Trust in Medical Professionals after COVID-19

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On my honor as a University Student, I have neither given nor received unauthorized aid on this assignment as defined by the Honor Guidance for Thesis-Related Assignments

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Introduction

Trust is essential in the relationship between medical scientists and the public. Countless medical challenges such as the eradication of smallpox were only possible through the cooperation of the public, based off of recommendations from medical professionals (Miller & Sentz, 2006). The medical field is dependent on collective understanding and trust, illustrated by the success of widespread vaccination. Smallpox claimed the lives of millions at the eve of the 20th century and continued to do so until innovations in inoculation created the smallpox vaccine, which moved to mass production in the 1950s (*History of Smallpox Vaccination*, n.d.). Eradication of the disease was dependent on a cohesive, global decision to trust medical professionals to administer a vaccine whose mechanics were unknown to them. After the inoculation of enough people, transmission of the disease was impeded until its extinction. This example illustrates why it is so important to earn and care for the trust of the public.

In the context of life after the COVID-19 pandemic, it is imperative to determine if trust deteriorated during the pandemic, and if it did, how. A recent study from Pew Research Center compiled survey data from before and after the pandemic about public trust in medical scientists. It suggests that 22% of US adults have "not too much confidence" or no confidence at all in medical professionals in 2021, which is up from 15% of US adults in 2016 (Funk, 2022). This decreased confidence in medical professionals indicates there were factors in between the years of 2016 and 2021 that could have affected the way that the public perceives medical professionals. Based on the decreased confidence, I am interested in asking the question: What factors caused the breakdown of communication and trust between medical professionals and the public during COVID-19? The pandemic was a source of fear and conflict, and it led some people to begin to question the recommendations of their health care providers, and medical professionals are now under a spotlight of criticism. Examining the mechanics of COVID-19 is unique as it is a historically powerful example of an unpredicted pandemic.

At the surface level, there are two important aspects of COVID-19 events to consider using the study of Science, Technology, and Society (STS). The first aspect to consider is the technology itself and how the public is affected by the technology or scientific ideas. Relevant technologies and scientific ideas in this study would be COVID-19 treatments and vaccines as well as general knowledge of the virus, such as symptoms and risk, transmission abilities, and quarantine requirements. The second STS factor is the people responsible for the creation and implementation of the technology and knowledge. These actors include government health agencies, the health care system, medical professionals, and medical scientists such as biomedical engineers. Understanding the reasoning behind distrust of actors and relevant technological factors surrounding the COVID-19 pandemic has important implications. Uncovering the causes of distrust can give professionals the ability to reform communication, which is important for national health. The analyses included in this paper show how the actors and events of the COVID-19 pandemic caused a change in trust between the public and medical professionals due to due to three distinct mechanisms: *misinterpretation*, *misalignment*, and *misguidance*. First, the STS frameworks for analysis of the cases in this paper will be discussed. Next, I will provide three cases that exemplify different causes of distrust between medical scientists and the public specifically the *misinterpretation* of academic studies on hydroxychloroquine drugs, *misalignment* of priorities regarding primary care during the pandemic, and *misguidance* of vaccination recommendations. Finally, solutions for recovering

lost trust will be presented, such as transparency and education, with emphasis on harnessing the power of a tool unique to this day and age: social media.

STS Frameworks for Analysis

To examine how the breakdown of communication between medical professionals and the public occurred during the COVID-19 pandemic, the case will be explored through two STS frameworks, Social Construction of Technology (SCOT) and the Sociology of Scientific Knowledge (SSK). SCOT originated in the 1980s and is used to (1) identify technological change in society and (2) extrapolate and characterize the relationship between technology and society (Bijker, 2001). SSK takes a more specific approach to the social effect on the creation of technology. The major idea of SSK is that the creation of technology and science is dependent on the collaboration of a group of intellectuals (Mukerji, 2001). For example, pursuit of scientific knowledge could be affected by the morals and political leanings of involved scientists. An inherent assumption and tenet of both SSK and SCOT is that society shapes the growth and progress of technology and scientific development. SSK will be used to identify people involved in the creation of new COVID technology and what events caused individuals to question the intentions of medical professionals. SCOT will be used to identify innovation and determine how specific events influenced the public and their opinions on medical technology moving forward. The combination of these two STS frameworks will offer a comprehensive perspective of the actors involved in the COVID-19 response and how they affected the societal view of related scientific knowledge and people. In the following section, the cases will be introduced and will each be followed by an STS analysis as explained above.

