was called "COVID-19 information" and included other pieces of news on the topic. In this way, we addressed topics about the origin and course of the disease, its symptoms, how it spreads, and the behavior of the SARS-CoV-2 virus.

After segmenting the information, we determined the frequency of appearance in each group. However, the heterogeneity of the information demanded that each group be analyzed and divided in a convenient way.

In addition, the frequency of occurrence of each group was plotted over the analyzed time so that we could establish a profile of news distribution over time.

Finally, the 79 pieces of news were reclassified according to their authorship into eight groups: unsigned; signed by professionals; signed by federal or health authorities; references to initiatives from other countries; references to scientific research; signed by other legal entities; signed by internet users; and news without clear authorship (not published on the MS website, which made it impossible for us to check the authorship).

RESULTS AND DISCUSSION

By visiting the MS page that assesses whether health-related pieces of news published in the media are true or false, we could list 84 pieces on the coronavirus topic. Of these, only five (6%) were classified as true, demonstrating the alarming amount of fake news that is shared with the population.

One of the most blatant problems of fake news shared in easily accessible media is the trivialization of serious content. With widespread sharing and repeated visualization of the content of fake news, individuals become more likely to trivialize what is being said. Thus, with poorer discernment regarding this type of news, individuals end up accepting it as true.[8]

This problem becomes even more significant in a pandemic context, when wrong behaviors can jeopardize public health as a whole. When that happens, the efficacy of preventive measures (such as social distancing) is compromised and/or readers may entertain false hopes encouraged by false promises.

However, a major challenge posed by coronavirus-related fake news is the diversity of shapes these contents can have. If we meet the challenge of outlining the profile of this type of news, we can use that to alert the population about how to tell the difference between fake news and real news.

By segmenting fake news into four groups, we obtained a number of news items equal to four for "Health products", 17 for "Case reporting", 34 for "Treatments" and 24 for "COVID-19 information". The distribution of the frequency of these pieces of news from January to May can be seen in Figure 1.

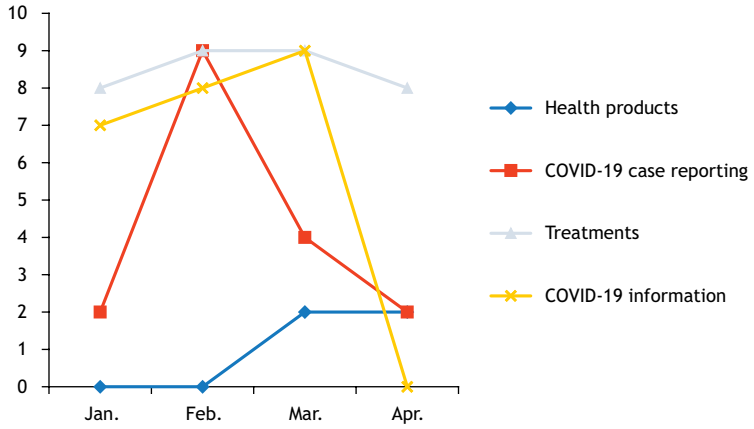
We notice that the group with the most constant frequency over the months was that of "Treatments". This is probably associated with the population's hope for an effective treatment to prevent or cure the disease. It is this longing for safety that leads individuals to overshare these data.

We also noticed that in April there was a decrease in fake news about COVID-19 information and reporting. Although the justification for this cannot be accurately determined, we can suspect that it is due to the MS broad disclosure of data about the epidemiological situation, together with reliable information to the population showing not only the efficacy of the measures but also the need to stick to them.

With regard to the group of "Health products", which have been very useful to prevent the spread of the disease through various clinical protocols and legislation,[9,10,11,12,13,14,15,16,17] although their quantity is not very high, their impact is very relevant. That is because contamination rates can be even higher if the effects of these products become discredited by the population. The segmentation of these products can be seen in Table 1.

