

R E V I E W

Covid-19 pandemic: an unconventional social media. A way to solve unresolved health issues?

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Abstract. Over the last decade, social media has come to influence human lives in an unprecedented manner and have played a leading role in the Covid-19 pandemic. On one hand, social media has increased the degree of clarity and democracy in sharing scientific data on Covid-19; on the other hand, it has mined democracy by increasing the credibility of personal opinions. Mass media and social media refer to a diverse array of media technologies that reach a large audience via mass communication. It is our opinion that the Covid-19 pandemic itself should be considered a form of social media. Conventional media has taken advantage of this unexpected and not-developed media to expand its capacity of distribution. The name we propose for this new media is pandemic media; a strong media capable to reach the largest audience and promote unresolved health issues, like the importance of washing hands, the need to get vaccinated, the fight against presenteeism, and the usefulness of telemedicine. (www.actabiomedica.it)

Key words: COVID-19 pandemic, social media, vaccine hesitancy, washing hands, presenteeism, telemedicine

Introduction

Over the last decade, social media has come to influence human lives in an unprecedented manner for scale and magnitude. Medicine has not been left untouched by its impact. Mass media and social media platforms have played a leading role in the major health crisis of the 21st Century, the Covid-19 pandemic (1). Accordingly, to the Oxford Dictionary, mass media are considered sources of information that reach and influence large numbers of people; whilst social media are websites and applications that enable networking between users. Interestingly, in the once-in-a-generation situation of a widespread lockdown, the limit of physical mobility has led an entire generation of home-bound individuals to rediscover social media platforms with renewed depth and interest (1).

During the Covid-19 pandemic social media audience has been hungry for clarifications that the

professional community and stakeholders did not provide immediately, or provided partially, because of uncertainties. Thus, the masses have been overwhelmed by unanswered questions and they found comfort in the bewildering choices in back-of-the-envelope calculations, whose loose criteria might explain why the approaches to the pandemic were so disjointed (2). Since little was known about Covid-19 and its causative agent SARS-CoV-2, various fake news, misinformation, and rumors had time to spread across the digital media (3). In this context of unprecedented insecurities, every kind of information found fertile ground for growing. Interestingly, the rapid spread of misinformation and opinions via social media platforms such as Twitter, Facebook, and YouTube became a vital tool for governments and public health authorities. On one hand, the diffusion of social media has increased the degree of clarity and democracy in sharing scientific data on Covid-19. However, on the other

hand, it has mined democracy by increasing the degree of credibility of personal opinions; often reduced to very few influential people (4). The above-mentioned scenario creates panic, fear, and anxiety among people, and hence predisposes them to various mental health conditions, including the young generations (5). Mitigating the *virulence* of rumors, fake news and misinformation during the Covid-19 pandemic was thus crucial to guide individual wellbeing and to safeguard democracy.

Mass media and social media, as briefly reported above, refer to a diverse array of media technologies that reach a large audience via mass communication. For these reasons, the Covid-19 pandemic itself should be considered a form of social media. The narration of the pandemic, which has reached and influenced people all over the world and has improved global networking, should be considered a non-technological (hence, unconventional) form of media. Conventional media has also taken advantage of this unexpected and not-developed media to expand its capacity of distribution. Indeed, mass media and social media have used the recent pandemic for entertainment purposes during lockdown as well as for dissemination of educational content (6). The name we propose for this new media is *pandemic media*; a strong media able to reach the largest audience by caring about the subject dearest to all, our health.

From this perspective, we believe that the Covid-19 pandemic could become the *perfect medium* for unresolved health issues, educational messages, and programs of global interest. This *pandemic media* can be deployed by health institutions to carry the flag of essential medical issues; for which resources have been invested in the past decades but without the hoped results.

Pandemic media in the history

Infectious diseases have always posed a major threat to humanity and have resulted in high mortality and morbidity throughout history. Currently, the burden of communicable diseases remains very high in all age groups worldwide. Furthermore, the pandemic of Covid-19 has once again highlighted the enormous public health impact of communicable diseases (7).

As with information, two factors can determine the ability of epidemics to influence public opinion: the extent of the spread and the novelty of the event.

The history of medicine offers several examples.

The Justinian Plague (c. 541-750 AD), the first major pandemic in Mediterranean history, is increasingly used to explain significant demographic, political, social, economic and cultural changes in Late Antiquity (c. 300-800 AD) (8).