Cases

Throughout the duration of the pandemic, there were many complications that originated in medical research that had the potential to cause distrust in the public. This analysis will review a few that stand out: contrasting information regarding hydroxychloroquine sulfate, decreased primary care such as routine exams and vaccinations, and vaccination side-effects (CDC, 2023).

Hydroxychloroquine sulfate and Chloroquine phosphate

In March of 2020, the FDA approved emergency use of hydroxychloroquine sulfate and chloroquine phosphate, anti-malarial drugs, for an alternative treatment of COVID-19 (Mayo Clinic, n.d.). Not two months later, the *Lancet* published a now retracted article that states there is no conclusive evidence that hydroxychloroquine and chloroquine have an impact on COVID-19 infection (Mehra et al., 2020). Current medical authorities now say that these drugs led to heart problems in some patients (Mayo Clinic, n.d.). To compound the complexity of this issue, desperate people stockpiled pharmaceutical and non-pharmaceutical versions of hydroxychloroquine sulfate and chloroquine phosphate. These drugs were taken without the advice of a medical doctor, and led to illness for many and death in one person who ingested non-pharmaceutical versions of these drugs, which can be bought commercially for use in aquariums (CDC, 2023). The events of this case are an example of a dynamic that leads to mistrust: *misinterpretation*. The diverse resources in the academic field are works-in-progress. They are resources that contribute to a pool of general experimental results that are peer reviewed and qualified by supporting experiments from additional scientists. They are not

necessarily meant as direct recommendations for drugs or new therapeutics. The *misinterpretation* of documents published by accredited institutions and the following events cause distrust in institutions and therefore medical scientists behind the work.

In the hydroxychloroquine case, the actors included in the identification and propagation of the drug as a possible resource are the researchers that published the original studies connecting the drug to COVID, the FDA, and the institutions initiating clinical trials. However, no group made a definitive recommendation. Academic papers do not always display 100% accurate information due to statistical chance or the push to publish, and this is a known fact in the academic community (Ioannidis, 2005). Academic researchers have an interest in putting out a certain number of published studies, and this can lead to unethical corner-cutting. The desire to find a potential solution to COVID emphasized this drive to publish. This is why articles undergo replication and peer-review. In response to research ideas proposed in the academic articles, the FDA put hydroxychloroquine in use with an emergency use authorization, or an EUA, which is essentially a large clinical study with an *unapproved* drug (*Hydroxychloroquine Sulfate EUA Fact Sheet*, 2020). The FDA was also interested in finding a solution to the pandemic, which is why emergency clinical trials were authorized. The time it normally takes to bring a drug from lab to hospital can take years, and the accelerated entry to experimental clinical trials were a result of the FDA attempting to find a solution to the plague as fast as possible (Figure 1). Neither the FDA nor the institutions publishing academic papers on the drug provided enough evidence to definitively conclude that it will prevent the symptoms of COVID with no side effects. However, the pandemic was a desperate time for people, and patients were searching for a way to treat themselves and protect their families. To complicate the matter, unqualified individuals also influenced the spread of *misguidance* regarding hydroxychloroquine sulfate; politicians and celebrities used their platforms on social media to promote the drug (Berlivet & Löwy, 2020). Together, these groups create a positive picture of the drug, and people started to ask for it and take it without the advice of a medical doctor. The consequences of the misuse of the drug resulted in tragedy. This issue was highlighted in the media and later studies came out providing evidence that hydroxychloroquine sulfate actually has no effect on COVID, exposing users to risk with no benefits. To the public, this information was shocking. In this case, five actors were involved in the event of hydroxychloroquine misuse: the researchers interested in it as a therapeutic and those against it as a therapeutic, the FDA, politicians, and celebrities.

