Chapter 11
Health Economics and Sustainability in the Era of Digital Transformation:
Addressing Digital Stress and Sustainable Development Goals

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ABSTRACT

This chapter explores the aspect of Economic evaluation of implementing Digital Health, Digital Stress, and Digital Transformation technologies in the context of Systems Sustainability challenge in healthcare systems. Leveraging smart technologies such as AI, IoT, Blockchain, healthcare systems are witnessing unprecedented Digital Transformations in cost efficiency and service delivery. The key aspect addressed is the impact of Digital Transformation healthcare systems, including the challenges pose by Techno Invasion, the over penetration of technology into personal and professional spaces, leading to increased Digital Stress for Healthcare professionals. It also highlights the importance of achieving a balance between innovation and workforce sustainability, with strategies to mitigate the negative effects of digital overload while maximizing the benefits of smart healthcare solutions. Also emphasized the importance of balancing technological integration with human wellbeing.

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1. INTRODUCTION

Digital transformation and healthcare implications provide novelty in the global health system. In recent decades, development of innovative technologies like AI, IoT and Blockchain caused significant changes to known and conventional healthcare system, which moved to more patient-oriented personalized data-based model. This change has been called Digital Health and it already promises to solve many of the current problems in healthcare through increased access, lower prices, and higher quality (Borges et al., 2023). Nevertheless, the transformation aforementioned comes with its own set of problems. Despite the tremendous power of DTs, new or more detailed problems appear, like Digital Stress and Techno Invasion, which are challenging to neglect in the context of today's healthcare industry. (Ewers et al., 2023).

Health care which traditionally was a profession where providers dealt directly with clients, has been transformed by these technologies. Having grown so pervasive, contemporary health care personnel is presumed to embrace use of technology, hardware as well as software in the discharge of their duties that include; electronic health records, tele-caring, and wearable gadgets. This change did not only change the practice, but it also brought with it new sources of stress like information intensity, connectedness, and the business- personal interface (Tarafdar et al., 2020). This led to the emergence of what is now popularly called Digital Stress, which impacts both healthcare professionals and patients and could ultimately decrease satisfaction at work and in life, together with the quality of services provided. (López et al., 2023).

At the same time, the United Nations' 2030 Agenda for Sustainable Development has been asking for action to support healthy lives and well-being for all, throughout their lives (United Nations, 2021). Within this agenda, the health challenge focus of the Sustainable Development Goal 3 (SDG 3) whose objectives are to promote sustainable health for all individuals, to reduce mortality rates and provide adequate health care for the people with non communicable diseases. The adoption of digital technologies in healthcare provides a framework for delivering sustainable development goal (SDG) 3 thus improving healthcare delivery, expanding the access, and enforcing equity. However, if those technologies are not implemented with a focus on sustainability, they may worsen current disparities in healthcare and develop new stress forms for healthcare professionals (Alonso et al., 2021). Issues of sustainable health economics and effective workspace ensure in extending and strengthening the delivery of effective health treatment in computer technology-driven healthcare systems are effectively highlighted by the crossroad between advances in digital health product development and sustainable practices. In one respect, digitization of healthcare has the potential of reducing costs because of new technological advances in diagnostics and clinical decision making, as well as, tele-monitoring. For example, AI can analyze the vast data sets to offer prognosis solutions that could lower costly and time-consuming high-intensity services (Ledziński et al., 2023). On the other hand, Increased Health Care Cost saving will only be met by the other two components of digital stress that is Techno invasion which is the daily changing of new technologies and the imposition of the use of the digital tools in the Healthcare workers Personal life. Therefore, covering both the economic and human correlates of DH to promote its sustainability is the critical objective. (Sui et al., 2023).

This chapter examines digital transformation, health economics and the theme of workforce sustainability, with a focus on Digital Stress. In this paper, therefore, we explore where these novel technologies fit in the realization of the goals of SDG 3, and the corresponding problems that have been observed with the implementation of such technologies in the health care sector. The chapter expands the discussion