

**A sad example of the destructive potential of Brazilian science denialism.
Um triste exemplo do potencial destrutivo do Negacionismo na Ciência Brasileira.**

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RESUMO No Brasil, nem mesmo médicos renomados deixaram de seguir a linha negacionista científica do governo Bolsonaro. Neste estudo são analisados um vídeo de rede social, amplamente difundido, e uma entrevista do Dr. Anthony Wong, professor da Universidade de São Paulo e médico do maior e mais importante hospital das clínicas do Brasil e uma referência na saúde pública do país. É discutido o discurso do médico, que indica o fim da pandemia no Brasil durante o verão (fim de 2020), adotando uma fala contrária ao isolamento social, a favor do uso da hidroxicloroquina e de outras ações sem comprovação científica. São abordados também outros trechos temerários da sua fala e do seu provável impacto na população brasileira, pois sua entrevista teve quase meio milhão de visualização na rede social, além de ter sido vinculado a uma das rádios mais populares do Brasil.

Palavras-chave: Negacionista; Fake News; Médico; Vacina; Hidroxicloroquina

ABSTRACT

In Brazil, not even renowned doctors failed to follow the Bolsonaro government's scientific denialist line. A widely broadcast social network video and an interview with Dr. Anthony Wong, a professor at the University of São Paulo and doctor at Brazil's largest and most important clinic hospital and a reference in public health in the country are analyzed. The doctor's speech, which indicates the end of the pandemic in Brazil during the summer (end of 2020), is discussed, adopting a speech contrary to social isolation in favor of the use of hydroxychloroquine and other actions without scientific proof. Other fearful passages of his speech and its probable impact on the Brazilian population are also discussed since his interview had almost half a million views on the social network and was linked to one of the most popular radios in Brazil.

Keywords: denialist; Fake News; doctor; vaccine; hydroxychloroquine

Introduction

The denialism in Brazil, especially during the pandemic of COVID-19, has reached sectors of society that one would imagine to be immune to this phenomenon (VON BÜLOW, ABERS, 2022). It is hard to believe that a

physician from the largest Brazilian clinical hospital, a professor and researcher at the largest and most respected university in the country, and a World Health Organization (WHO) member could align himself with this kind of movement. This doctor was also

appointed chief physician of CEATOX - Center for Toxicological Assistance of the Children's Institute of the Clinics Hospital (FMUSP) and the World Health Organization's Center of Reference in Pharmacovigilance, Director of IBET - Brazilian Institute of Toxicology and Pharmacology Studies. Imagine now that you receive through social networks a video through WhatsApp, of more than six minutes, of this same doctor with this extensive professional curriculum, in which he is clearly positioned against vaccination against the coronavirus. All this in a country that has a clear denialist president, who has numerous statements in this direction (RICARD, MEDEIROS, 2020), with a health minister who said in recent days (during the pandemic) that it is clear that agglomerations do not influence the spread of the Covid-19, even with all the scientific evidence pointing to the opposite (SHARIFI, KHAVARIAN-GARMSIR, 2020). It is important to reflect on Dr Anthony Wong's speech because of the influence he can unleash on the population's behavior. Who is speaking is a scientific consultant for one of the most popular Brazilian radio.

The message introducing his video to social networks already says a lot about his content: "Everybody eager for the vaccine and comes Dr Anthony

Wong, the greatest authority on infectiology in Brazil and gives this message". It is important to pay attention to which academic reference emerges in this speech. It should be noted that Dr Wong was not an infectiologist, he was a pediatrician and toxicologist, but he had always been a common figure on Brazilian television as an academic reference in the health area. If someone pays to check his standard curriculum in Brazil - Lattes curriculum - he will see few publications, but remember the initial credentials, and for a layman and even some apparently enlightened, including many doctors, he was a recognized authority in Brazilian health.

Methodology

A video interview with Dr Anthony Wong on the "Jovem Pan TV" channel was analyzed. The most relevant excerpts for this analysis were highlighted. A video, linked on social networks, produced by the same doctor and with the same negationist bias, was also analyzed. From this interview and the video, the aspects related to the scientific denialism of his discourse were discussed, especially those related to the pandemic of COVID-19. The possible impacts of this type of denialism when originating from a research physician with academic and media prestige were also addressed.