The great spread of the plague in the Middle Ages led to the death of about half of the European population, regardless of their wealth, social position or religious affiliation.

It is no coincidence that the years of the Black Death set in motion the cultural revolution that led to humanism and anthropocentrism, in which people began for the first time to think and learn about themselves as human beings instead of focusing only on God and religion. There are many different attributes of humanism, such as anatomy, classicism, nature, realism and more (9).

The Spanish flu was of shorter duration than the plague epidemics, but still had an undeniable impact on society and public opinion, also because it was the first time that a pandemic was present in the mass media (10).

The above-mentioned diseases have shaped human history in a dramatic way, with events that can be roughly defined with a beginning and an end date. Other pathologies, such as tuberculosis, have established themselves as endemic diseases and have been timeless enemies for some peoples, changing their customs and traditions (11).

The spread of new diseases manages to arouse great public interest. For example, syphilis, which is considered an imported disease from the New World, forced the scientific community to question all the knowledge that had been considered complete and unchangeable until then. A decisive event for the decline of dogmatic medicine (12).

The 1980s saw a drastic decline in sexual transmitted diseases (STDs) cases, presumably due to a change in behavior in response to the emergence of HIV/AIDS (a previously unknown disease), the associated public health campaigns and the high mortality rate of AIDS at that time (13).

Given that the Covid-19 pandemic is characterized by both a great diffusion and the novelty of the event, it will be interesting to explore how it can positively change customs and practices in the years to come.

In this article we consider three aspects related to public health: vaccination, hand hygiene, telemedicine and the phenomenon of presenteeism.

Vaccination

Vaccine hesitancy was included in the 2019 list of major health problems by the World Health Organization (14). It is defined by the SAGE working group as “the delay in acceptance or refusal of vaccination despite the availability of vaccination services” (15). Immunization refusal is a multifactorial phenomenon that varies by geographic, social, demographic, economic, and cultural context (7).

Aversion to vaccination dates back to the first vaccine. In the 1800s, Edward Jenner’s efforts to spread cowpox vaccination against smallpox sparked significant protests. The clergy protested the unnaturalness of using animal infections on humans. Parents protested against the invasiveness of the procedure. Others questioned the scientific basis for the contagion and the effectiveness of the vaccine (16).

The vaccine was immediately hailed by political governments as a great scientific advance and supported by legislation. Throughout the Napoleonic Empire, vaccination campaigns began as early as the beginning of the 19th century (17), and Britain successfully introduced universal smallpox vaccination in 1855.

Nevertheless, the population’s hesitant attitude towards vaccination could not be overcome. In Britain, an anti-vaccination movement led to the law being repealed in 1895.

The mass media available in the 19th century also helped to increase hesitation about vaccination. For example, newspaper cartoonists illustrated the public’s fears by depicting cow heads growing out of the skin of the vaccinated (16).

Vaccine hesitancy has played a major role in the Covid-19 pandemic.

Recent evidence shows that people between the ages of 30 and 70 are more likely to be reluctant to be vaccinated than people in other age groups. The different distribution of vaccination reluctance by age may be related to differences in social media exposure, which has been identified as an important factor in skepticism about Covid-19 vaccination (7).

In addition, the pandemic caused major disruptions in vaccination programs worldwide and has increased the risk of outbreaks of vaccine-preventable diseases, especially in low- and middle-income regions (18,19).

But can the pandemic media play a positive role in all this?

The first encouraging signs are already visible.

Like vaccine hesitancy, the global influenza pandemic was included by the World Health Organization (WHO) among the major health concerns in 2019 (14). Some studies have found that during the recent pandemic, the willingness to get vaccinated against influenza is again positively correlated with the willingness to get vaccinated against SARS-Cov-2 (20).

Once the pandemic will be over, we will find out whether this unconventional mass media has achieved its eagerly awaited goal.

It is quite possible that the widely acknowledged need for a coronavirus vaccine will increase public perceptions of susceptibility to infection and appreciation for vaccines in general, leading to higher vaccination coverage once the pandemic is over. Stakeholders, such as governments and the World Health Organization (WHO), should seize this moment to build on these positive effects by planning renewed and reinvigorated vaccination programs for the post Covid-19 period (21).

