

Introduction

- Medication noncompliance is one of the biggest problems that primary care providers face in their practice.
- There are over 100 million people living in the United States with one or more chronic illnesses which require lifelong medication treatment.
- There are many effective treatments for patients to manage their chronic illnesses, yet patients adhere to their prescribed medication regimen only 50% of the time (Brown et al., 2016).
- Many providers believe that medication nonadherence is due to poor memory or lack of access to medications
- Due to the growing number of people who own smartphones in today's society, numerous smartphone applications have been developed to promote medication compliance.

Background and Significance

- According to the Centers for Disease Control and Prevention (2021a), 90% of the nation's \$3.8 trillion in annual health care expenditures are for people with chronic and mental health conditions.
- Heart disease and stroke are the leading causes of death in the United States, costing our healthcare system \$214 billion per year, while diabetes related issues cost \$327 billion per year.
- The primary solution to curtail these exorbitant costs is prevention.
- Most chronic illnesses are managed with medication treatment, and disease related complications can be significantly decreased if patients stick to their prescribed medication regimen.

Aims and Objectives

Aim: To increase medication compliance for patients in an urban primary care setting, and to provide primary care practitioners with a tool to recommend to their patients who are struggling with noncompliance.

Objective: Help patients who identified that they were struggling with medication adherence understand why they had a hard time taking their medications, and educate them to use a smartphone application to keep track of their daily medication record.

Methodology

Design: Quality improvement project via cohort study

Setting: Private primary care office in an urban setting in Essex County

Sample: A convenience sample of patients aged 18 and over who have been prescribed medications for daily use.

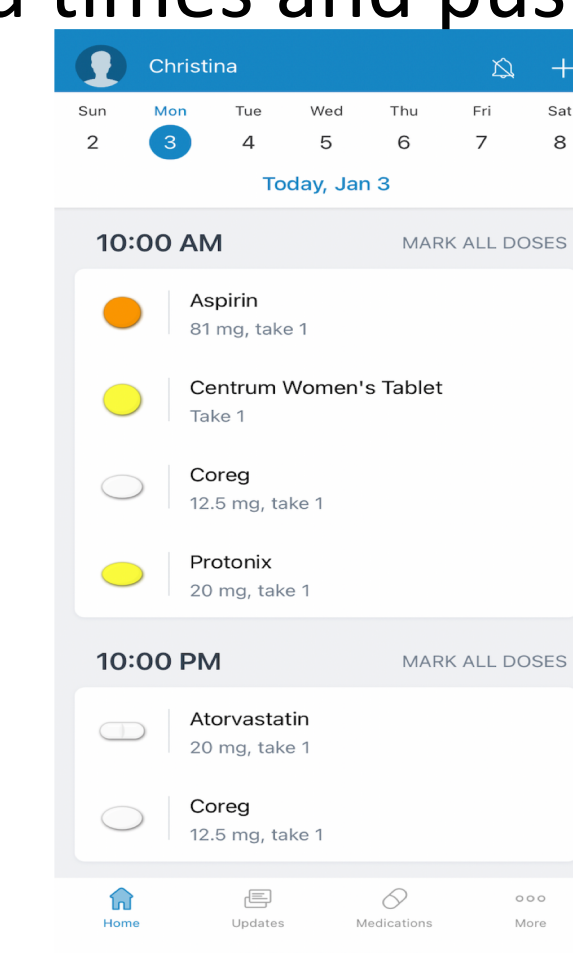
Study Interventions:

Pre intervention survey:

- Participants completed a pre-intervention survey using the Hill-Bone Medication Adherence scale.
- Participants who had a score less than 36 on the scale were identified as struggling with medication adherence and were consented for the study.
- Each participant had a one on one session with the principal investigator where participants received help downloading the mobile application Medisafe, setting up their medications, dosages, and times and push notifications for reminders.



No.	Item	All of the time	Most of the time	Some of the time	None of the time
1.	How often do you forget to take your medication?	1	2	3	4
2.	How often do you decide NOT to take your medication?	1	2	3	4
3.	How often do you forget to get your prescriptions filled?	1	2	3	4
4.	How often do you run out of your medication pills?	1	2	3	4
5.	How often do you skip your medication doses before you go to the doctor?	1	2	3	4
6.	How often do you miss taking your medication pills when you feel better?	1	2	3	4
7.	How often do you miss taking your medication pills when you feel sick?	1	2	3	4
8.	How often do you decide NOT to take your medication?	1	2	3	4
9.	How often do you forget to take your medication pills when you are careless?	1	2	3	4



Post Intervention Survey

- Upon completion of the study, participants completed their initial Hill-Bone Medication Adherence scale they were given at the beginning of the study answering based on the past 4 weeks using the Medisafe application, and if it increased their medication compliance.

