Impact of Social Determinants of Health (SDoH) on Hypertension Control in a Family Medicine Residency Clinic

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Introduction

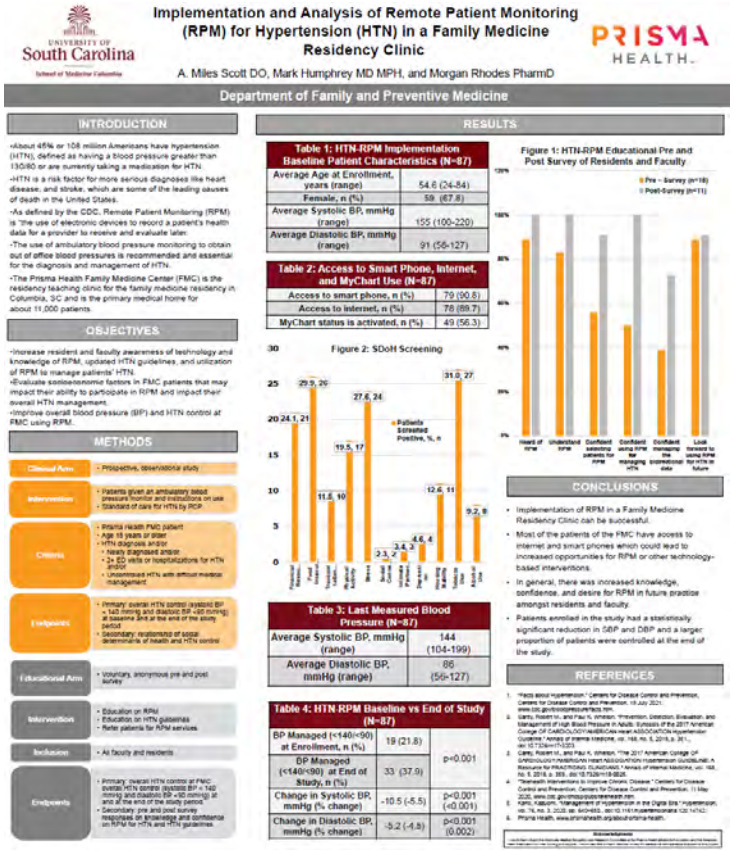
- In 2020, more than ***670k*** deaths in the US ***had hypertension as a primary or contributing cause***[1].
- Nearly half of adults in the United States ***(47%, or 116 million)*** have hypertension, defined as systolic blood pressure greater than 130 mmHg or a diastolic blood pressure greater than 80 mmHg or are taking medication for hypertension[2].
- Only about 1 in 4 adults ***(24%)*** with hypertension have their condition under control[2].
- About half of adults ***(45%)*** with uncontrolled hypertension have a blood pressure of 140/90 mmHg or higher[2].
- ***80-90 percent*** of modifiable contributors to healthy outcomes, broadly termed SDoH, are ***not specifically accounted for by medical care***[3].
    - Health-related behaviors
    - Socioeconomic factors
    - Physical environment factors

Introduction cont'd

- Prisma Health Family Medicine Center: January 2022-February 2023
  - Prospective, single site, implementation study
    - *Implementation and Analysis of Remote Patient Monitoring (RPM) for Hypertension (HTN) in a Family Medicine Residency Clinic*

      Anthony M. Scott, DO,
      Mark Humphrey, MD, MPH,
      Morgan A. Rhodes, PharmD

      Deborah Hurley, PhD, MSPH
  - Effectiveness of RPM for HTN control
  - SDoH data surveyed but not further evaluated/analyzed



Scott et al., 2023

Table 3: Last Measured Blood Pressure (N=87)	
Average Systolic BP, mmHg (range)	144 (104-199)
Average Diastolic BP, mmHg (range)	86 (56-127)

Table 4: HTN-RPM Baseline vs End of Study (N=87)		
BP Managed (<140/<90) at Enrollment, n (%)	19 (21.8)	p<0.001
BP Managed (<140/<90) at End of Study, n (%)	33 (37.9)	
Change in Systolic BP, mmHg (% change)	-10.5 (-5.5)	p<0.001 (<0.001)
Change in Diastolic BP, mmHg (% change)	-5.2 (-4.5)	p<0.001 (0.002)

Objectives/Aims

Objective:

- Amass aggregate SDoH and HTN data for statistical analysis of individual SDoH factors' correlation to uncontrolled hypertension.