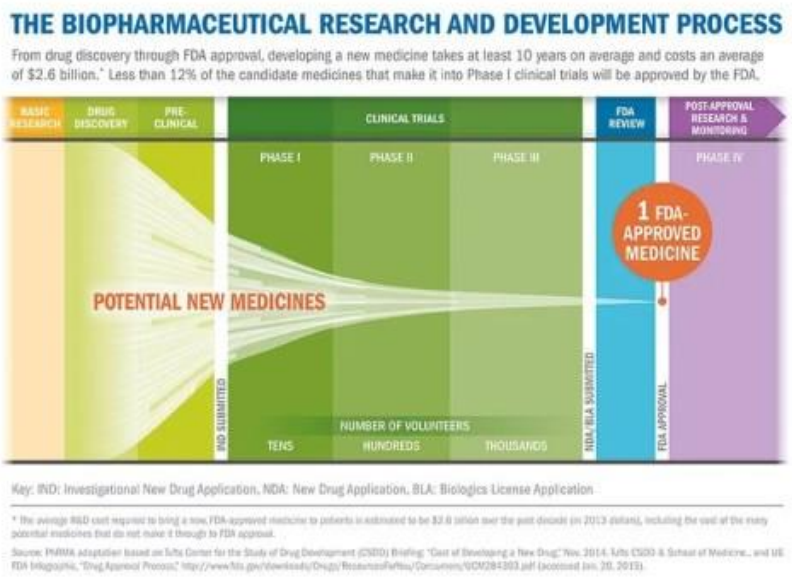

Figure 1. Graphic of FDA drug approval cycles

Such controversy over hydroxychloroquine created doubts in the minds of the public. In SCOT analysis, hydroxychloroquine is not a new drug, but its use as a treatment for COVID is a novel application of the drug, leading down an unknown technological path. Medical professionals and organizations are supposed to be the leading authorities on drugs and medication, and the public is completely dependent on their recommendations. It is easy for the competing messages between several academic groups to be misunderstood. In the world of academia, people peer-review and attempt to replicate experiments to confirm validity and efficacy of medicine and drugs. During COVID, news outlets and the public were hyper-focused on academic developments that normally do not receive attention. Entering the world of academic literature is scary, overwhelming, and full of controversy. In this way, it is easy to not be able to collect the whole picture on a drug development, especially as it can take several years to form a fully mature academic consensus on a treatment. Additionally, people would be prone to believe the FDA was promoting use of the drug, especially when the FDA indicated to add it to the national stockpile and when many governmental figures in the form of politicians were speaking positively about it. The fine print of the EUA released by the FDA is not an obvious form of writing for the public to read, especially if it were being covered by popular news organizations due to its importance at the time. The controversy created by all these actors from *misinterpretation* of medical resources leads to decreased trust in academic articles, the FDA, and the recommendations of important figures.

Decreased Primary Care

Due to the increased demand for space, hospital beds, and treatment in the height of the pandemic, elective surgeries and primary care treatment like breast examinations and routine infant vaccinations were less available. In 2020, the largest global increase of unvaccinated children in two decades occurred, which led to an 80% rise in worldwide cases of measles in 2022 (CDC, 2023). While many may understand the necessity of prioritizing patients with COVID, it is normally a standard of care that a medical provider ensures patient comfort through respect and sense of importance (Dickert & Kass, 2009). In the years following the pandemic, it is rational to think that people may begin to feel betrayed by their general healthcare provider when the consequences of decreased routine care arise, especially if the lack of care is disproportionate in some cases. Unfortunately, a study from WHO (the World Health Organization) shows that the disruption to essential healthcare services was greater in lower income regions (“The Impact of the COVID19 Pandemic on Primary Care and Primary Health Care,” 2022). Examples of real medical consequences of this disruption of care include unvaccinated children suffering from extremely preventable diseases due to lack of opportunity to vaccinate at birth during the pandemic and excess deaths caused by reduced early breast cancer screening that limits the diagnosis-to-treatment timeline (Figueroa et al., 2021). Increased media coverage of this topic will reveal the *misalignment* of priorities to the public and cause or reinforce feelings that medical providers are not concerned with their patients’ health, resulting in distrust and hesitancy to seek out medical care.

