Chapter 3
Digital Health, Smartphone-Based Motor Assessment, and Public Health

Givago Silva Souza
https://orcid.org/0000-0002-4525-3971
Federal University of Pará, Brazil

Brena Karoline Ataíde Furtado
Federal University of Pará, Brazil

Edilson Brabo Almeida
Federal University of Pará, Brazil

Bianca Callegari
Federal University of Pará, Brazil

Maria da Conceição Nascimento Pinheiro
Federal University of Pará, Brazil

ABSTRACT

The availability of technologies for assessing people's health is a limiting factor in many countries, especially the poorest ones. Smartphones offer a range of tools that can be useful for extracting biological signals that may be related to individuals' health conditions or diseases. Among these tools, inertial sensors and touchscreens enable the performance of motor tests that scientific literature has shown to be valid for the physical assessment of individuals. The integration of smartphones into public policies aimed at increasing health monitoring of individuals would allow for the expansion of the scope of quality assessment and preventive actions against functional declines.

DOI: 10.4018/979-8-3693-0851-6.ch003

Copyright © 2024, IGI Global. Copying or distributing in print or electronic forms without written permission of IGI Global is prohibited.

DIGITAL HEALTH E mHEATLH

The World Health Organization proposed in 2020 the Global Digital Health Strategy 2020-2025 (World Health Organization, 2021), which outlines a comprehensive framework for leveraging digital technologies to enhance healthcare worldwide. The fundamental idea behind this strategy is to harness digital innovations to (i) expand access to healthcare services and information using digital tools, (ii) enhance the quality of healthcare through digital tools, (iii) strengthen healthcare systems by integrating technological solutions into existing healthcare infrastructure and policies, (iv) promote digital technology innovation for health monitoring and its responsible application, (v) empower individuals and enable them to control their own health monitoring through access to accurate health information, telemedicine services, and smartphone applications, (vi) ensure data privacy in the digital environment, and (vii) enhance governance and regulation to guide the responsible adoption and use of health technologies at both national and transnational levels. Essentially, the Global Digital Health Strategy 2020-2025 envisions a future where digital innovations play a pivotal role in improving access, quality, and efficiency of healthcare while prioritizing equity, privacy, and security in healthcare delivery. Its aim is to guide governments and stakeholders in utilizing digital technologies to enhance healthcare systems and outcomes worldwide over a five-year period. Some developing countries such as Brazil and India have their own planning for digital health implementation (Brazilian Ministry of Health, 2020; Ministry of Health and Family Welfare of India, 2020).

The use of digital technologies in the field of healthcare dates back to the second half of the 20th century (Mesko et al., 2017) when the first computers were used for medical research and for hospital purposes, such as storing and retrieving medical records in digital formats. With the advancement and development of more powerful computers, a broader range of digital tools began to emerge in various subfields of healthcare. A second wave of advancement and the development of new digital tools occurred with the popularization of the internet, including telehealth, in which services are provided remotely (Martínez-Caro et al., 2018). At the turn of the 21st century, the use of mobile phones and the creation of large databases made health monitoring a reality, leading to a proliferation of digital tools for health monitoring, often associated with artificial intelligence during the COVID-19 pandemic (Alhasan & Hasaneen, 2021; Dicianno et al., 2015). Thus, the term "Digital Health," also known as eHealth or electronic health, emerged, signifying the application of information and communication technologies in the healthcare sector to enhance service delivery, health monitoring, health information management, and the promotion of more effective and accessible health practices (Chan, 2021). In this field of knowledge, there is a convergence of health, informatics, and technology

13 more pages are available in the full version of this document, which may be purchased using the "Add to Cart" button on the publisher's webpage: www.igi-global.com/chapter/digital-health-smartphone-based-motor-assessment-and-public-health/342882

Related Content

Digital Health, Smartphone-Based Motor Assessment, and Public Health
Givago Silva Souza, Brena Karoline Ataíde Furtado, Edilson Brabo Almeida, Bianca Callegariand Maria da Conceição Nascimento Pinheiro (2024). *Advances in Neuroscience, Neuropsychiatry, and Neurology (pp. 36-50).*
www.irma-international.org/chapter/digital-health-smartphone-based-motor-assessment-and-public-health/342882

ER Stress Signaling in Alzheimer's Disease: Molecular Mechanisms and Therapeutic Implications
Md. Motiar Rahman, Looniva Shresthaand Mst Ara Gulshan (2020). *Quality Control of Cellular Protein in Neurodegenerative Disorders (pp. 180-211).*
www.irma-international.org/chapter/er-stress-signaling-in-alzheimers-disease/250637

Amyloid Beta: The Foremost Protagonist in Alzheimer's Disease
Abhinav Anand, Neha Sharma, Monica Gulatiand Navneet Khurana (2019). *Handbook of Research on Critical Examinations of Neurodegenerative Disorders (pp. 235-251).*
www.irma-international.org/chapter/amyloid-beta/209099

Assessment of Gait Disorder in Parkinson's Disease
Divya Govindaraju, Gururaj Nagarajanand Paramasivam Alagumariappan (2019). *Early Detection of Neurological Disorders Using Machine Learning Systems (pp. 108-127).*
www.irma-international.org/chapter/assessment-of-gait-disorder-in-parkinsons-disease/230113

PINK1/Parkin in Neurodegenerative Disorders: Crosstalk Between Mitochondrial Stress and Neurodegeneration
Mukesh Pandey, Shakir Saleem, Himani Nautiyal, Faheem Hyder Pottooand Md. Noushad Javed (2020). *Quality Control of Cellular Protein in Neurodegenerative Disorders (pp. 282-301).*
www.irma-international.org/chapter/pink1parkin-in-neurodegenerative-disorders/250642