We can see how serious these four pieces of news are: they all discourage the use of masks and hand sanitizers, claiming that they are ineffective or suggesting they can be harmful to users. Another factor that needs to be explained is that news that attacks the Ministry of Health also ends up undermining the Brazilian Unified Health System (SUS). In fact, there are many political questions involved, and this can be seen in pieces of news on the purportedly poor quality of the masks provided by the MS.[18]

However, to confront the news about the poor quality of the masks, the MS fake news page warns that the masks shown in the video are different from those acquired and distributed by the ministry.[19]



Source: Prepared by the authors, 2020.

Figure 1. Frequency of occurrence of fake news from January to April according to the categorization in groups.

Table 1. Categorization of fake news about the group of "Health products."

Category	Number of pieces of news	Product	News headlines
Health products	4	Masks	"Poor quality masks distributed by the Ministry of Health"
			"Masks donated by China are contaminated with coronavirus"
		Hand sanitizers	"Hand sanitizers are the same as nothing"
			"Using alcohol-based hand sanitizers to prevent coronavirus changes breathalyzer results"

Source: Prepared by the authors, 2020.

When thinking about the possibility that fake news can increase the spread of the disease, we found yet another challenge: even the group of COVID-19 case reporting is filled with untrue news. The data regarding this group can be seen in Table 2.

We observed that the main class of news in this context was the "Detection of the 1st case in the area". However, it is notorious that this and other pieces of fake news in general could be avoided if reliable sources of SUS information were consulted, like the reports from the Ministry of Health and statements by the Minister of Health on national TV.

In addition, considering the role of the SUS in the performance of diagnostic tests, once and again we see attempts to undermine this system. Not only is the SUS structured and prepared to fight several communicable diseases,[20] it actively and resiliently works to curb transmission, enhance diagnosis, and improve the management of specific cases of COVID-19.[21]

The attempts to undermine the SUS are explicitly shown in the "Report registration" class, which contains a single news item called "Software used at Emergency Care Units (UPA) forces the registration of coronavirus as the diagnosis". This fake news says that nurses from some UPA were claiming that patients with symptoms different from those caused by SARS-CoV-2 had to be registered as if they had the typical symptoms of the disease.[22]

The derogatory tone, in addition to demonstrating weaknesses in primary care, suggests that the number of patients with coronavirus symptoms is overestimated. That can lead the population to discredit the seriousness of the spread of the disease and loosen restrictive measures, thus increasing the number of contaminated individuals.

However, we also noticed that, although the number of people with SARS-CoV-2 is the target of a large amount of fake news, the main group of news in the analyzed database was about the treatment of the new coronavirus. This may have occurred because of the high social expectations and hopes for an efficient preventive method or an effective corrective measure, which gives this category of fake news an enormous spreading power. The main categories of the "Treatments" group were identified and can be seen in Table 3.

Topics related to treatment and therapeutics have received much attention from several media channels, with two areas that stand out. The first and most significant is the high percentage of news involving hot beverages (37%), like medicinal teas. Folk traditional knowledge, which uses these drinks to relieve symptoms of conventional colds and flu, has expanded to the new virus. However, no proof of this therapeutic resource has been demonstrated, as informed by the MS: "So far, there is no medication, substance, vitamin, specific food or vaccine that can prevent coronavirus (COVID-19) infection".[23]

The second fact, although it accounts for only 3% of the news found in the fake news database of the MS, has a high social impact and is related to the indication of chloroquine and hydroxychloroquine as effective treatments for COVID-19. The criticality of the topic becomes clear when we see that this type of news encourages the population to buy and take these drugs. In view of the population's excess demand for them in pharmacies and drugstores, chloroquine and hydroxychloroquine became scarcer for the patients who actually need their continuous use for other diseases, like systemic lupus erythematosus, rheumatoid arthritis, and malaria.[24,25]

Furthermore, news was published stating that the Food and Drug Administration (FDA) had allowed the use of these drugs. However, in a press release, the FDA stated only that some studies are being conducted underway to ascertain the efficacy of the drugs.[24,26]

In view of this social behavior and to ensure the supply of drugs to patients who really need them, Anvisa published Joint Board Resolution (RDC) n. 351,[27] of March 20, 2020, which put chloroquine and hydroxychloroquine in list C1, i.e. the list of substances subject to special control. Therefore, in order to acquire them, patients have to present a prescription in two copies: one will be retained by the pharmacy and the other will remain in the patients' possession.

