POSTER ABSTRACT

A Randomized Controlled Trial of a Medication Dispensing System to Support Individuals on Multiple Medications

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Introduction

Medication adherence is challenging for older adults due to factors such as the number of medications, dosing schedule, and the duration of drug therapy. The objective of this study was to examine the effectiveness of an in-home electronic medication dispensing system (MDS) on improving medication adherence and health perception in older adults with chronic conditions.

Aims Objectives Theory or Methods

A pilot Randomized Controlled Trial (RCT) was conducted using a two-arm parallel assignment model. The intervention group used the MDS as their medication management method. The control group continued to use their current methods of medication management. Block randomization was used to assign participants into the intervention or control group. The inclusion criteria included 1) English speaking 2) age 50 and over 3) diagnosed with one or more chronic condition(s) 4) currently taking five or more oral medications 5) City of Calgary resident. Participants were recruited from a primary care clinic in Alberta, Canada.

Highlights or Results or Key Findings

A total of 91 participants were assessed for eligibility and 50 were randomized into the two groups. The number of participants included in the intention-to-treat (ITT) analysis were 23 and 25 in the intervention and control group respectively. Most of the demographic characteristics were comparable in the two groups except mean age of the intervention group, which was higher compared to the control group (63.96 ± 7.86 versus 59.52 ± 5.93, p-value=0.03). The average recorded adherence over 26 weeks was significantly higher in the intervention group than the control group ($98.35\% \pm 2.15\%$ versus $91.17\% \pm 9.76\%$, $p<0.01$). The self-rated medication adherence in the intervention group also showed a significant increase from baseline to 6-month (7.63 ± 1.63 versus 9.13 ± 0.81, $p<0.01$). The control group showed a non-significant increase (7.20 ± 1.74 versus 8.27 ± 2.09, p=0.07).

Conclusions

The findings from this clinical trial indicate the potential of the medication dispensing technology to improve adherence for individuals taking multiple medications and living with chronic conditions. The technology induces better consistency and improvement in medication taking behaviour than simple, non-technological intervention.

Implications for applicability/transferability sustainability and limitations

The results suggest that using a medication dispensing device could replace or supplement current practice of using home care nurses for medication administration, significantly reducing costs to health care system. Results will need to be validated in other populations with a larger sample.