Results and discussion

At the beginning of the video, the pediatrician talks about how the other vaccines were produced historically, which all took time to be produced; any person should see the speed of development of the vaccines against the new coronavirus as a scientific victory (LURIE, SAVILLE, *et al.*, 2020, YAMEY, SCHÄFERHOFF, *et al.*, 2020), but this is not the case of Dr Wong and his followers. He describes all the inherent risks of a vaccine so rapidly developed, purposefully forgetting all the advances in all areas of science and the collaboration of various fields, including politics, that allowed these new drugs to have their development process so accelerated (COREY, MASCOLA, *et al.*, 2020). For him and for all those who believed in his speech, and were not few, these vaccines will constitute a tremendous risk for those who have the courage to take them because they would not have passed through the safety stages for their production if no scientist had thought about the safety of a vaccine against the new coronavirus (HAYNES, COREY, *et al.*, 2020). To better understand the thinking of the doctor and professor of the largest and most prestigious Brazilian university and its scope, we must refer to an interview that he granted

to a program on the Internet, said journalistic, linked to the radio, which he is a scientific consultant, with thousands and thousands of views and demonstrations of support, available at <https://jovempan.com.br/programas/direto-ao-ponto/ao-vivo-assista-a-entrevista-do-dr-anthony-wong-no-direto-ao-ponto.html>

The whole interview will be conducted with a bias against the vaccines being developed and in favor of the drugs that it was already (at that time) clear was completely ineffective. The first question clearly shows this denialist ideological line, and the answer endorses this view. Dr Wong talks about the need for a clinical trial that should take years, exemplifies that a drug should take 5 to 10 years to develop, that the fastest vaccine until then was the mumps vaccine (RUBIN, PLOTKIN, *et al.*, 2012), and that it took four years, so there would be no safety in developing the immunizers against SARS-CoV-2 because vaccines would be much more dangerous than medicines. All this was under the applause and agreement of the journalists interviewing him. They all forgot that technologies had evolved since the production of the Mumps vaccine and that there was a public health emergency with millions of deaths underway, of course as the interview

progressed will explain this reverie, as they all believed (and propagated) that the pandemic would pass quickly with the changing climate in Brazil.

At the beginning of this interview, held in early November 2020, the improper comparison with the other vaccines was short. However, what follows is one of the most serious points of Dr Wong's disastrous influence. He categorically states that the most important for the levels of dead and contamination is the temperature and the climate, in front of interviewees who are not able to score on the incongruence of this consideration.

When referencing his didactic affirmation of the role of climate in the pandemic, the Brazilian member of the WHO suggests that they notice what happened in Europe, the summer came, the numbers fell, and now rise again because winter is coming back. Intentionally, he did not consider that there was a relaxation of the proven pandemic containment measures, such as social distancing (AQUINO, SILVEIRA, *et al.*, 2020); but this, according to the Brazilian health authority, has no effect on the spread of the virus. The same thing would have happened in Brazil, as his modesty that characterizes every interview had already predicted that in winter, the

numbers rise, independent of the behavior, which seems to have no effect. None of the select interviewees nor the journalist who coordinates the program questions him about the fact that Manaus, the capital of the Brazilian state of Amazonas, and several cities in the northeast of Brazil, places where there is literally no winter, where we have a hot season and an even hotter one, have suffered from the pandemic despite its climate until isolation measures have been implemented. Nevertheless, rationality does not guide this interview.

Elements of what we would call postmodernity (BROOKER, 2014) can be found in his discourse; the collective thinking in academia is not to be considered, his individual vision (PETERS, MARSHALL, 2002), or aligned with the denialist movement in Brazil prevails. Finally, there is a clear narcissism concerning his knowledge (BUČKOVÁ, 2018), to the detriment of the scientific knowledge developed during the pandemic.

However, at the end of this part of the interview, there is a very revealing talk of the inconsequence of the irresponsibility of his speech. He categorically states that the number of cases and deaths in Brazil is falling (which was true at the time) and that he knows the reason: the increase in

temperature with the proximity of the Brazilian summer. At the apex of his haughtiness, he says to write down his prediction, in a few days and until December, the death toll will decrease more and more, it will reach the double-digit house, after one digit, and it will practically disappear when the temperature rises more, it will return only when the temperature falls next year. A completely misplaced forecast that could not be more wrong. One month after this interview the numbers do not stop rising in Brazil, even though the Earth continues to revolve around the sun and dictating a higher temperature in the tropics. If anyone took notes of what Dr Wong said, as he suggested, they would see the breadth of his daydreams. The number of deaths reached almost 800 dailies in Brazil a little over a month later; anything related to temperature? Of course not. It is strongly related to the relaxation of social distancing measures, and the tragedy only increases. It is important to point out that everyone can make mistakes in their predictions, but among deniers, there is no margin for error; they simply do not make mistakes. He was totally safe in his statements, and many of those who went to the quiet streets trusted the famous doctor's words, believing that the high temperature would protect them.

