

Using Mobile Apps to Improve Medication Adherence in Patients with Hypertension

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BACKGROUND

- **1.28 Billion people** worldwide between the ages of 30-79 have been diagnosed with hypertension (HTN) (WHO, 2023).
- Rates of medication non-adherence (MNA) among those with HTN are notably high, comprising about **43% to 65.5%** of all MNA cases (Abegaz et al., 2022).
- Annually, **125,000 deaths** and **10%** of all hospitalizations can be attributed to MNA (Ding et al., 2022)

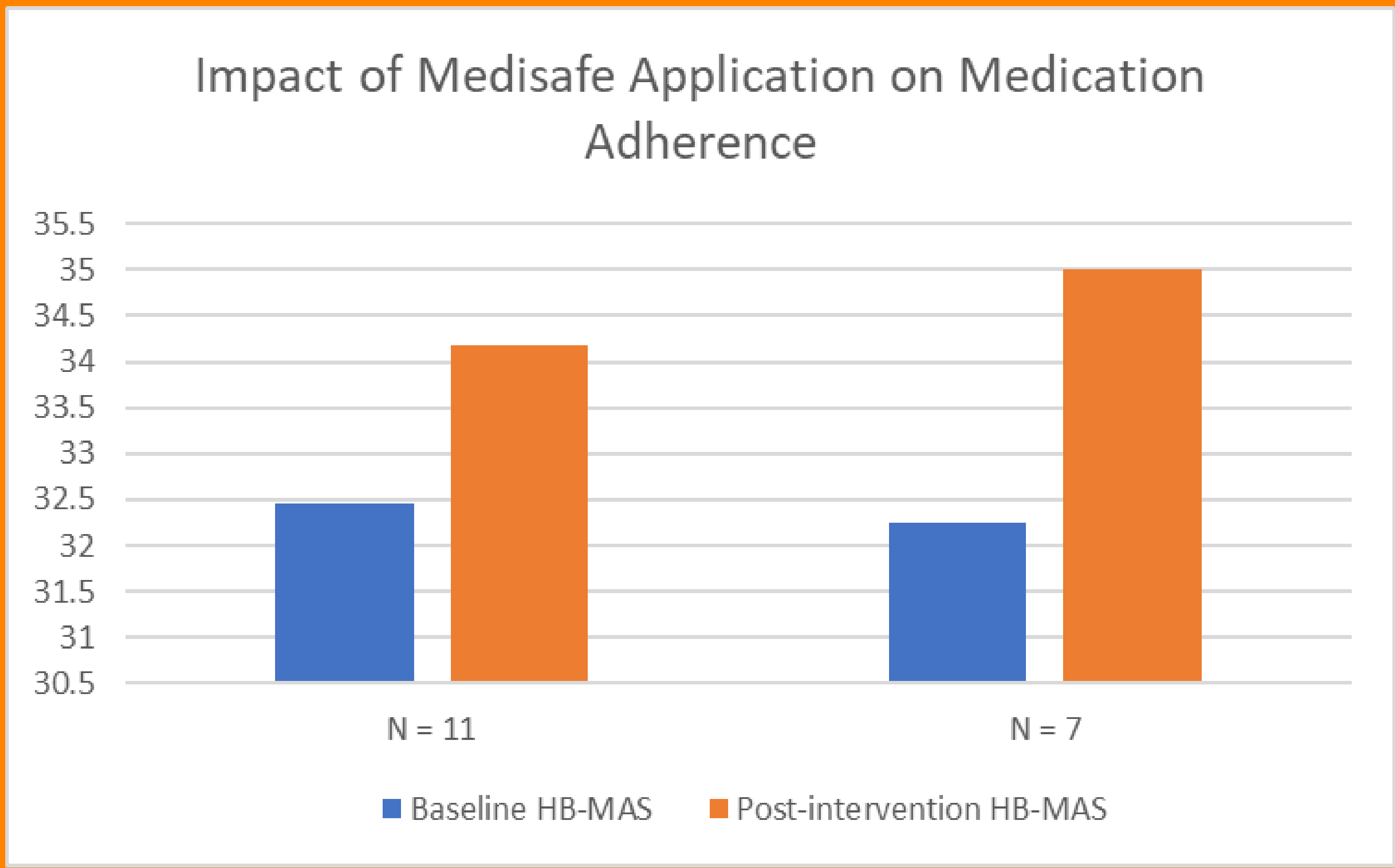
LOCAL PROBLEM

- This project was hosted by an established primary care clinic in Johnson City, Tennessee.
- Prior to this project, MNA was not tracked at the host site, making concrete data on MNA not available. However, multiple instances of MNA were self-reported at this location.
- The purpose of this project was to ascertain if mobile medication applications (MMAs) could be used to effectively lower rates of MNA at the host site.
- The goal was to increase participant medication adherence rates by at least **10%** or higher in a 90-day period.

METHODS

- **Johns Hopkins Evidence-based Practice Model** governed the project's development.
- A literature search, critical appraisal, and evidence synthesis yielded **strong and compelling evidence** to support the use of MMAs to increase the rate of medication adherence (MA).
- The **Hill Bone Medication Adherence Score (HB-MAS)** was used to measure participants' baseline MA and was re-administered 90 days post-intervention. Please use the QR code for the full HB-MAS
- In addition to the HB-MAS, patients were surveyed to assess the frequency of mobile app utilization and the perceived impact of the mobile app on MA.

The use of a mobile medication application led to a statistically significant increase in adherent behaviors



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INTERVENTIONS

Eligibility Criteria:

Participants were required to be at least 18 years old, have a diagnosis of HTN, be on at least 1 hypertensive medication, be a native English speaker, own a phone capable of downloading and using the app, and be a first-time MMA user.

Project Intervention Check List:

	Task
1.	Provide a brief explanation of the project and inquire whether the patient would be interested in participating.
2.	Use the eligibility checklist to confirm the first stage of eligibility
3.	Gather demographic information on the demographic tracker
4.	Take the patient to a private room and conduct the initial HB-MAS
5.	Make sure the patient remains eligible for participation
6.	Educate the patient on MNA using the educational pamphlet.
7.	Assist the patient with downloading the Medisafe App
8.	Show the patient how to enter medications, set reminders, and view education.
9.	Make sure the patient can teach back each process
10.	Finish the meeting with all of the patient's medications and reminders entered
11.	Have the provider verify the accuracy of the entered medication
12.	Provide the patient with a resource pamphlet, confirm their contact information
13.	Answer any questions that are still outstanding

RESULTS

- When all participants (**N=11**) were considered, adherent behaviors increased from **90.15%** (baseline) to **94%** (90 days post-intervention) – a statistically significant improvement (**P = 0.013**)
- When only those who used the application in the project window were considered (**N = 7**), adherent behaviors increased from **89.68%** (baseline) to **97.22%** (90 days post-intervention) – an even greater statistically significant improvement (**P = 0.006**)
- Median app use was 1-3 times a week; but there was a **strong correlation** between the frequency of app use and the degree of improved MA

CONCLUSIONS

- Finding effective methods of decreasing MNA in the hypertensive patient population is vital.
- At this host site, participants undergoing pharmacotherapeutic treatment for HTN experienced a statistically significant increase in medication adherence after using the MMA for 90 days.