Chapter 2
Mobile Technology Support for the Assessment and Management of COVID-19 Outbreak:
Benefits and Challenges

Chinazunwa Uwaoma
Claremont Graduate University, USA

Clement C. Aladi
Claremont Graduate University, USA

ABSTRACT

The early months in 2020 saw a rapid increase in the adoption of mHealth and telehealth across the globe. The obvious reason being the sudden outbreak of coronavirus infectious disease (COVID-19), which sent the entire world scrambling for solutions to contain and mitigate the spread. Ordinarily, telehealth and mHealth are considered optional in most traditional healthcare systems even in developed countries, but today, these technologies have become the most sought-after tools required to augment the overwhelmed healthcare systems orchestrated by COVID-19. Mobile technology in particular has continued to play important roles in the monitoring, surveillance, and the assessment of the outbreak in so many ways. This chapter offers a window into different ways mHealth and telemedicine are used to provide healthcare services and disease management, as well as the challenges in the implementation of these technologies as the world braces for the devastating effects of COVID-19.

DOI: 10.4018/978-1-5225-6067-8.ch002

INTRODUCTION

The influence of mobile technology on the assessment and management of COVID-19 crisis has been seen in the areas of disease detection and diagnosis, monitoring the trend of the infection, as well as reducing the impact on healthcare systems. Various online databases have been developed in the USA, China, UK, Australia, Israel, and many other countries for tracing the spread and providing live updates of the disease in real-time. There is also live tracking of exposed localities in Korea, and virtual clinics in China, as well as public information dissemination via WhatsApp and other mobile apps in Singapore (Ting et al., 2020; Buchan, 2020).

Different use cases from all over the world have provided context for how mobile health strategy has supported healthcare and citizen needs during the pandemic. For instance, it is reported in China that mobile technology "increased the efficiency in diagnosis and treatment of patients through 5G-enabled telemedicine" (ITUNews, 2020b). In South Korea, mobile devices were used in early contact tracing which essentially helped in flattening the curve of the disease infection in the country. Also, "free smartphone apps" warned people with text alerts about at-risk locations, based on local cases of the infection that has been identified (ITUNews, 2020a). According to a UN report on COVID-19 response, "location data from mobile phones, credit-card transaction records and CCTV footage are used to trace and test people who might have recently come into contact with an infected person" (UN Department of Global Communications, 2020). There are also myriads of apps with detailed map that indicate exact travel locations or movement of persons that are infected, and to encourage those that have been exposed to infected individuals to go for test or possibly self-quarantine.

Adoption of mobile technology in mitigating the impact of COVID-19 have been extended to healthcare services in the form of mHealth and telehealth. The current structure of the health sector is based on the model of in-person interaction between patients and their caregivers. However, such model of primary care that requires office visit by a patient, is no longer feasible in the face of the current global pandemic; and therefore, has resulted in the urgent transformation of the health sector. The guidelines issued by federal and state governments in tackling the pandemic have helped health care professionals to leverage the various telehealth and mHealth services to provide care for their patients. Through virtual care, physicians have been able to see more patients than before, thus overcoming traditional barriers that have slowed down the penetration of digital technologies in healthcare (Keesara et al., 2020).

Apart from transforming healthcare delivery which has seen a sudden uptake of digital technologies, there is the need to consider strategies that can bring about needed revolutionary expansion of mHealth and telemedicine to address other challenges of the healthcare system, especially security (Keesara et al., 2020). Scalability is also another issue that needs to be considered, particularly longitudinal data-capturing to determine within-person variation of the disease and possible treatments.

The objective of this study is to examine how mobile technology has been instrumental in combating the COVID-19 outbreak. First, the chapter explores existing mobile solutions that have been used in recent times, and presents taxonomy and benefits of mobile solutions that have been developed so far towards this end. It then highlights the setbacks in wider adoption of the mobile applications; and finally, the authors recommend strategies that could enhance the existing solutions.