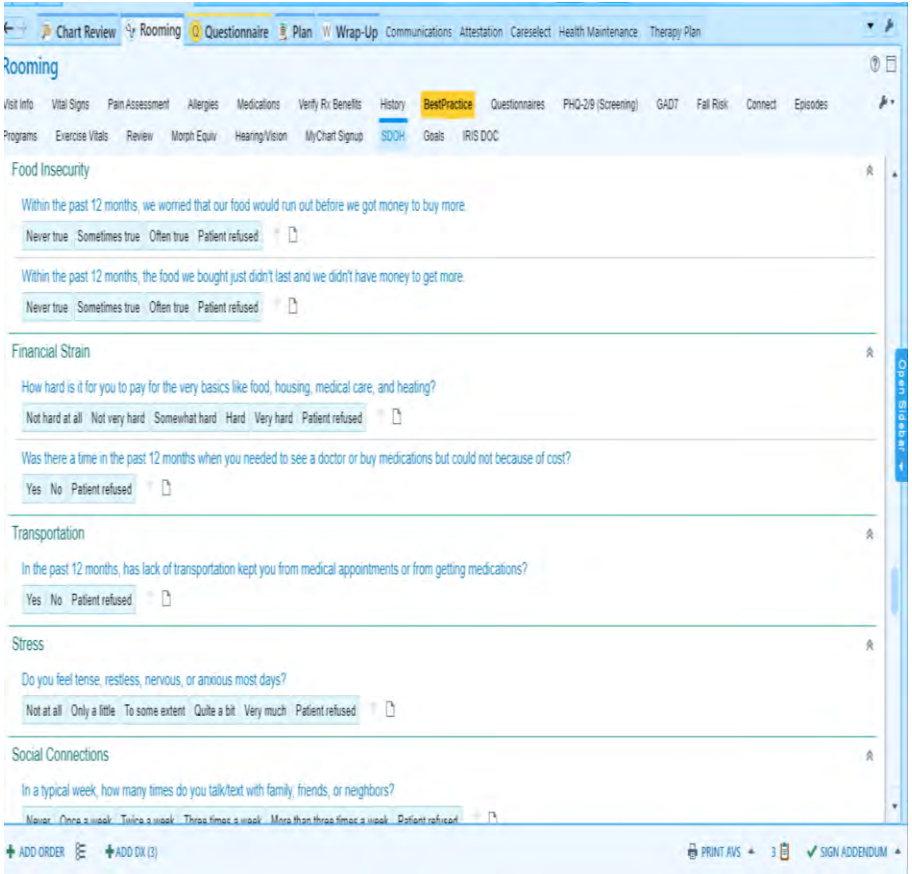
Aim:

- Identify the most strongly correlated SDoH factors to uncontrolled HTN as an extrapolate of a site-specific patient population to identify area(s) for future intervention to improve HTN control.

Methods

Retrospective, single-site, observational study

- Prisma Health SDoH survey given to all enrollees at the time of enrollment.
  - Close-ended survey
  - Categorical, “Yes/No”, Continuous questions
- Tobacco data additional
- Unique responses paired with individual-specific HTN control outcomes based on RPM data.
- Statistical Tests
  - Chi-squared or Fisher’s Exact Test for ***categorical data***
  - Wilcoxon Rank Sum Test for ***numeric data***