One can have other characteristics of postmodernity in this denialist discourse. There is a trivialization (and even absence) of values (ATTFIELD, 2001), as Dr Wong did not consider the social impact of his speech, the impact on behavior about the collective health of the population. Exist subjectivity in his speech (LOVLIE, 1990); he interprets a reality based on his hypotheses and treats them as if they were true, besides fragmenting his knowledge to build these same hypotheses.

The WHO member, a physician at the largest clinic hospital in Brazil and a professor at the largest university in Latin America did not have the wisdom and humility to come to the public to recognize his misplaced prediction. He had not the ability to realize how dangerous his unsubstantiated statements were, especially from the authority that his position gave him. However, deniers do not need to recognize their mistakes because their followers are fanatics; they are ready to simply applaud without reflecting on the consequences and how insane it is to go against reality. A month after this breakdown of his speech, his fervent fans are broadcasting a new video of the Brazilian health authority against vaccines; they have learned nothing from the mistakes of the master neither he.

However, at least in this short video, he has given up on predicting the pandemic's downfall in the heat; it would be too much for even a denialist, with the numbers soaring. In the video nothing about his absurd predictions and his thunderous mistakes.

To analyze the video, one can resort to the concept of post-truth, which is very appropriate because it is associated with how information is in social networks (COSENTINO, 2020). However, the renowned doctor was not basing his speech in the video on facts, knowledge, or objectives regarding the pandemic; the pernicious discourse seeking to misinform public opinion was based on his emotional appeal and personal beliefs (ROCHLIN, 2017).

Other points in the interviews are unbelievable and cause me shame as a Brazilian; however, it is necessary to point them out to what extent the defense, often extrapolating common sense, of scientific denialism reaches. Dr Wong, for a change, makes an eloquent defense of hydroxychloroquine; it goes without saying that the rest of the planet has already given up this supposed panacea that would solve the pandemic (FUNNELL, DOWLING, *et al.*, 2020, GROUP, 2020), but for the Brazilian pediatrician it is the solution, and not the vaccines, agreeing with his probable

mentor (although he denies) Jair Bolsonaro. When asked by the journalist why the WHO does not refer to Covid-19's miraculous treatments as hydroxychloroquine, he insinuates that the question must be money, therefore, corruption. It is important to remember that his resume states that he is a member of this organization, which despite being able to deserve criticism, like any other organization, has a fundamental role in confronting this and so many other diseases and ills in the world (MOORTHY, RESTREPO, *et al.*, 2020, SOHRABI, ALSAFI, *et al.*, 2020). In addition, a denunciation of corruption of this magnitude should be formal, supported by evidence or not be made. It is necessary to reflect and imagine the WHO letting thousands die daily because, for money, it would be boycotting a medication that would save the lives of all these victims. Imagine that the whole world, except the Brazil of Bolsonaro (SILVA, 2021c) and Dr Wong, are all being deceived by the WHO. Scientists and doctors in Asia, Europe, Africa, Oceania, and the Americas are being cheated. German Chancellor Angela Merkel; US President Donald Trump; and so many other leaders on the right and left are being misled, and the WHO is to blame for money. It seems absurd, doesn't it? It

really is absurd. However, the biggest absurdity is that a respected Brazilian doctor insinuated it.

This professor at USP categorically states that social isolation has zero effect on the pandemic; according to him, this information has scientific robustness, using one or another scientific article that supports his thesis, forgetting the large number of others that point exactly the opposite (KARNON, 2020). For the Brazilian scientist and doctor, the effects of social isolation are much, much worse than those of the virus. Dr Wong states that Europe is completely wrong in making the isolation at this moment that the number of cases is rising again in the old continent; after all, what counts is the climate and the winter will infallibly make this growth of contaminated and dead. To conclude this reasoning, he uses a rhetoric common to Bolsonaro's followers, using Sweden as a model, because it would not have isolated the population; it would have kept society functioning freely, which is not entirely true. The Swedes, too, would have practically won the pandemic, which is completely false (HABIB, 2020). Nevertheless, it forgets some fundamental points, even the Swedish government does not consider that it made the most appropriate strategy and that it may have failed in prevention.

Moreover, it seems not to know that Sweden, in comparison with its Scandinavian peers, Denmark, Finland and Norway, has failed in terms of the number of cases and deaths, so it makes no sense to cite this country as a model for confronting the pandemic (YARMOL-MATUSIAK, CIPRIANO, *et al.*, 2021). But this is exactly the line of this discourse, not to make sense.