Outcome Measures

- The overall outcome that was measured was participant's medication compliance before using Medisafe and after using Medisafe for 4 weeks.
- The score of each participants Hill-Bone Medication Adherence scale pre-intervention and post-intervention
- The number of participants in the study

Data Analysis

- Data was transferred into IBM SPSS Version 28 for data analysis
- A nonparametric Wilcoxon signed-rank test was used to compare the pre-intervention and post-intervention scores from each participant's Hill-Bone Medication Adherence Scale

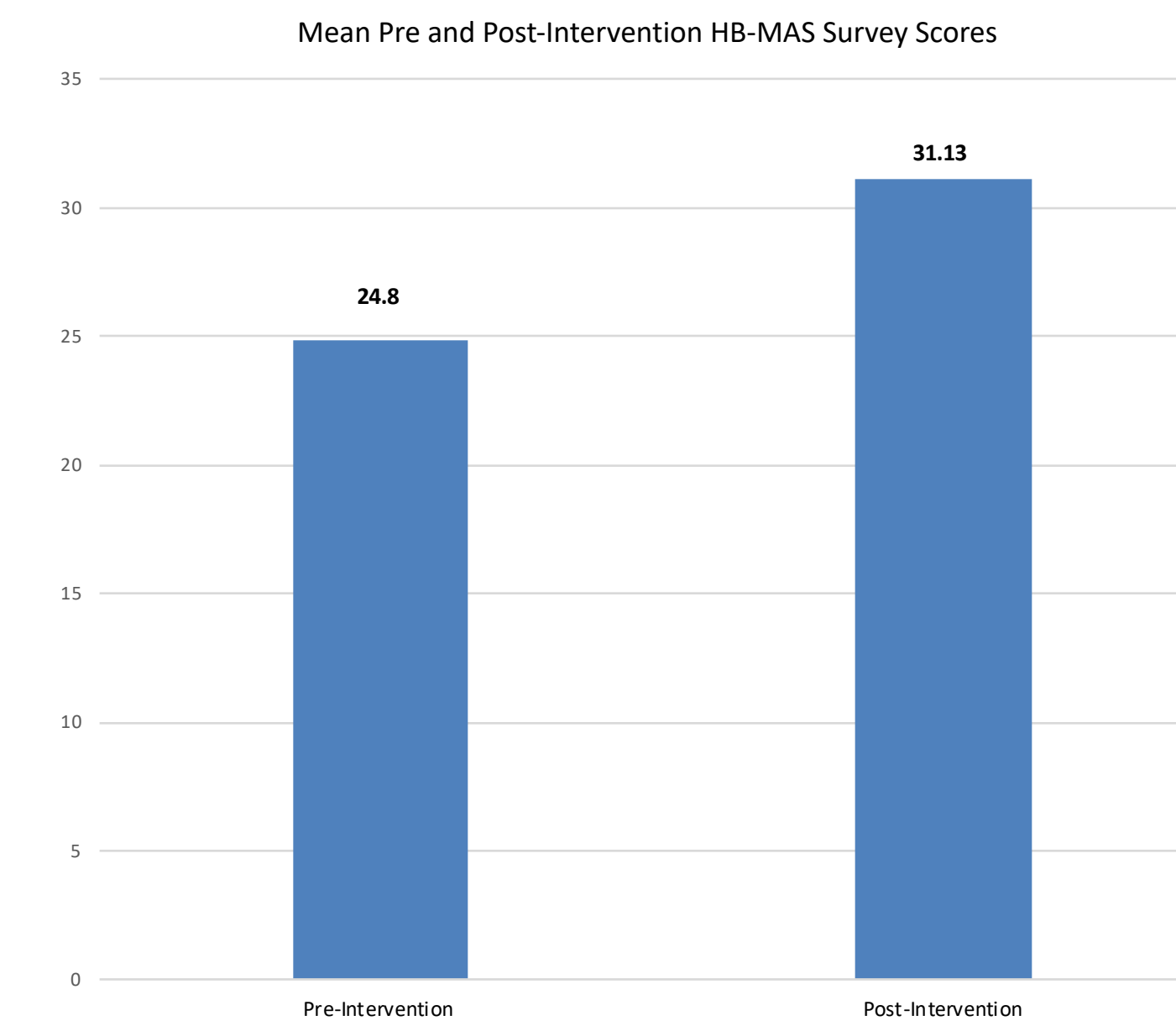
Results

Pre-Intervention

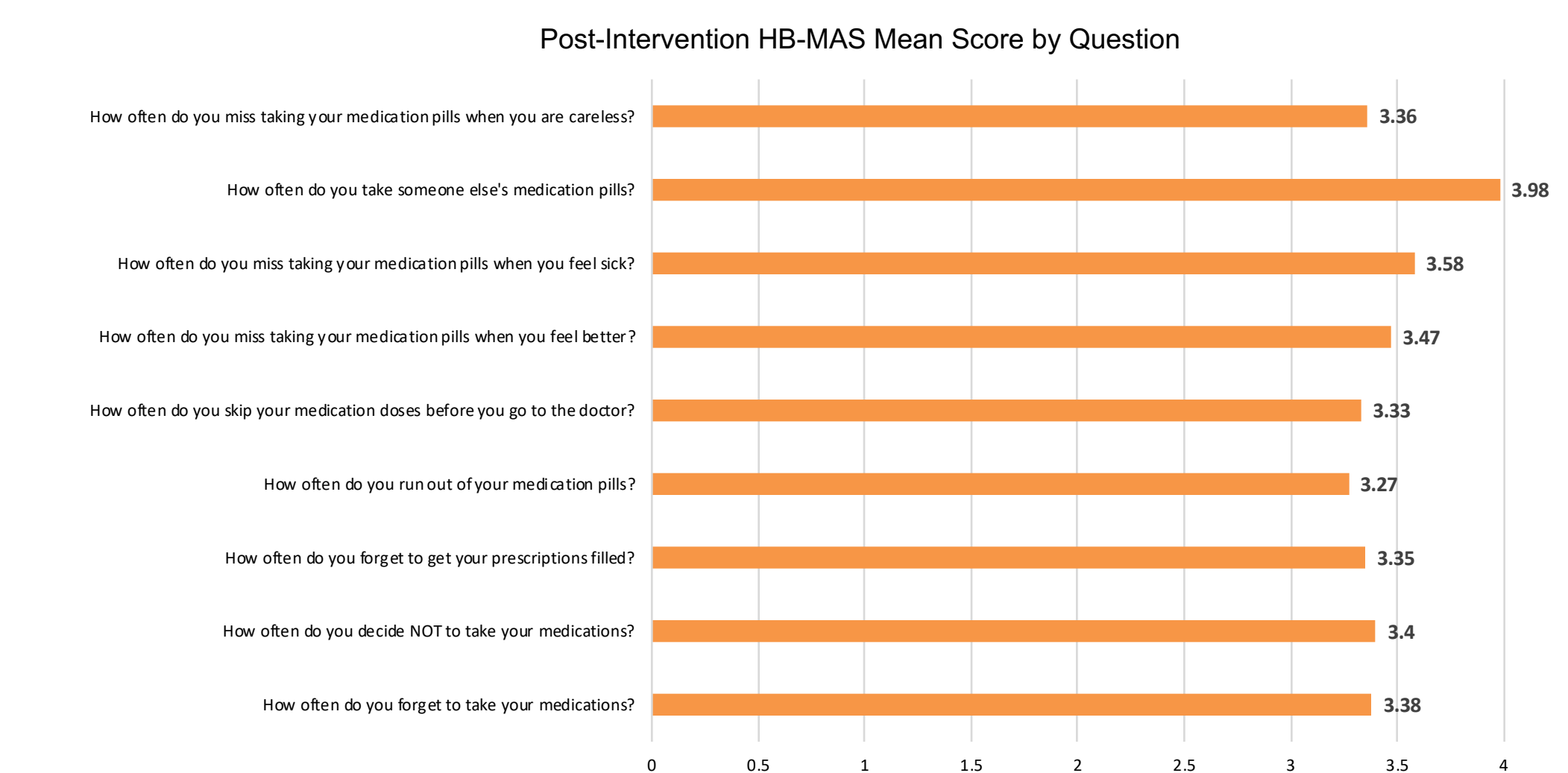
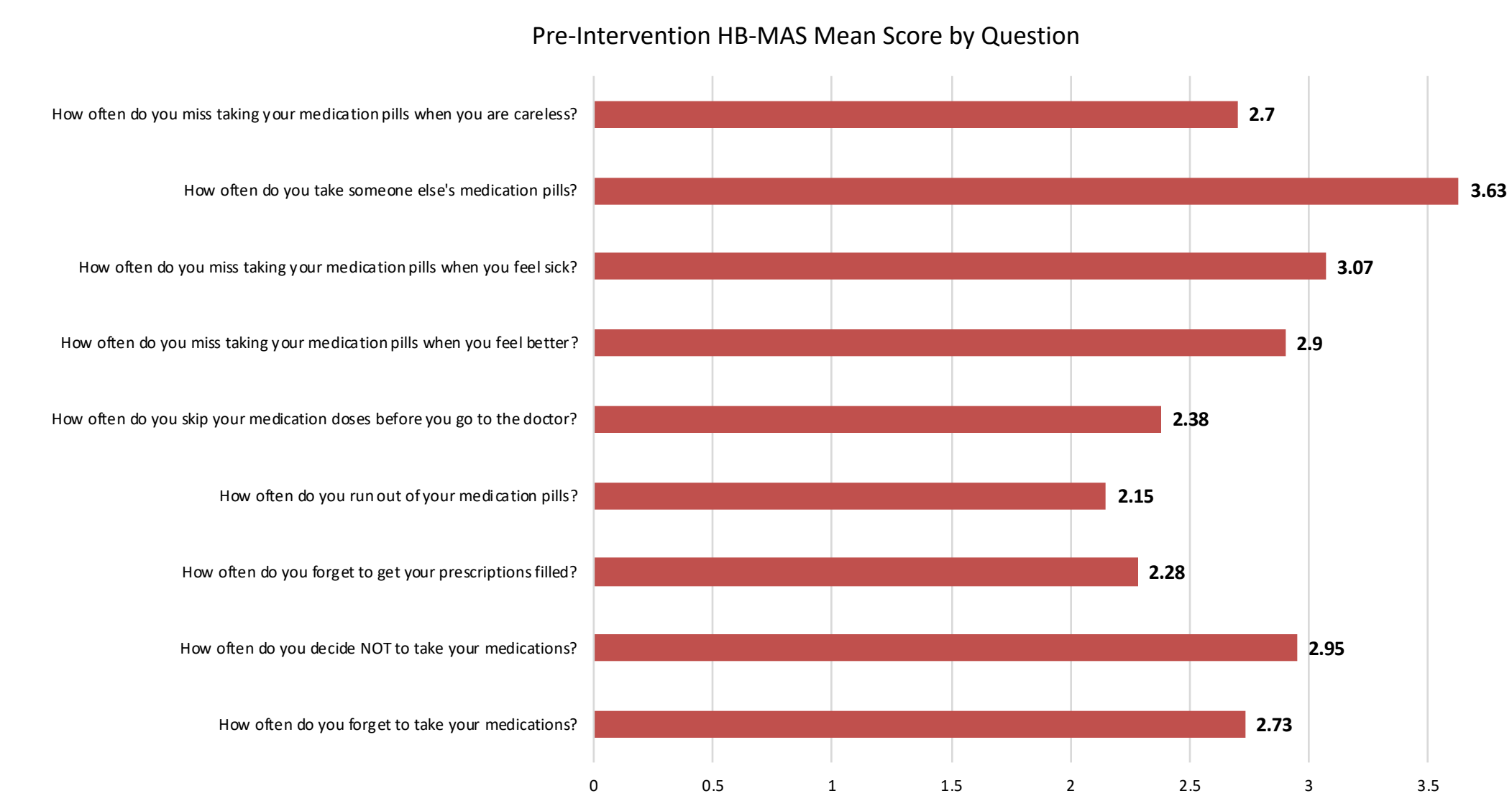
- A total of 60 participants (n=60)
- The mean pre-survey score was 24.80