Reduction in primary care is due to few individual actors, and instead simply a general lack of space, resources, and personnel to treat both pandemic patients and the normal flow of

patients coming in for routine exams (Wu et al., n.d.). However, from the view of the public, both hospitals and the government are responsible for providing resources and space, and the hospitals are responsible for hiring and maintaining a group of capable doctors. To a degree, this is true, however hospitals and governments across the world aspire to be prepared enough to be able to accommodate the stressors of a pandemic without it affecting the normal treatment of patients (Lim et al., n.d.). The difficulty in this task must be noted when determining who is truly responsible for the lack of preparedness in hospitals, but in the end the public's perspective is what is important to the future of healthcare.

Decreased primary care can be identified as an effect of preparedness and quarantine protocols for infectious disease. These protocols can be regarded as an innovation, as their stipulations and use on the public has not been used in generations, and COVID-19 was unique in its extreme communicability. It required people to practice updated, unprecedented protocols, including not coming in to the doctor when possible. The government as an actor in healthcare preparedness takes a bit of the accountability off medical professionals. Yet, in the end, health professionals were the ones who had to inform patients of their inability to provide care. It is easy to villainize the messenger, especially because primary doctors are the ones directly responsible for a patient's care, and future consequences of the treatment disruption are bound to cause frustration and discomfort, which can cause people to want to hold someone responsible. It is personal to a patient who is denied care, especially when the patient does not feel like their doctor is truly listening. This *misalignment* of priorities creates a sense of distrust of the communication between patient and doctor and could cause patients to be reluctant to follow the recommendations of medical professionals.

Vaccination Side Effects

The most controversial topic from the pandemic are vaccinations and their side effects. A long list of potential, yet extremely rare, reactions have been noted: anaphylaxis, Guillain-Barré Syndrome (GBS), myocarditis, pericarditis, thrombosis, and even death (CDC, 2020). This list is incredibly intimidating, especially in a time where many different workplaces and school systems required the vaccination. Medical organizations continue to stress that the benefit of the vaccinations outweigh the potential risks. As a person dependent on medical organizations, it can be difficult to make a choice to vaccinate, especially if you are making the decision for your children or dependents. Increased news coverage of the side effects and potential consequences of being vaccinated or not being vaccinated caused these factors to be ever more prescient in comparison with other vaccines and routine medical care (Pinna et al., 2022). The pressure of this decision has the potential effect of villainizing drug companies from the public's perspective due to vaccine enforcement by private and public institutions. Defined by some of the public post hoc as *misguidance*, vaccine enforcement could lead to distrust in future prescription and drug recommendations from medical doctors. Any time there is any kind of risk in a new drug or medical technology, people have individual consultations with healthcare professionals. This kind of connection was overshadowed by the rush to get vaccinated and generalized, state of emergency recommendations of the government, drug companies, and private institutions.

The production and enforcement of COVID-19 vaccines that have potentially serious side effects is a phenomenon that was created by many different actors: big pharma companies creating a vaccine in response to economic demand, governmental and non-governmental organizations that emphasized the reward vs risk of the vaccine, private business and entities that demanded use of a vaccination amongst employees, politicians and figures of authority recommending the vaccine, and a general demand from the public for a vaccine that could protect people, their families, and at-risk patients. Because of the state of emergency during the pandemic, many safeguards put in place against drug development in the FDA were put on hold to accommodate the need for a tool against COVID. This was due to the collective desire of the public to find a solution to protect their families, drug companies to make profits, and governmental/non-governmental organizations to create regulations and represent problem-solving that reflects well on their organizations' leadership. The desperation of the public to return life back to normal created a pressure for everyone to take the vaccine, despite the amount of time it had been studied. Authority figures everywhere were saying that the benefits of protecting one another from the disease outweighed the potential costs. The realization in hindsight that there were many potential side effects, especially depending on the brand and type of vaccine administered, was a blow to the public. Many people were glad to be more protected, but some were frustrated that it was still possible to get sick and others were outraged at news of the possible side effects listed previously. Politicians and celebrities used the vaccine as a platform to reflect their moral and political opinions over social media and the news. This brought extra attention to the decision to choose whether or not to take the vaccine, making it a hot debate within homes that added stress and pressure to an already difficult situation. In reflection, those responsible for negative side effects were the researchers and drug companies that created the vaccine and the authorities, in the form of organizations, political figures, and workplaces, that enforced it.