One of the highest or lowest points of this interview was when Dr Wong referred to the important statistical and epidemic work published by the Imperial College group dealing with the number of deaths in various scenarios (FERGUSON, LAYDON, *et al.*, 2020, WALKER, WHITTAKER, *et al.*, 2020). He suggests, believe me - I had to watch more than once to believe - that the author should be burned in a public square for the damage he caused to humanity. Of course, you will say it was just a metaphor, a medieval joke, but the speech is stupid and inappropriate, especially in times of ideological and religious radicalism. All this is amid laughter from the interviewers and the journalist who guides the interview. The main author of this historical work is attributed to all this worldwide panic; he would be the culprit, not the virus and the pandemic itself. The whole problem would be the alarmism that this kind of

publication and so many others generate - no relationship with incompetent governments or denialist doctors.

Dr Wong criticizes his fellow doctors who did not and do not make the early treatments from hydroxychloroquine used by him and other denialist doctors (AXFORS, SCHMITT, *et al.*, 2021, SILVA, 2022). The doctor at the largest clinic hospital in Brazil makes a terrifying revelation. He would be treating children and young people who would have developed Parkinson's (it would deserve a publication, it must be a discovery because I did not find any article with this relationship), mental disorders, regression of cognitive capacity, heart problems because they had not been treated with the magic cocktail against Covid-19, which would have avoided all these consequences. That is to say that the other doctors would have let this happen despite the relatively easy possibility of avoiding such suffering. Practically a crime against humanity, and especially against children, which could have been prevented with cheap drugs. It was said by one of the most requested pediatricians in Brazil that even the scientific literature indicates the rarity of serious cases among children of Covid-19 (LEE, HU, *et al.*, 2020). Something that the pediatrician himself contradicts

when he suggests that schools should be reopened as soon as possible. Look at the Swedish example, they should never have been closed. It is difficult to understand the reasoning because, according to the professor of medicine at USP, the effects of the disease on children's minds can be devastating. I forgot, there will be no problem if hydroxychloroquine and the cocktail of adjuvant drugs are used on a large scale. He makes no mention of the possible side effects, such as cardiac effects, of the inappropriate use of hydroxychloroquine (MUBAGWA, 2020), a very important drug, but against lupus (RAINSFORD, PARKE, *et al.*, 2015), osteoarthritis (BRYANT, DES ROSIER, *et al.*, 1995) and malaria, for example, indications already proven by science. He also refrained from saying anything about the obvious risks of taking a set of drugs that are not effective against COVID-19 (HENTSCHKE-LOPES, BOTTON, *et al.*, 2022); for him (and for the journalists who applaud him), the risk was social isolation and vaccines.

The line of thought continues almost deliriously; Dr Wong says that one could never indicate for the elderly to stay at home, that it was the Fake News who said that. Fake News? Practically the entire international scientific community

(GUO, LIU, *et al.*, 2020) and practically every government in the world has indicated this behavior, is a Fake News of Fake News. Then it talks about the risks of positive and negative nanoparticles in the brain, whatever that means. But explaining this concept gives a frightening example: when a person has a benign tumor and thinks he will die, the tumor becomes malignant. On the other hand, patients who have metastasis, but elaborate positive thoughts, will heal miraculously. We Brazilians are at the mercy of this kind of logic for the treatment of cancer. For him, the thought and memory of Covid-19 at home are much worse than the disease itself. The pandemic would not be so serious; staying at home would be much worse. He ends this reasoning by indicating several countries, especially Asian ones, by justifying his conclusions, again forgetting that many of these countries followed exactly the line of confrontation that he criticizes throughout his interview.

Dr Wong questions emphatically, do we need to run after the vaccine to get herd immunity? A speech almost identical to the one by Bolsonaro recently. The professor of medicine practically recommends that no one take any of these vaccines produced so overwhelmingly, herd immunity

(SRIDHAR, GURDASANI, 2021) could be achieved by leaving home and facing the pandemic. Nobody knows in which country this worked, but it must be a typically Brazilian solution, repeatedly suggested by the leader of Brazilian denialism, the President of the Republic. He reiterates that the only way is early treatment, says that panic is what kills and that with courage and optimism, we can overcome the virus. We would probably activate the positive mental nanoparticles, which will protect us efficiently, almost a storyline of a science fiction B movie against the biggest pandemic of the last 100 years. He ends this part by saying that staying at home is worse than catching the virus, stating again that in the summer, the pandemic will go away in Brazil, a tremendous embarrassment before the real world.