Post-Intervention

- A total of 55 participants (n=55)
- The mean post-survey score was 31.13



The Wilcoxon signed-rank test showed significance between the pre-intervention and post-intervention mean scores $p < .001$



The Wilcoxon signed-rank test showed significance $p < .001$ across all 9 questions from the HB-MAS



Discussion

- Scores increased across all 9 areas of the Hill-Bone Medication Adherence scale, along with the total mean score from all participants, supporting increased medication compliance with smartphone application usage.

Limitations

- COVID-19
- Patient's ignoring or silencing alerts on their phone
- Results were self reported by the patient
- Patient's did not submit MediSafe data to study coordinator
- 5 participants lost to follow up

Implications for Practice & Future Research

Practice

- Provides a beneficial tool for practitioners to recommend to their patients who are struggling with medication compliance
- Opens up a new tool for practitioners to give to patients who have tried other methods to increase their medication compliance

Policy

- Provides other nurses or nurse practitioners with significant data to use towards creating a policy in favor of assisting with medication compliance

Economic impact

- Lower health costs for patients
- Decreased strain on the US Economy

Quality and Safety

- Increased quality of life due to decreased health complications
- Increased medication safety
- Decreased stress on healthcare providers

Education

- New educational tool

Conclusion

Patients who struggle with taking their medications can increase their compliance by using a smartphone medication reminder application. This provides healthcare providers with a new educational tool to give to their patients who struggle with taking their medications.

References

Scan QR code below for full list of references

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