

Evaluating the Efficacy and Adoption of Digital Therapeutics in Improving Outcomes for Elderly Patients with Chronic Conditions

Introduction

The global population is aging rapidly, with the number of individuals aged 65 and older projected to reach 1.5 billion by 2050. This demographic shift poses significant challenges for healthcare systems, particularly in terms of managing chronic diseases and maintaining patient quality of life. Digital therapeutics (DTx) have emerged as a promising solution to address these challenges by providing evidence-based therapeutic interventions through software programs. This study aims to review the current state of DTx in elderly care globally, assess their potential benefits and challenges, and identify future directions for their integration into healthcare systems.

Research Question

What is the current status and potential of digital therapeutics in elderly care globally, and how can they be effectively integrated into healthcare systems to improve patient outcomes?

Objective

- The primary objective of this study is to conduct a comprehensive review of the literature on DTx in elderly care, focusing on their benefits, challenges, and future directions.
- The secondary objective is to identify the key factors influencing the adoption and integration of DTx in healthcare systems.
- The tertiary objective is to analyse various technology integrations as a part of solutions to enhance application of DTx for elderly care.

Hypothesis

Hypothesis 1: DTx have the potential to improve patient outcomes in elderly care by enhancing disease management and increasing patient engagement.

Hypothesis 2: The adoption and integration of DTx in healthcare systems are influenced by factors such as healthcare provider attitudes, patient demographics, and healthcare system infrastructure.

Hypothesis 3: The benefits of DTx in elderly care, such as improved patient outcomes and reduced healthcare costs, can be optimized through the development of tailored interventions and the integration of DTx with existing healthcare services.

Materials and Methods

Study Design

This study will employ a mixed-methods approach, combining a systematic literature review with expert opinion elicitation.

Study Population

The study population will consist of elderly individuals (65+ years) with various chronic diseases, such as cardiovascular disease, diabetes, and dementia, who are receiving care in different healthcare settings globally.

Study Tools

The study will use a standardized framework for assessing DTx in elderly care, including the M-LEAD framework developed by the Digital Therapeutics Alliance.

Duration of Study

01/04/2024- 30/06/2024

Sampling Technique

A systematic search of peer-reviewed articles, conference proceedings, and grey literature on DTx in elderly care will be conducted. The search will be limited to articles published in English between 2010 and 2024.

Data Collection Procedure

The study will involve a systematic search of databases such as PubMed, Scopus, and Web of Science. The search terms will include keywords related to DTx, elderly care, and chronic diseases. The search results will be screened for relevance, and the full texts of eligible articles will be retrieved and reviewed.

Operational Definition

Digital therapeutics (DTx) are evidence-based software and devices that provide therapeutic interventions to prevent, manage, or treat medical disorders or diseases. They are clinically

evaluated and can be used independently or in conjunction with medications, devices, or other therapies to optimize patient care and health outcomes. DTx products integrate advanced technology with best practices in design, clinical support, usability, and data security, ensuring high-quality, safe, and effective interventions.

Analysis Plan

The data will be analysed using descriptive statistics and thematic analysis to identify key themes and patterns in the literature. The findings will be presented in a narrative format, highlighting the benefits, challenges, and future directions of DTx in elderly care.

Implications of Research

The study will provide insights into the current state of DTx in elderly care globally, highlighting the benefits and challenges of their integration into healthcare systems. The findings will inform healthcare policymakers, clinicians, and industry stakeholders on the potential of DTx to improve patient outcomes and reduce healthcare costs in elderly care. The study will also identify key factors influencing the adoption and integration of DTx, which will inform the development of targeted interventions and strategies for their successful implementation.