


Chapter 1

Introduction to Digital Health and Prevention

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ABSTRACT

Over the past twenty years or so, healthcare has been changing in ways we did not see coming. This chapter, Introduction to Digital Health and Prevention, takes a closer look at how things like mobile health apps, eHealth platforms, wearables, telemedicine, big data, blockchain, and AI are now part of public health. These aren't just for treating illnesses—they're helping people stay healthy, spot problems earlier, and take care of themselves day to day. It really began with electronic health records and early telemedicine. Now, AI tools that use machine learning, language processing, and even computer vision can warn about risks and guide better use of resources. Of course, that raises questions—who owns the data, how is it used, and is it fair? Rules like GDPR and HIPAA, plus “data ethics by design,” try to keep things in check. In the end, digital health works best when it's fair and open to all.

1 INTRODUCTION

Digital technologies and healthcare have drastically revolutionized how societies promote health and prevent sickness in the modern era. As populations increase, age, and more people suffer from chronic diseases, healthcare systems all across the world need to find new, scalable ways to stop them. Digital health includes a lot of different kinds of technology. In line with global definitions, we use the term digital health to describe the safe and effective use of these technologies to strengthen health systems,

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promote health, and prevent disease across the life course World Health Organization (2019b), Organisation for Economic Co- operation and Development (2019a).

Some examples are mobile health (mHealth), electronic health (eHealth), wearable devices, telemedicine, big data analytics, blockchain technology, and AI (artificial intelligence). Any of these technologies, used alone or combined, might dramatically improve health outcomes by making it easier to keep an eye on diseases, deliver customized treatment, and encourage health. Most of the time, healthcare was reactive, meaning that most therapies were meant to cure problems after they had already happened. Digital health has started a new era of proactive care, where the goal is to find ways to treat people that minimize their risk of getting sick or growing worse. This preventive orientation connects digital health to established traditions in health promotion and population health management, which emphasize early risk detection, behaviour change, and system-level interventions Abernethy et al. (2022), A. Labrique et al. (2013).

Figure 1. Conceptual Framework



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