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Expanding Technology-Enabled Nurse-Delivered Chronic Disease Care: EXTEND

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Abstract. Mobile monitoring-enabled technologies could enhance telehealth for chronic illness care. EXTEND is an active comparator randomized trial (N=220) of two 24-month interventions: 1) mobile monitoring as a self-management tool (EXTEND); and 2) a 12-month nurse and pharmacist-delivered telehealth intervention incorporating mobile monitoring, self-management support, and medication management that is followed by a 12-month self-management period (EXTEND Plus). EXTEND Plus is a pragmatic approach to integrating mobile monitoring-enabled telehealth for patients uncontrolled diabetes and hypertension into existing clinical infrastructure.

Keywords. Telehealth, diabetes, hypertension, digital health

1. Introduction

Chronic diseases like diabetes and hypertension require complex self-management, including self-monitoring of health data, regulation of diet and activity, medication-taking, and navigating psychosocial concerns. For many patients, receiving chronic disease care via a clinic-based delivery model provides insufficient support, resulting in poor control. Telehealth has the potential to improve management relative to clinic-based care alone because it facilitates patient-provider contact and supports self-management [1]. While mobile monitoring-enabled telehealth holds promise [2], evidence gaps prevent routine use in clinical practice. EXpanding Technology-Enabled, Nurse-delivered chronic Disease care (EXTEND) seeks to address evidence gaps that prevent use of mobile monitoring-enabled telehealth for uncontrolled diabetes and hypertension.

2. Methods

EXTEND is an active comparator randomized trial of two 24-month interventions: self-management mobile monitoring (EXTEND); and 12-month nurse and pharmacist-delivered telehealth incorporating mobile monitoring, self-management, and medication management, followed by 12-month self-management (EXTEND Plus). All participants receive mobile monitoring devices including a glucose meter and test strips, a blood

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pressure cuff, a home scale, and a wrist-worn accelerometer. These devices tether to a smartphone and transmit data into the electronic health record (EHR) that is visualized to facilitate chronic disease self-management and clinical and medication management.

3. Results

Patients (N=220) are recruited from five primary care and endocrinology clinics in Durham, NC, USA. These clinics provide care for diverse patient populations with diabetes, of whom >54% Black and 14% are Latinx. Patient recruitment began in May 2022 following the information technology (IT) build and is ongoing. Patients in both interventions are engaged in data collection for two years.

4. Discussion

The COVID-19 pandemic was a catalyst for telehealth use and innovation. Investments in infrastructure to support telehealth were invested in across the US and by countries around the world. EXTEND Plus is a pragmatic approach to using data from four remote monitoring devices in a team-based telehealth care model for diverse patients with complex chronic care needs. Patients self-monitor and collect data in their everyday environments that informs chronic disease care and medication management decisions.

5. Conclusions

Telehealth has potential to improve poorly controlled chronic diseases relative to clinic-based care alone because it facilitates patient-provider contact and medication management, and better supports self-management. Mobile monitoring technologies could enhance telehealth for complex chronic illnesses. Infrastructure to support telehealth care is increasingly possible. EXTEND Plus a pragmatic approach to integrating mobile monitoring-enabled telehealth into existing clinical infrastructure.

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