The USP professor walks to the end of the interview with frightening and irresponsible examples to support the denial of any vaccine against the new coronavirus, which must have been celebrated effusively by the anti-vaccine movement. He affirms that we must be careful with new vaccines and points out that the rotavirus vaccine, a formidable conquest of the infantile medicine, would have been launched, caused an incalculable number of "guts knots" in

children and would have been removed of the market, to be launched again later. This is true, but note the context he is talking about, the rotavirus vaccine is very safe today and should be recommended for all children to avoid a diarrhea that can be severe (DENNEHY, 2008). Imagine the impact of this speech on a pediatrician to zealous parents with their children, many who watched will probably give up vaccinating the children. He reaffirms the risks through the example of the dengue vaccine. His speech about the polio vaccine is confusing, stating that the greatest risk of developing paralysis today is the vaccine itself, a great gift to the anti-vaccine movement. Furthermore, it ends up triumphantly declaring that the virus is small; we would have turned it into a monster. There is no need to say anything more about this interview, but maybe about its possible consequences.

At the beginning of December 2020, the video with this interview had more than 467.699 views, and practically all the commentaries (37,000) were positive to what was said by Dr Wong; only 625 were negative. He is an opinion maker, and many of these almost half a million internet users are too. Many comments indicate that they will change behavior from the doctor's speech, a danger in times of pandemic (and the tragic

consequences of this kind of vision would come in the year 2021 in Brazil), no reflection on the pediatrician's totally wrong forecast. The comments say that finally, someone spoke the truth about the pandemic, how to face it and showed how we are being deceived by doctors, science and especially the press. Some suggest that Dr Wong be appointed Minister of Health of Brazil; as fearful as this proposition is, these followers should not worry, the line of thought of the doctor is already represented in this government. Among the comments, I highlight an old man (among others) who insinuates a change in behavior, because of the interview, hopefully not one of the almost 1000 daily victims of Covid-19, in early summer, diverging from the absurd prediction of the USP professor.

Wong passed away in January of that year, as was reported at the time. He had died, aged 73, of cardiac arrest. Hospitalized before Christmas 2020 with a condition of "pressure drop and malaise", he had been diagnosed with gastric ulcer and digestive hemorrhage. During his hospitalization, his condition evolved quickly and negatively; he eventually died after cardiorespiratory arrest. A relatively normal process for someone aged 73, with no apparent relation to the pandemic. Thus I abdicated the publication of this text in

respect to the memory of the doctor, his family, and friends, and all his relevant services rendered to medicine and, in special to pediatrics and toxicology.

But some events occurred in 2021 in Brazil and made me revise the decision to seek publication. The first was the escalation of the Covid-19 pandemic in Brazil; in the first semester, Dr Wong's predictions could not have been more wrong. Exactly in the month of the renowned pediatrician's death, the height of the Brazilian summer, a new dreadful pandemic crisis hit the hot, humid, tropical city of Manaus, the capital of the Amazon (TAYLOR, 2021). Contrary to what Dr Wong had claimed and had said they could write what he said, the heat did not effect on the spread of the disease, but negligence and denialism did. The Bolsonaro government followed the doctors' recommendations like the late (SILVA, 2021b) and sent the useless anti-Covid-19 and potentially dangerous Chloroquine (SILVA, 2022) to the capital of Amazonia. The result was many sick people and most deaths, as well as dramatic scenes of people suffocating from lack of oxygen travelling around the world.

Throughout the first half of 2021, cases and deaths from Covid-19 in Brazil rose exponentially, despite many doctors following the prescription of Dr Wong

and his minions (SILVA, 2021d), prescribing drugs that once again proved to be completely ineffective (SILVA, 2022, SILVA, 2021a) and that most likely contributed to the high Brazilian abnormal mortality in the pandemic (RANZANI, BASTOS, *et al.*, 2021). Contrary to the epidemiological prognosis of the late doctor, who had predicted the end of the pandemic. He could not be more wrong, as he envisioned (and disclosed this) that the pandemic would end naturally in the summer of 2021, as 2021 was the deadliest pandemic in Brazil, with more than twice as many deaths as in 2020. These numbers only decreased when vaccination was extended in Brazil from mid-2021, once again going completely against the unfounded fears of the USP pediatrician, who campaigned massively against vaccines, announcing risks that were never confirmed, which put in negative perspective the scientific achievement of the rapid discovery of immunizers.

However, all this could have been circumstantial, and for the memory of the prolific doctor of the respected university, I should have left this text in some corner of the computer and deleted it might have been the right decision. However, when the Parliamentary Inquiry Commission (CPI) of the

Brazilian Senate, implemented during the year 2021 to demonstrate the erratic conduct of the Bolsonaro government during the pandemic, found a series of irregularities in the health plan company (Prevent Senior) that treated Dr Wong, I realized it was important to publish these considerations.

