

Chapter 11

Mobile Technologies for Managing Non- Communicable Diseases in Developing Countries

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ABSTRACT

Non-communicable diseases (NCDs) are the global leading cause of morbidity and mortality and disproportionately affect more in the less developed countries. Mobile technologies are being used for a variety of purposes in healthcare. Most importantly, they are enabling new ways for NCDs management by providing powerful tools to both doctors and patients for effective prevention and treatment. As the common

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risk factors of NCDs are related to human behavior; therefore, mobile phone-based health solutions can be used to combat with rising burden of NCDs by focusing on behavioral change programs to promote a healthy lifestyle. This chapter discusses the common NCDs, their burden, and future estimated projections, and shows how mobile phone technologies can provide effective NCDs management in developing countries—which have a lot of issues in their healthcare systems.

1. INTRODUCTION

Non-communicable diseases (NCDs) are becoming the world's largest burden due to their chronic nature—which requires a long duration of care for their effective management. NCDs are causing 40 million annual deaths globally, equivalent to 70% of all deaths (see WHO (2017b)). The main types of NCDs are cardiovascular diseases, cancers, chronic respiratory diseases, and diabetes. Physical inactivity, unhealthy diets, and harmful use of tobacco smoke and alcohol are the major risk factors for NCDs. According to World Health Organization (WHO), excessive use of tobacco accounts for 7.2 million deaths every year; harmful use of alcohol caused over the half of 3.3 million annual deaths; excess intake of salt is attributed to 4.1 million annual deaths, and physical inactivity blamed for 1.6 million annual deaths. Similarly, rapid unplanned urbanization, globalization of unhealthy lifestyle and aging of the population are also causing the rise in NCDs. People of all age groups (i.e., children, adults and the elderly) from all the regions and countries are vulnerable to NCDs. Evidence shows that 15 million of premature deaths of people between the ages of 30 and 69 years are caused by NCDs, and 80% of these deaths occur in low and middle-income countries with an expected increase of 41.8 million by 2030 (Piot et al., 2016). In 2015, the burden of NCDs when compared with the statistics of 2000, it shows a remarkable increase in the burden of NCDs (as illustrated in Figure 1).

The epidemic of NCDs is a real threat to developing countries as it poses devastating challenges to their healthcare systems. Diabetes, cancer, hypertension, and cardiovascular disease (CVD) are the major cause of disability and deaths in low and middle-income areas (Slama et al., 2016). In 2015, WHO reported that 70% of death were caused by NCDs and among all those, diabetes mellitus considered as a major threat to life because it caused complications to many other diseases such as blindness, kidney failure, heart disease, diabetic foot (gangrene) (Pangaribuan & Junifer, 2014). In developing countries, the healthcare systems are already grappling with a large number of challenges. Lack of trained medical staff, unavailability of healthcare services and facilities, and poor health awareness among the population are the major problems in developing countries. Poverty is another cause for the

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