Additionally, this phenomenon can also become a problem of collective health, since these drugs have severe and often lethal adverse effects, like ocular toxicity, cardiotoxicity, and blood disorders. Moreover, the therapeutic range of these substances is very short, that is, dosages slightly larger than the

Table 2. Categorization of fake news about the group of "COVID-19 case reporting".

Category	Number of pieces of news	Class	N (%)
Reported cases	17	Report registration	1 (6)
		Epidemiological data	4 (24)
		Appearance of the 1st case in the area	6 (35)
		Underreporting by the government	1 (6)
		Immigrants with the disease in national territory	2 (12)
		Estimate of the "peak" of the disease	1 (6)
		News not available in full for evaluation	2 (12)

Source: Prepared by the authors, 2020.

therapeutic dose have a high chance of causing adverse effects and a high degree of toxicity.[24]

In other words, the dissemination of fake news about COVID-19 also hinders the credibility of the reliable information we have available. As shown in Table 4, there was much speculation about the course of the disease and the behavior of the virus. Although this group of fake news has a high frequency in the database, its homogeneous distribution makes it difficult to list the profile of these pieces of news based on their segmentation classes. Therefore, it becomes difficult to warn the population about future fake news that may come to circulate.

We can often see an underlying tone of speculation in messages about the origin of the disease. Most of the times, these messages have an alarmist tone when talking about how China is facing and managing the pandemic, which can also indicate that their content is misleading.

The often alarming and exaggerated news, such as "Chinese Court to kill 20,000 patients with coronavirus", in addition to generating speculation about possible future developments of the disease in Brazil, still leads to misrepresentation of the Asian country regarding political and economic matters.[28] To identify fake news, the MS suggests we be careful with news with an alarmist tone, vague information, and spelling mistakes, as was the case of the content in question.

In addition, there is a notoriously large amount of news that tries to undermine the SUS, both with news that misrepresents or invents

Table 3. Categorization of fake news about the group of "Treatments" for COVID-19.

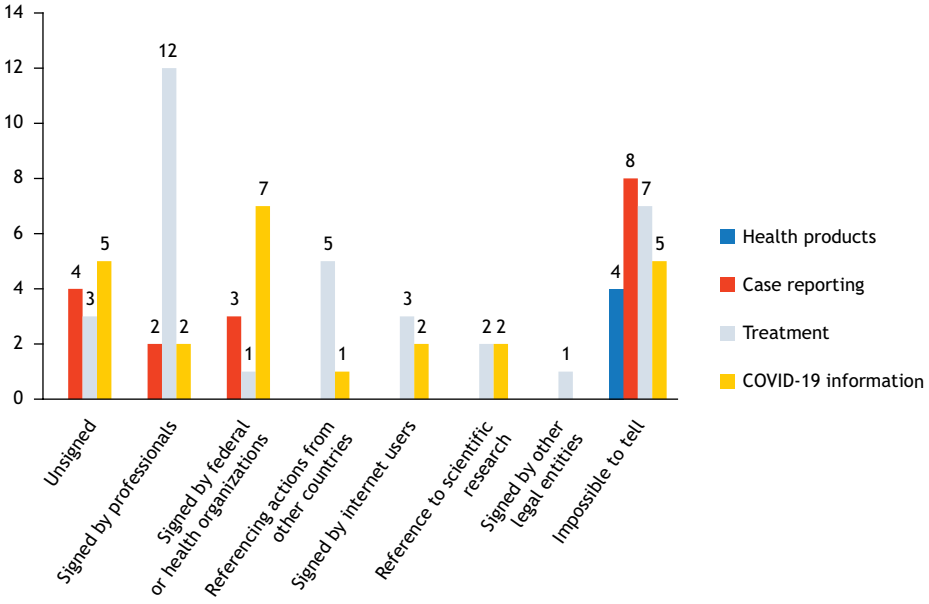
Category	Number of pieces of news	Purpose	Treatment class	Subclass	N (%)
Treatment	34	Prevention	Pharmacological	Vaccine	2 (6)
				Vitamins	1 (3)
			Non-pharmacological	Hot beverages	4 (11)
				Food	1 (3)
				Vitamins	3 (9)
				Alcoholic beverages	1 (3)
			News not available in full for evaluation	Not found	1 (3)
		Treatment	Pharmacological	Lice medication	1 (3)
				Chloroquine/Hydroxychloroquine	1 (3)
				Antiretrovirals	2 (6)
				Not specified	2 (6)
			Non-pharmacological	Hot beverages	9 (26)
				Food	1 (3)
				Water	1 (3)
				Oils	1 (3)
			News not available in full for evaluation	Not found	2 (6)
		Not specified	News not available in full for evaluation	Not found	1 (3)