The name of the well-known doctor was then back in the press, with the revelation that the defender of useless drugs would have died due to Covid-19, which would have been omitted by the company that treated him. This company, Prevent Senior, was one of the great advertisers of the supposed effectiveness of these drugs without any proof and used them on a large scale (LESCURA, XAVIER, *et al.*, 2022). Therefore, the disclosure of an important doctor, one of the great propagators of this hoax, dying in the company that followed the same line would be very bad for business and the marketing of chloroquine and the company itself. To make matters worse, this company was used as an example of success in confronting the pandemic by President Bolsonaro precisely because of the use of drugs like chloroquine and the "research" that had been conducted to prove its effectiveness.

Conclusion

This text focused on how this interview with a prestigious doctor and researcher in Brazil with an important career and who was always in the media promoting health to the population, but who, in the end, took the path of scientific denialism, wrapped in a web of ideological, political and financial interests, happened. Once again, unfortunately, not even after his death has Dr Wong's name ceased to be used for the denial of science and logic. In a letter published by his family, it was described his illness until his death, criticizing the disclosure of the information that he had been infected by Covid-19, but confirming it, pointing out that he would have received all the early treatment, with all the main medications (hydroxychloroquine, Ivermectin and Azithromycin) and even a frightening introduction of ozone in the intestine (ozone therapy (MARTÍNEZ-SÁNCHEZ, RE, 2012)), with the approval of his family and the medical team that treated him.

The absurd and unscientifically based anal treatment, ozone therapy, and the digestive bleeding Dr Wong had may be unrelated, but it is a big coincidence. His rapid worsening and the use of that cocktail of useless Covid-19 drugs may also be coincidental; however, the question remains: if there was a belief

that there was no such relationship, why was a false cause of death publicized? The explanation is simple, not even the defenders of the Health Plan company and preventive and early treatment can defend the indefensible, so it is better to falsify, to hide. It is a very lamentable outcome of a life history marked by work in favor of good medicine and good science, but everything leads us to believe he was a victim of the dangerous scientific denialism that he insisted on following, prescribing, and divulging. Brazilian denialism kills people (SILVA, 2021e), and reputations.

Dr Wong, unfortunately, passed away and ended up not seeing how wrong his predictions were. However, it is expected that all the others involved, television and radio channels, besides the journalists who participated in the magazine, will be held responsible for spreading false information, which may (and should) have disoriented many and caused many deaths in the middle of the pandemic. In May 2023, the first sentences will be issued, one of 10 million reais and another of 45 million reais, against medical entities, companies, laboratories and an "educational" center for spreading false news that put the population at risk and may it be the first of many others to inhibit this kind of practice in the future.

References

- AQUINO, E. M. L., SILVEIRA, I. H., PESCARINI, J. M., *et al.* "Social distancing measures to control the COVID-19 pandemic: potential impacts and challenges in Brazil", **Ciencia & saude coletiva**, v. 25, p. 2423–2446, 2020. .
- ATTFIELD, R. "Postmodernism, value and objectivity", **Environmental values**, v. 10, n. 2, p. 145–162, 2001. .
- AXFORS, C., SCHMITT, A. M., JANIAUD, P., *et al.* "Mortality outcomes with hydroxychloroquine and chloroquine in COVID-19 from an international collaborative meta-analysis of randomized trials", **Nature Communications**, v. 12, n. 1, p. 2349, 2021. DOI: 10.1038/s41467-021-22446-z. Disponível em: <https://doi.org/10.1038/s41467-021-22446-z>.
- BROOKER, P. **Modernism/postmodernism**. [S.l.], Routledge, 2014.
- BRYANT, L. R., DES ROSIER, K. F., CARPENTER, M. T. "Hydroxychloroquine in the treatment of erosive osteoarthritis.", **The Journal of rheumatology**, v. 22, n. 8, p. 1527–1531, 1995. .
- BUČKOVÁ, Z. "The Culture of Narcissism in the Postmodern Society",