Hand hygiene

Hand hygiene is the single most important measure to reduce healthcare-associated infections and prevent the spread of antimicrobial resistance. This is the sentence with which most publications on hand hygiene in the medical literature begin. But why do we keep repeating it more than 150 years after the publication of Ignaz Semmelweis’ pioneering monograph

on the subject? One might be tempted to regard it as a truism (22).

The fact that hand hygiene had to follow a difficult path, despite the simplicity of the gesture, allows us to understand its history.

Unlike vaccines, the first opponent of Semmelweis' theories was the scientific community, which wasn't convinced of the efficacy of his discovery until 20 years after his death. Indeed, the Hungarian obstetrician also had several personal and professional misfortunes because of his beliefs (23).

In modern times, our culture is comparatively obsessed with cleanliness, but hand hygiene compliance remains low. The World Health Organisation's (WHO) commitment to making hand hygiene a global standard of quality care is remarkable, thanks in part to the efforts of thousands of individuals and institutions around the globe (24). Nevertheless, this important message never managed to get people's attention as it did during the pandemic period.

Internet searches suggest that more people have been proactively engaged in hand hygiene since the early months of the pandemic (25). In addition, other authors have focused attention on the challenges and opportunities related to antimicrobial resistance in the Covid-19 era.

Could the media coverage of the Covid-19 pandemic have finally effectively voiced Semmelweis' warnings?

Telemedicine

Weak primary health care was also included by the World Health Organization (WHO) among the major health concerns in 2019 (14).

Primary health care is usually the first point of contact people have with their health care system, and ideally should provide comprehensive, affordable, community-based care throughout life.

Primary health care can meet the majority of a person's health needs during their life. Health systems with strong primary health care are needed to achieve universal health coverage.

Telemedicine and remote management of patients are becoming indispensable resources for healthcare

systems worldwide and will ultimately improve the management of patients and the quality of care.

Telehealthcare in the home-based setting has a long history. For example, an 1879 article in the *Lancet* talked about using the telephone to reduce unnecessary office visits. In 1925, a cover of *Science and Invention* magazine showed a doctor diagnosing a patient by the radio and envisioned a device that would allow for the video examination of a patient over a distance (26).

Patient preference and acceptability is one challenge in home-based telehealth. Many studies show attrition with the use of these technologies after the pilot ends.

During the COVID-19 pandemic, telemedicine has emerged worldwide as an indispensable resource to improve the surveillance of patients, curb the spread of disease, facilitate timely identification and management of ill people, and, most importantly, guarantee the continuity of care of frail patients with multiple chronic diseases (27,28).

Major issues to be addressed to enable large-scale implementation of telemedicine include: improving healthcare professionals' and patients' awareness of and willingness to use telemedicine; overcoming inequalities among countries and population subgroups due to technological, infrastructural, economic, and law barriers (28).

Can the COVID pandemic improve politicians', healthcare professionals, and patient's awareness of telemedicine and willingness to rely on it?

Presenteeism

Presenteeism is generally understood to mean people who attend work despite being ill. Compared to absenteeism, the concept of presenteeism is relatively little researched. However, presenteeism is a worldwide phenomenon that is widespread among workers at all levels of the hierarchy, and it is believed to cause greater harm to a company through lost productivity, future poor health, and sick leave than the costs attributable to absenteeism (29).

Although presenteeism occurs in all diseases, it has always had a special social significance in infectious diseases.

Workers who continue to work despite symptoms of infectious disease pose a risk to others, especially people who are vulnerable to viral and bacterial pathogens, such as patients, the elderly, and children.

The problems associated with presenteeism are well known to the public: A representative survey by Canada Life Group found that 82% of workers in the UK said they had become ill because a colleague had come to work when they were unwell (29).

The Covid-19 pandemic has exacerbated the fragile balance of maintaining adequate staffing and skill mix, leading to presenteeism in healthcare teams and facilities in many countries (30).

More than ever, however, going to work while sick is being challenged and will never be perceived in the same way as it was before the recent pandemic. Going to work with a contagious illness like influenza, which was normal in the past and sometimes supported by companies with a climate and culture of presenteeism, is unlikely to be observed or even reinforced (31).

Conclusion

Could the media coverage of the Covid-19 pandemic answer these unresolved medical issues? Could this unexpected new form of social media provide benefits to essential healthcare matters including antimicrobial resistance, social determinants of health, mistrust in the medical class, and so on?