Source: Prepared by the authors, 2020.

Table 4. Categorization of fake news on "COVID-19 information".

Category	Number of pieces of news	Class	N (%)
COVID-19 information	24	Origin of the disease	4 (16)
		Brazilian government's COVID-19 app	1 (4)
		China and the fight against coronavirus	5 (21)
		Ministry of Health reports	3 (13)
		Carnival and the spread of coronavirus	2 (8)
		Effects, symptoms, and sequelae of the disease	3 (13)
		Conditions for the virus to remain in its viable form	2 (8)
		Others	4 (17)

Source: Prepared by the authors, 2020.



Source: Prepared by the authors, 2020.

Figure 2. Profile of signature distribution by group of news.

MS reports and news that claimed that the "Coronavirus-SUS app from the Brazilian Government is unsafe", saying that the official app does not respect user security and privacy. So even though these pieces of news do not disqualify the information released by the program, they discourage the use of a reliable resource that could be accessed by the majority of the population.[29]

Another resource that can be used to outline the profile of fake news is the observation of the type of signature that accompanies the message. For this purpose, we prepared Figure 2, which compiles the types of signatures found in the news and the segments by data class. We observed that most of the signatures in the analyzed database are from healthcare professionals, which emphasizes the need to read and analyze this type of news with a critical mindset.

However, the wide distribution of data, which ranges from the absence of signatures to the names of official bodies, demonstrates that it will always be necessary to confirm the content in reliable sources. A good way to engage the population in the search for reliable sources is to publish and share scientific newsletters with accessible and dynamic language, so that this type of content can reach everyone, in every social niche.

CONCLUSIONS

The occurrence of fake news, although widespread, follows certain patterns, like alarmist and exaggerated language, and spelling mistakes. In the MS database, we observed that the largest amount of fake news was in the group of coronavirus "Treatments", with highlights to the subclass of "hot beverages".

Moreover, according to some projections, news about "Health products" and "Treatments" tends to remain high or even increase in the coming months. In contrast, the groups of "Case reporting" and "COVID-19 information" tend to shrink.

The highest frequency of signatures in the contents that were available for reading was by health professionals. However, the broad spectrum of senders makes it impossible for us to determine the typical profile of this content.

Finally, a strong strategy to reduce the spread of fake news is to make reliable scientific content available to the population. To this end, accessible and dynamic documents should be made available to different social groups in an attempt to curb the spread of fake news.

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Authors' Contribution

Matos RC – Conception, planning (study design), data acquisition, analysis and interpretation, and writing of the paper. The author approved the final draft of the paper.

Conflict of Interest

The authors report that there is no potential conflict of interest with peers and institutions, nor political or financial conflicts in this study.