Chapter 2
The Role of mHealth in Improving Health and Medication Management

ABSTRACT

Mobile health (mHealth) involves the application of mobile devices and their related technologies in the provision of healthcare. In recent years, mHealth has become one of the most promising fields in improving healthcare quality and outcomes. There were over 325,000 mHealth apps in 2017, and this number is expected to grow tremendously due to continued investments in health apps. With advancements in mobile technologies and connectivity, mobile app developers now have the flexibility to develop and implement various mHealth-based interventions for medication management. Through improved functionalities and integration with electronic medical records, mHealth can potentially enable the provision of macro-, meso-, micro- and patient-level interventions in a more efficient manner. Chapter 2 provides an overview of the various mHealth interventions that have targeted medication management and medication non-adherence throughout the years, such as short-messaging services (SMSes) and smartphone apps. The functionalities that are useful in mHealth apps will also be discussed.

DOI: 10.4018/978-1-7998-3832-6.ch002

INTRODUCTION

Mobile health (mHealth) is a domain that involves the application of mobile devices and related technologies, such as mobile/ smartphones, patient monitoring devices, personal digital assistants (PDAs), portable media players, tablet personal computers (PCs) and other wireless devices, in the provision of healthcare or for medical and public health practices (Bashshur, Shannon, Krupinski, & Grigsby, 2011; Free et al., 2013; WHO Global Observatory for eHealth, 2011). Some of the functionalities of mobile devices with healthcare applications include mobile apps, short message services (SMSes), paging, automated sensing, media capabilities and video conferencing (Free, et al., 2013; Klasnja & Pratt, 2012; O'Shea, McGavigan, Clark, Chew, & Ganesan, 2017). Over the years, the evolution of mobile devices has led to an expansion of mHealth uses, from supporting health services (e.g. clinical decision support systems, drug information sources and systems to augment documentation of patient medical records) to more diversified purposes, including preventive care, health promotion, diagnosis, treatment and monitoring (Eskinder Eshetu Ali, Chew, & Yap, 2016).

The focus of mHealth research has also shifted from communicable diseases (e.g. AIDS), which had relatively few publications, to non-communicable diseases such as mood disorders. From 2008-2015, there was an average of 29 mHealth articles published each year (total of 235 articles over the 8 years) on mood disorders and this number increased to 175 (11.7%) articles in 2018. In contrast, research targeting neoplasms and infections steadily decreased from prior 2015 to 2018 by 5.0% and 6.3% respectively (H. Park & Park, 2019) (Table 1).

Table 1. Trends in the focus of medical conditions in mHealth research between 2008-2018

mHealth Trends on Medical Conditions	**Number of Publications (%)**				
	2008-2015 (%)	**2016 (%)**	**2017 (%)**	**2018 (%)**	**Total (%)**
Mood disorders	235 (10.1)	63 (11.2)	71 (9.3)	175 (11.7)	544 (9.7)
Infections	277 (11.9)	55 (9.8)	58 (7.6)	84 (5.6)	474 (8.5)
Neoplasms	266 (11.5)	53 (9.4)	55 (7.2)	97 (6.5)	471 (8.4)
AIDS	192 (8.3)	43 (7.7)	60 (7.9)	121 (8.1)	416 (7.4)
Total for all medical conditions in study	2322	561	764	1497	5600

(Adapted from Park et al.(H. Park & Park, 2019))