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Abstract

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Title: Effectiveness of AI Health Coaching in Chronic Disease Management in Primary Care Clinics

Background: The US is undergoing a chronic disease epidemic. Fifty percent of the population has at least one chronic disease, and chronic disease management accounts for 86% of all of all the healthcare expenditure in the country. Health coaching is a statistically effective and patient-centric method for improving chronic disease outcomes that is often not utilized enough.

It has been proven to provide better weight management, improved mental and physical status for patients with chronic disease, reduced hospital admissions, improved mortality, improved A1c and lipid levels, and overall quality of life. However, despite this research, medication-first methods are more often utilized and easier to scale than health coaching. This research examines whether AI-based health coaching, as compared to human health coaches, can create a scalable and more easily accessible tool towards improved chronic disease management.

Methods: A review of current literature was performed, including systematic reviews, meta-analysis, and randomized controlled trials, that examined the impact of AI health coaching on chronic disease management and the efficacy of doing so. A total of 18 published literature articles were examined.

Results: AI and technology-based health coaching have demonstrated an equal or increased amount of effectiveness compared to human coaching, leading to important health outcomes such as improved weight loss, improved psychological well-being, decreased death rates, lesser healthcare expenses, and decreased emergency room visits. AI models have been engaging and persistent, been able to promote a patient's sense of autonomy and agency, personalize health history, and synthesize accurate health information. In addition, it has given clinics the ability to reach out to vulnerable populations and decrease barriers to care. In many studies, including studies targeting type 2 diabetes patients in low-resource communities, self-reported goal attainment was increased compared to human health coaches. While there are disadvantages in emotional intelligence and empathy, technology-based coaching offers specific advantages in scalability, 24/7 accessibility, and persistence, and can be trained to follow certain behavioral health tactics for increased motivational tactics.

Conclusion: Technology-based and AI health coaching are effective clinical interventions that can lead to higher goal attainment and improved self-management of chronic conditions compared to or in conjunction with human coaching.