Will healthcare professionals, stakeholders, and politicians know how to use the pandemic as a medium to transform misfortune into an opportunity for global health promotion?

May 5, 2023, will remain a historic day for the Covid-19 pandemic. On that date, the World Health Organization officially declared the end of the health emergency that broke out just over three years earlier, on March 11, 2020.

Although many studies have been carried out in these three years, it is believed that during the pandemic structural and organizational problems have been overly influential bias that prevented the expected results from being collected.

History also teaches us that the social impact of pandemics has long-term consequences that are

perhaps even more important than the immediate ones.

We believe that the phase of evaluating whether the pandemic was a good mass media or not is really beginning now, in the “calm after the storm”, to quote a poem by the famous Italian poet Giacomo Leopardi.

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References

1. Anwar A, Malik M, Raees V, Anwar A. Role of Mass Media and Public Health Communications in the COVID-19 Pandemic. *Cureus*. 2020;12(9):e10453. doi: 10.7759/cureus.10453.
2. Fischhoff B. Making Decisions in a COVID-19 World. *JAMA*. 2020;324(2):139–140. doi:10.1001/jama.2020.10178.
3. Moscadelli A, Alhora G, Biamonte MA et al. Fake News and Covid-19 in Italy: Results of a Quantitative Observational Study. *Int J Environ Res Public Health*. 2020;17(16):5850. doi: 10.3390/ijerph17165850.
4. Orso D, Federici N, Copetti R, Vetrugno L, Bove T. Infodemic and the spread of fake news in the COVID-19- era. *Eur J Emerg Med*. 2020;27(5):327-328. doi: 10.1097/MEJ.0000000000000713.
5. Singh S, Roy D, Sinha K, Parveen S, Sharma G, Joshi G. Impact of COVID-19 and lockdown on mental health of children and adolescents: A narrative review with recommendations. *Psychiatry Res*. 2020;293:113429. doi: 10.1016/j.psychres.2020.113429.
6. González-Padilla DA, Tortolero-Blanco L. Social media influence in the COVID-19 Pandemic. *Int Braz J Urol*. 2020;46(suppl.1):120-124. doi: 10.1590/S1677-5538.IBJU.2020.S121.
7. Scognamiglio F, Gori D, Montalti M. Vaccine Hesitancy: Lessons Learned and Perspectives for a Post-Pandemic Tomorrow. *Vaccines*. 2022; 10(4): 551.
8. Meier M. The ‘Justinianic Plague’: The economic consequences of the pandemic in the eastern Roman empire and its cultural and religious effects. *Early Medieval Europe*. 2016;24(3):267-292.

