

## Decrease of Medical Knowledge during the Pandemic through the Internet and Social Networks: The Brazilian Case

Hesley M Silva<sup>1\*</sup>, PhD 

<sup>1</sup>Science and Education Department, State University of Minas Gerais and University Center of Formiga, Brazil

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\*Corresponding author:

Hesley M Silva, PhD

Science and Education

Department, State University

of Minas Gerais and University

Center of Formiga, Brazil

Tel: +55 37999825189

Email: hesley@unifformg.edu.br

### Dear Editor

The Covid-19 pandemic was a tragedy worldwide, with countries suffering variously as the disease spread. Epidemiological studies have shown that several factors have influenced this spread and the number of deaths (1). The high average age of the population, and the climate of each region, among other factors, contributed to a variation in mortality in the countries. However, scientific denialism seems to have been one of the decisive reasons for determining the number of deaths in each country. Just remember that the two countries that registered the most deaths were the USA and Brazil, two nations that were governed in the most critical periods of the pandemic by governments that denied the severity of the disease, its basic prevention and containment measures, and that were disseminators of false news about Covid-19 (2).

Probably the country that suffered most from this phenomenon of denialism during the pandemic was Brazil because in this country, the government and all its surroundings were decisive, but there was also a significant

portion of doctors who endorsed the Fake News in relation to Covid-19. There was an intense spread of this misinformation for the prevention of the disease, such as the view against wearing masks and social isolation, and also against vaccines and the suggestion of innocuous treatments against SARS-CoV-2 through the Internet, especially through social networks. This last process has even received a name, infodemic (3).

It has been spread that there should be a supposed “medical freedom” regarding Covid-19 treatment, even if it does not result in any known and scientifically proven benefit, perhaps even some harm to the patient. Incredibly, the highest instance of Brazilian medicine, the Federal Council of Medicine, endorsed this hoax that helped to propagate a process that will possibly enter the annals of the historical equivocations of the medical profession in Brazil (4).

There was the argument that since there was no known effective treatment against the disease, any prescription that could, even hypothetically, signal some success, even

minimal, should be tried. This argument might make sense at the beginning of the pandemic because there would be panic, desperation to find a therapy, and an inability to react in the face of so many sick and dead. However, after all the supposed drugs and therapies were tested and refuted as effective, they continued to be used by a significant portion of the Brazilian medical class.

One could say that this would have happened to inexperienced newly graduated doctors or even to very experienced doctors, trained at a time when there was not the knowledge about infections that we have today. But this is not true since all categories of doctors have been affected by a new form of scientific or pseudoscientific education done through social networks or unreliable websites. In this process of misinformation, doctors have abandoned any reasonable logic, any basis of academic knowledge that they have built up in their studies. Incredibly, these doctors became disseminators of this kind of misinformation, and this phenomenon was not exclusively Brazilian (5).

Antibiotics have been used against viruses (6), or preventively, paving the way for bacterial resistance on a large scale, something a good elementary school student would refute, but in Brazil, it had a medical prescription. Vermifuge against viruses, antimalarials against viruses (7), and even anti-cancer drugs were used against Covid-19 in Brazil, under the auspices of doctors, without any coherence with their training, without any basis in the knowledge they should have accumulated in their long training. All this reverie was based on the new form of continuing education of this part of the medical community, through news from social networks and the Internet without any scientific basis.

Within this environment, it became absurd to prescribe and use these powerful drugs in a preventive way for healthy patients who suffered the effects of the disease when they became infected with SARS-CoV-9 because they were weakened by the use of useless drugs for this purpose (8). However,

many doctors claimed that these drugs had no adverse effects, something impossible to conceive from everything that is known about the use of any drugs.

On another scale, the famous and infamous Brazilian Covid kit was prescribed for the early treatment of Covid-19 (9) without any proof, including several medications, sometimes thirteen medications, sometimes eighteen, almost all innocuous, without any advantage to the patient. In some of these prescriptions, there was still an antipyretic or analgesic, which might make some sense; however, it is important to remember that the vast majority of those contaminated by the pandemic had a spontaneous progression and cure of the disease, and this intoxication was unnecessary.

It is important to highlight those drugs such as chloroquine, celebrated and iconic in the context of Fake News regarding the pandemic, are fundamental, effective, and relatively inexpensive drugs against malaria, lupus, arthrosis, etc. Nevertheless, all proven prescription provided in the drug's package are for the diseases for which they developed something very simple, but that has been lost in the misinformation environment of many doctors. Therefore, it is not to reject these drugs but to understand that they have known and consecrated indications, and this principle should guide medicine anywhere in the world.

It will be necessary to rescue continuing medical education, to present obvious things that are not followed can lead to disasters in health care. This education will have to be offered to doctors of all levels of experience. It will be necessary to leave ideologies aside and abandon convictions without scientific basis to realign the Brazilian medical practice with the good practices in the health field, of course for the portion that adhered to the false news, and put them into practice. This process of education, or re-education, can be done virtually.

If this is the case, it will even be an irony; the same social networks and Internet that were used to dis-educate and spread scientific

fraud were used to turn around and bring back evidence-based medical practices. The Brazilian medical entities committed to these good practices, universities, research centers, and the companies that own the social networks should be invited to participate in a collective effort to educate a class that, for historical and cultural reasons, will be a great challenge for this process to succeed.

These channels should be permanent, using technology that allows for a process that is interesting, thought-provoking, and related to medical practice. These mechanisms will have to be in tune with a changing world, mechanisms that must be prepared to incorporate new situations, such as the one created by the COVID-19 pandemic, for example. We can glimpse what awaits us in terms of the health of the climate changes that are already occurring and tending to accentuate. We must prepare the health field for the potential risks that these changes in the climate may cause (10), and virtual education, dynamically and didactically prepared, maybe the way to face these new challenges.

It will not be an easy path back, and it will be necessary to rescue the search for scientific information based on articles published in high-impact journals and credible websites from renowned research institutes. It must also be shown to this part of the medical class that the information received through the Internet and social networks can and must be checked; there are mechanisms on the Internet itself and in social networks, and new means must be created and disseminated. It will be difficult to reconstruct this lost ground of scientific knowledge and good medical practices, there will be resistance and excuses, but this movement is necessary. Thus, the credibility of the entire Brazilian medical community will be rescued, and perhaps, we will be able to avoid this sequence of events, so harmful to the population, from happening again in the future.

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