- Marketing Identity**, v. 6, n. 1/2, p. 37–49, 2018. .
- COREY, L., MASCOLA, J. R., FAUCI, A. S., *et al.* "A strategic approach to COVID-19 vaccine R&D", **Science**, v. 368, n. 6494, p. 948–950, 2020. DOI: 10.1126/science.abc5312. .
- COSENTINO, G. **Social media and the post-truth world order**. [S.l.], Springer, 2020.
- DENNEHY, P. H. "Rotavirus vaccines: an overview", **Clinical microbiology reviews**, v. 21, n. 1, p. 198–208, 2008. DOI: 10.1128/CMR.00029-07. .
- FERGUSON, N., LAYDON, D., NEDJATI GILANI, G., *et al.* **Report 9: Impact of non-pharmaceutical interventions (NPIs) to reduce COVID19 mortality and healthcare demand**. . London, [s.n.], 2020.
- FUNNELL, S. G. P., DOWLING, W. E., MUÑOZ-FONTELA, C., *et al.* "Emerging preclinical evidence does not support broad use of hydroxychloroquine in COVID-19 patients", **Nature Communications**, v. 11, n. 1, p. 1–4, 2020. DOI: 10.1038/s41467-020-17907-w. .
- GROUP, R. C. "Effect of hydroxychloroquine in hospitalized patients with Covid-19", **New England Journal of Medicine**, v. 383, n. 21, p. 2030–2040, 2020. DOI: 10.1056/NEJMoa2022926. .
- GUO, Y., LIU, X., DENG, M., *et al.* "Epidemiology of COVID-19 in older persons, Wuhan, China", **Age and Ageing**, v. 49, n. 5, p. 706–712, 2020. DOI: 10.1093/ageing/afaa145. .
- HABIB, H. "Has Sweden's controversial covid-19 strategy been successful?", **bmj**, v. 369, 2020. DOI: 10.1136/bmj.m2376. .
- HAYNES, B. F., COREY, L., FERNANDES, P., *et al.* "Prospects for a safe COVID-19 vaccine", **Science translational medicine**, v. 12, n. 568, 2020. DOI: 10.1126/scitranslmed.abe0948. .
- HENTSCHEKE-LOPES, M., BOTTON, M. R., BORGES, P., *et al.* "Sales of "COVID kit" drugs and adverse drug reactions reported by the Brazilian Health Regulatory Agency", **Cadernos de saúde pública**, v. 38, p. e00001022, 2022. .
- KARNON, J. "A Simple Decision Analysis of a Mandatory Lockdown Response to the COVID-19 Pandemic.", **Applied Health Economics and Health Policy**, 2020. .
- LEE, P.-I., HU, Y.-L., CHEN, P.-Y., *et al.* "Are children less susceptible to COVID-19?", **Journal of Microbiology, Immunology, and Infection**, v. 53, n. 3, p. 371–372, 2020. DOI: 10.1016/j.jmii.2020.02.011. .
- LESCURA, L. M., XAVIER, G. M.,

- CHAGAS, C. L. R., *et al.* "As implicações bioéticas da Comissão Parlamentar de Inquérito da Pandemia: o caso Prevent Senior", **Cadernos Ibero-Americanos de Direito Sanitário**, v. 11, n. 4, p. 52–66, 2022. .
- LOVLIE, L. "Postmodernism and subjectivity", **The Humanistic Psychologist**, v. 18, n. 1, p. 105–119, 1990. .
- LURIE, N., SAVILLE, M., HATCHETT, R., *et al.* "Developing Covid-19 vaccines at pandemic speed", **New England Journal of Medicine**, 2020. DOI: 10.1056/NEJMp2005630. .
- MARTÍNEZ-SÁNCHEZ, G., RE, L. "Rectal administration and its application in ozonotherapy", **Intl J Ozone Therapy**, v. 11, p. 41–49, 2012. .
- MOORTHY, V., RESTREPO, A. M. H., PREZIOSI, M.-P., *et al.* "Data sharing for novel coronavirus (COVID-19)", **Bulletin of the World Health Organization**, v. 98, n. 3, p. 150, 2020. DOI: 10.2471/BLT.20.251561. .
- MUBAGWA, K. "Cardiac effects and toxicity of chloroquine: a short update.", **International Journal of Antimicrobial Agents**, p. 106057, 2020. DOI: 10.1016/j.ijantimicag.2020.106057. .
- PETERS, M., MARSHALL, J. **Individualism and community: Education and social policy in the postmodern condition.** [S.l.], Routledge, 2002. v. 4.
- RAINSFORD, K. D., PARKE, A. L., CLIFFORD-RASHOTTE, M., *et al.* "Therapy and pharmacological properties of hydroxychloroquine and chloroquine in treatment of systemic lupus erythematosus, rheumatoid arthritis and related diseases", **Inflammopharmacology**, v. 23, n. 5, p. 231–269, 2015. .
- RANZANI, O. T., BASTOS, L. S. L., GELLI, J. G. M., *et al.* "Characterisation of the first 250 000 hospital admissions for COVID-19 in Brazil: a retrospective analysis of nationwide data", **The Lancet Respiratory Medicine**, v. 9, n. 4, p. 407–418, 2021. DOI: 10.1016/S2213-2600(20)30560-9. .
- RICARD, J., MEDEIROS, J. "Using misinformation as a political weapon: COVID-19 and Bolsonaro in Brazil", **The Harvard Kennedy School Misinformation Review**, 2020. DOI: 10.37016/mr-2020-013. .
- ROCHLIN, N. "Fake news: belief in post-truth", **Library hi tech**, 2017. .
- RUBIN, S. A., PLOTKIN, S. A., PLOTKIN, O. "Mumps vaccine", **Vaccines**, v. 6, p. 419–446, 2012. .
- SHARIFI, A., KHAVARIAN-GARMSIR, A. R. "The COVID-19