9. Ross CA. Fear and disease: Black plague and cultural interactions throughout recorded history. Fullerton: California State University; 1995.
10. Simonetti O, Martini M, Armocida E. COVID-19 and Spanish flu-18: review of medical and social parallelisms between two global pandemics. *Journal of preventive medicine and hygiene*. 2021;62(3):E613.
11. Armocida E, Martini M. Tuberculosis: a timeless challenge for medicine. *J Prev Med Hyg*. 2020;61(2):E143-E147. doi: 10.15167/2421-4248/jpmh2020.61.2.1402.
12. Martini M, Gazzaniga V, Barberis I, Bragazzi NL, Parodi A, Armocida E. De morbo gallico omnia quae extant apud omnes medicos cuiuscunque nationis: the sixteenth-century collection of Luigi Luigini. *Infez Med*. 2019;27(3):350-352. PMID: 31545783.
13. Mohammed H, Blomquist P, Ogaz D, et al. 100 years of STIs in the UK: a review of national surveillance data. *Sex Transm Infect*. 2018;94(8):553-558. doi: 10.1136/sextrans-2017-053273.
14. World Health Organization (WHO). Ten Threats to Global Health in 2019. 2019. Available online: <https://www.who.int/newsroom/spotlight/ten-threats-to-global-health-in-2019> (accessed on 15 June 2023).
15. MacDonald NE; SAGE Working Group on Vaccine Hesitancy. Vaccine hesitancy: Definition, scope and determinants. *Vaccine*. 2015;33(34):4161-4. doi: 10.1016/j.vaccine.2015.04.036.
16. Jacobson RM, St Sauver JL, Finney Rutten LJ. Vaccine Hesitancy. *Mayo Clin Proc*. 2015;90(11):1562-8. doi: 10.1016/j.mayocp.2015.09.006.
17. Bazin H. Les membres du Comité Central de Vaccine, une poignée d'hommes qui ont bien mérité de leur patrie, et même de l'humanité. *Bull Acad Natl Med*. 2001;185(4):749-65. [French]. PMID: 11503361.
18. Basu S, Ashok G, Debroy R, Ramaiah S, Livingstone P, Anbarasu A. Impact of the COVID-19 pandemic on routine vaccine landscape: A global perspective. *Hum Vaccin Immunother*. 2023;19(1):2199656. doi: 10.1080/21645515.2023.2199656.
19. Ota MOC, Badur S, Romano-Mazzotti L, Friedland LR. Impact of COVID-19 pandemic on routine immunization. *Ann Med*. 2021;53(1):2286-2297. doi: 10.1080/07853890.2021.2009128.
20. Giacomelli A, Galli M, Maggi S, et al. Influenza Vaccination Uptake in the General Italian Population during the 2020-2021 Flu Season: Data from the EPICoVID-19 Online Web-Based Survey. *Vaccines (Basel)*. 2022;10(2):293. doi: 10.3390/vaccines10020293
21. Ali I. Impact of COVID-19 on vaccination programs: adverse or positive? *Hum Vaccin Immunother*. 2020;16(11):2594-2600. doi: 10.1080/21645515.2020.1787065.
22. Stewardson A, Allegranzi B, Sax H, Kilpatrick C, Pittet D. Back to the future: rising to the Semmelweis challenge in hand hygiene. *Future Microbiol*. 2011;6(8):855-76. doi: 10.2217/fmb.11.66
23. Kadar N, Romero R, Papp Z. Ignaz Semmelweis: the "Savior of Mothers": On the 200th anniversary of his birth. *Am J Obstet Gynecol*. 2018;219(6):519-522. doi: 10.1016/j.ajog.2018.10.036.
24. Vermeil T, Peters A, Kilpatrick C, Pires D, Allegranzi B, Pittet D. Hand hygiene in hospitals: anatomy of a revolution. *J Hosp Infect*. 2019;101(4):383-392. doi: 10.1016/j.jhin.2018.09.003.
25. Lin YH, Liu CH, Chiu YC. Google searches for the keywords of "wash hands" predict the speed of national spread of COVID-19 outbreak among 21 countries. *Brain Behav Immun*. 2020;87:30-32. doi:10.1016/j.bbi.2020.04.020.
26. Nesbitt TS. The evolution of telehealth: where have we been and where are we going. In: Board on Health Care Services; Institute of Medicine, eds. *The Role of Telehealth in an Evolving Health Care Environment: Workshop Summary* Washington (DC): National Academies Press; 2012.
27. Hincapié MA, Gallego JC, Gempeler A, Piñeros JA, Nasner D, Escobar MF. Implementation and Usefulness of Telemedicine During the COVID-19 Pandemic: A Scoping Review. *J Prim Care Community Health*. 2020 Jan-Dec;11:2150132720980612. doi: 10.1177/2150132720980612.
28. Omboni S, Padwal RS, Alessa T, et al. The worldwide impact of telemedicine during COVID-19: current evidence and recommendations for the future. *Connect Health*. 2022;1:7-35. doi: 10.20517/ch.2021.03.
29. Webster RK, Liu R, Karimullina K, Hall I, Amlôt R, Rubin GJ. A systematic review of infectious illness Presenteeism: prevalence, reasons and risk factors. *BMC Public Health*. 2019;19(1):799. doi: 10.1186/s12889-019-7138-x.
30. Ferreira AI, Mach M, Martinez LF, Miraglia M. Editorial: Presenteeism in the Aftermath of COVID-19: New Trends and Contributions Regarding Sickness Presence at Work. *Front Psychol*. 2022;13:854976. doi: 10.3389/fpsyg.2022.854976.
31. Tori K, Dinh TTH, Mather C. Healthcare Professional Presenteeism during a COVID-19 Outbreak in an Australian Rural Healthcare Environment: A Case Analysis. *Int J Environ Res Public Health*. 2021;18(16):8336. doi: 10.3390/ijerph18168336.

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