Chapter 1
Pandemics, Preprints, and Praxis

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ABSTRACT

The speed and severity of the COVID-19 pandemic presents challenges not seen since the Spanish flu pandemic of 1918. Governments, healthcare providers, and industries are using all available resources to produce and distribute prevention and mitigation measures. This chapter examines the issues, challenges, and questions surrounding the use of wearable devices (e.g., Fitbit) in combating the COVID-19 pandemic. The implementation of wearables to prevent the spread of infection in the 2020 NBA Bubble is used as a case study of whether and how wearables should be used for detecting illnesses. The role of preprints and their influence on discourse about COVID-19 are also discussed in this chapter.

INTRODUCTION

On June 28th, 2020 Johns Hopkins University reported ten million recorded cases of coronavirus disease 2019 (COVID-19) globally (Johns Hopkins, 2020; Treisman, 2020). At that time, there were more than 2.2 million instances of the disease and more than 126,000 deaths in the United States. Businesses shut down to protect customers and employees, healthcare systems scrambled to respond, and governments took steps to mitigate damage. The speed and severity of the COVID-19 pandemic

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presents unique challenges in fields such as emergency medicine, logistics and shipping, education, and professional sports. Public health agencies are responding to meet the need for fast, reliable, and widespread testing. There is a global effort to develop and deploy vaccines for a disease that has many unknowns and few valid treatments. Industries, such as tourism and hospitality, are attempting to balance the safety risks of continuing operations during COVID-19 against the economic consequences of suspending business. Novel tools and techniques, including wearable technologies, are under investigation to mitigate the adverse consequences of global health pandemics to help people and businesses return to their pre-pandemic lifestyles. This chapter seeks to address the issues, policies, and practicalities of using wearable technologies to mitigate the adverse effects of pandemics. The use of wearables in the National Basketball Association's (NBA) "bubble" while finishing the 2019-2020 season is examined as a case study of how wearables can and whether they should be applied for the detection of illnesses. News outlets released articles that provided exposure for Oura. This led to increased sales as some consumers, believing the Oura ring and other wearable devices could detect the onset of COVID-19 earlier than other methods despite a body of evidence to support these claims, bought wearables. Oura has been scientifically validated for sleep tracking however, the only scientific evidence supporting the claim that wearables could detect the onset of COVID-19 came from anecdotal claims and scientific publications released as preprints. Preprints, the publication of research papers before undergoing peer review, have influenced the discourse in news media about Covid-19 and wearables. It is the aggregation of consumers reading news articles that cite preprints and high-profile cases, such as the NBA's use of Oura, that has led to premature adoption of wearables for purposes tangentially related to their intended use cases. Premature adoption of a device to assist in private and public health benefits may, at best, lead to beneficial outcomes; however, there is a significant likelihood that detrimental outcomes may occur instead. In the case of COVID-19, detrimental outcomes could include lifelong disability and death. Thus, it is imperative to understand how preprints, news media, and wearable device manufacturers influence adoption of wearable technologies for the mitigation of pandemics.

BACKGROUND

COVID-19 is caused by the SARS-CoV-2 virus (severe acute respiratory syndrome coronavirus 2), as named by the International Committee on Taxonomy of Viruses. As of December 5th, 2020, there have been over 66 million confirmed cases of COVID-19 globally and more than 1.5 million deaths according to the Johns Hopkins Coronavirus Resource Center (Johns Hopkins, 2020). The pandemic continues with no end in