- pandemic: Impacts on cities and major lessons for urban planning, design, and management", **Science of the total environment**, v. 749, p. 142391, 2020. .
- SILVA, H. M. "Antibiotics against viruses: Brazilian doctors adrift.", **Infection Control & Hospital Epidemiology**, p. 1–5, 2021a. DOI: 10.1017/ice.2021.434. .
- SILVA, H. M. "Medicines and Illusions in the fight against COVID-19 in Brazil", **Ethics, Medicine and Public Health**, v. 16, n. November 2020, p. 100622, 2021b. DOI: 10.1016/j.jemep.2020.100622. Disponível em: <https://doi.org/10.1016/j.jemep.2020.100622>.
- SILVA, H. M. "O Principal Remédio de Combate À Covid-19 No Brasil: Uma Ilusão Médica", **Revista Portuguesa de Ciências e Saúde**, v. 3, n. 2, p. 45–54, 2022. .
- SILVA, H. M. "The (in) competence of the Bolsonaro government in confronting Covid-19.", **Infection Control & Hospital Epidemiology**, p. 1–3, 2021c. DOI: 10.1017/ice.2021.431. .
- SILVA, H. M. "The Brazilian Scientific Denialism Through The American Journal of Medicine", **The American Journal of Medicine**, p. 2019–2020, 2021d. DOI: 10.1016/j.amjmed.2021.01.003.
- Disponível em: <https://doi.org/10.1016/j.amjmed.2021.01.003>.
- SILVA, H. M. "The danger of denialism: lessons from the Brazilian pandemic", **Bulletin of the National Research Centre**, v. 45, n. 1, p. 55, 2021e. DOI: 10.1186/s42269-021-00516-y. Disponível em: <https://doi.org/10.1186/s42269-021-00516-y>.
- SILVA, H. M. "Tratamento profilático contra a Covid-19 no Brasil, um risco inútil.", **Revista Saúde. com**, v. 18, n. 1, 2022. .
- SOHRABI, C., ALSAFI, Z., O'NEILL, N., *et al.* "World Health Organization declares global emergency: A review of the 2019 novel coronavirus (COVID-19)", **International Journal of Surgery**, 2020. DOI: 10.1016/j.ijssu.2020.02.034. .
- SRIDHAR, D., GURDASANI, D. "Herd immunity by infection is not an option", **Science**, v. 371, n. 6526, p. 230–231, 2021. .
- TAYLOR, L. "Covid-19: Is Manaus the final nail in the coffin for natural herd immunity?", **bmj**, v. 372, 2021. .
- VON BÜLOW, M., ABERS, R. N. "Denialism and Populism: Two Sides of a Coin in Jair Bolsonaro's Brazil", **Government and Opposition**, p. 1–19,

2022. .

WALKER, P. G. T., WHITTAKER, C.,
WATSON, O., *et al.* "The Global
Impact of COVID-19 and Strategies for
Mitigation and Suppression", n. March,
p. 1–19, 2020. DOI: 10.25561/77735.

Disponível em:

<http://hdl.handle.net/10044/1/77735>.

YAMEY, G., SCHÄFERHOFF, M.,
HATCHETT, R., *et al.* "Ensuring global
access to COVID-19 vaccines", **The**

Lancet, v. 395, n. 10234, p. 1405–1406,
2020. DOI: 10.1016/S0140-

6736(20)30763-7. .

YARMOL-MATUSIAK, E. A.,
CIPRIANO, L. E., STRANGES, S. "A
comparison of COVID-19
epidemiological indicators in Sweden,
Norway, Denmark, and Finland",

**Scandinavian journal of public
health**, v. 49, n. 1, p. 69–78, 2021. .