The vaccine was an innovation, the first use of mRNA to cause an immune reaction in the human body and protect against COVID (*The Long History of mRNA Vaccines | Johns Hopkins | Bloomberg School of Public Health*, 2021). This new method of vaccination in addition to the scrutiny it endured meant that it received a high amount of criticism. In terms of healthcare, the negative effects of the vaccines frame medical professionals poorly in the eyes of the public, causing anti-vaccine movements and a threat of a continued rejection of medications produced by big pharma. Admittedly, there were multiple factors that caused the public to view pharmaceutical companies with distrust, but the financial benefit that pharmaceutical companies received from their investment in COVID-19 research and vaccine production is a huge red flag for many individuals who felt forced to take the vaccine. When money is involved in relation to something the public is dependent upon, people are wont to look for ulterior motives linked to profits. Additionally, vaccine hesitancy was exacerbated by the debate that took place in the media, and the pressure of workplaces that required employees to take it regardless of the side effects. It shows a lack of care for employees because getting businesses back into order was seen as more important than autonomy. Vaccine hesitancy is important to overcome to prevent a health crisis in the case of another pandemic or even in the prevention of disease with the use of previously accepted vaccines.

Conclusion

In conclusion, the cases listed above present the ways in which the public distrust in medical professionals may have increased because of the COVID-19 pandemic, and these are but a few examples. *Misinterpretation* of academic resources and FDA decisions led to unauthorized use of nonmedical hydroxychloroquine sulfate, resulting in death and a sense of being blindsided when post hoc publishing of new studies that indicated the ineffectiveness of the drug. *Misalignment* of primary care priorities because of the pandemic led to patients feeling like their health was not important to their doctors. *Misguidance* regarding vaccination side effects was caused by the cacophony of voices, amplified by the media, providing hundreds of reasons why to vaccinate and why not to vaccinate. In the lens of SCOT and SSK analysis, each case contains a technology that the public was required to rapidly understand and qualify: a new application of an existing drug, a quarantine prioritization process, and a novel vaccine. The creation of each of these innovations was pushed by each actor based on need. The rapid consumption and evaluation of these new tools by the public were affected by academia, the government, and unqualified celebrities/politicians. The media was a tool that facilitated the communication of these actors to the public, and inevitably caused distrust that reflected onto medical professionals, drug companies, and the government.

Solutions

Increased concern regarding distrust and the spread of misinformation/misguidance has caused specialists to investigate methods of reversing the negative attitude towards medical professionals. Three keys to rebuilding public trust in the medical industry are education, transparency, and communication, which correspond well as solutions to the three mechanisms of distrust: *misalignment*, *misinterpretation*, and *misguidance*, respectively. These three important tools will lead to increased public knowledge regarding their medical care and promote educated discourse on relevant topics. Increased education regarding basic medical technologies and innovation is essential for increased trust (Arora et al., 2020). Knowing the science behind the recommendations of doctors and the creation of medicines increases the likelihood of people trusting their doctors. It is important for medical professionals to do this to rectify misinformation by using the same social media and media platforms that are responsible for spreading poorly researched reasoning as exemplified by the events in this study (Arora et al., 2020). Social media and media have developed to a point that we learn about major events by scrolling on Instagram or Facebook. These platforms are flooded with a variety of nonprofessional opinions, and therefore it is necessary to balance them with messages from qualified medical scientists. People would be more understanding of decisions made within healthcare if they were made fully aware of the deliberations and processes behind them (Montgomery et al., 2020). Additionally, doctors are privy of social statistics as well as medical statistics that could reveal something about the nature of certain drugs or diseases to create more realistic expectations of medical treatment. Communication of such statistics and knowledge is essential for continued growth of trust in the education and professionalism of medical workers. Many of these solutions may seem obvious but can be difficult to truly and permanently integrate

into a system of patient care. However, as this paper has shown, there is certainly a need for movement in this direction.

Image References

1: (Simpson, 2022)

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