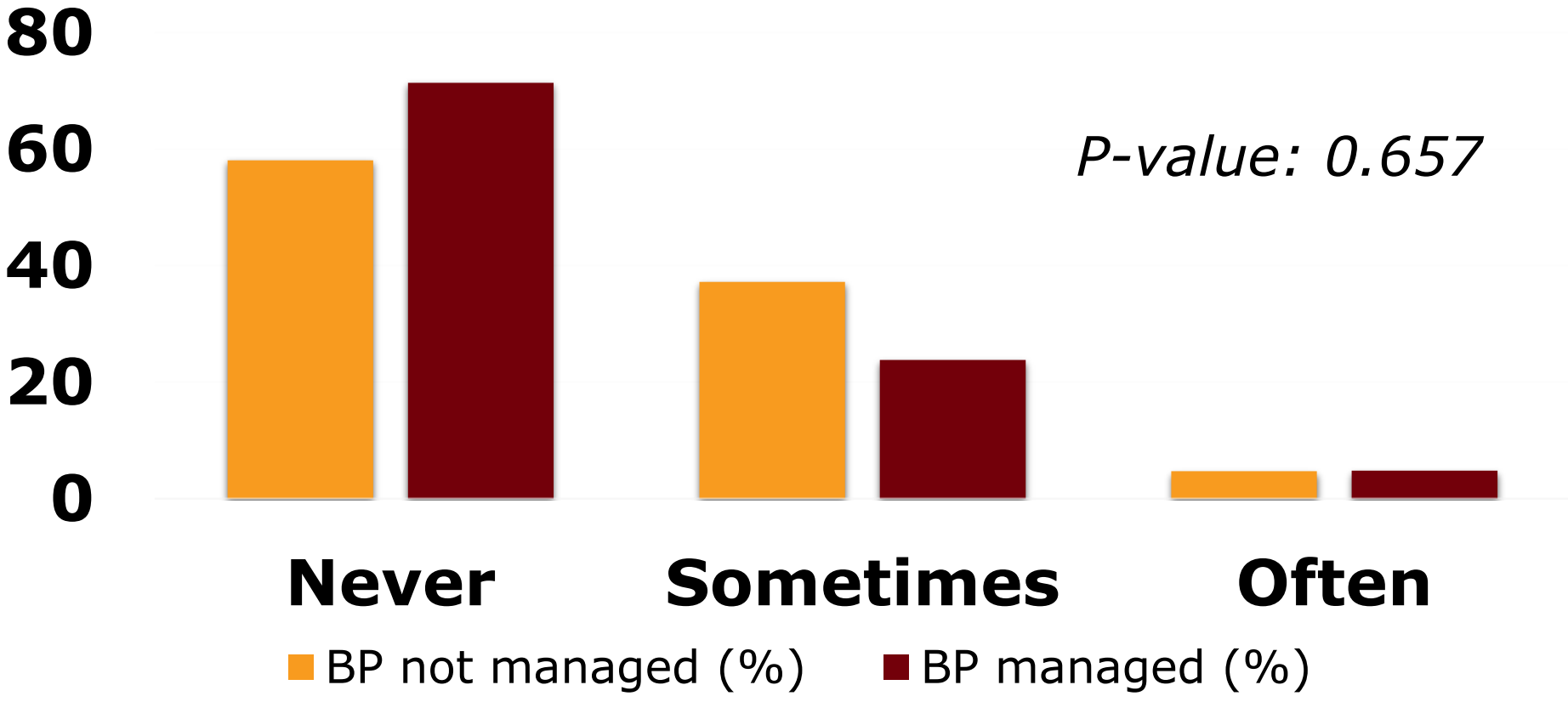


Results

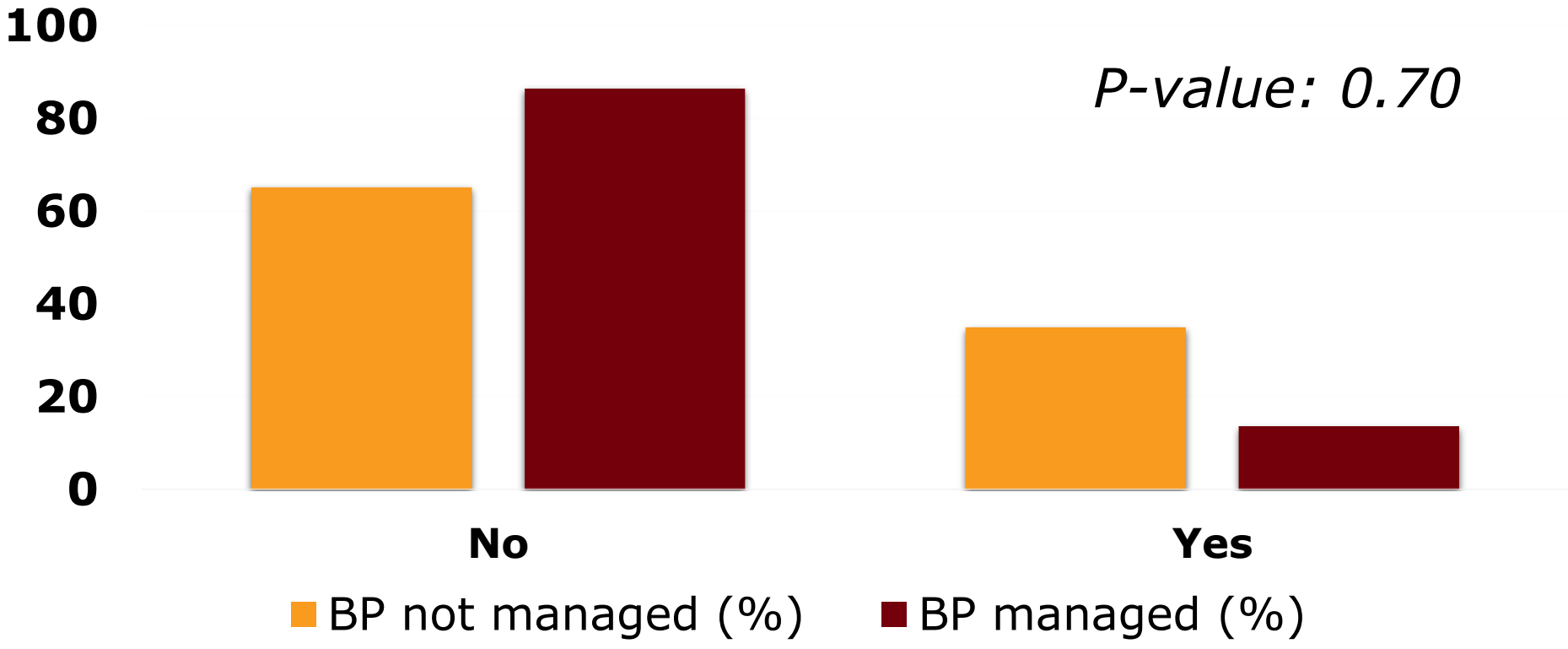
- Enrolled: 87
- SDoH completed:65
- Sex:
  - Female- 69.2%
  - Male- 30.8%
- Mean Age: 55.3 years (27- 82 years)
- HTN managed vs not managed
  - 22 (33.8%) vs 43 (66.2%)
- Most common factors screening positive
  - Tobacco (31%), Food insecurity (29.9%), and Stress (26.7%)

No statistically significant difference between those not managed vs managed in any SDoH factor.

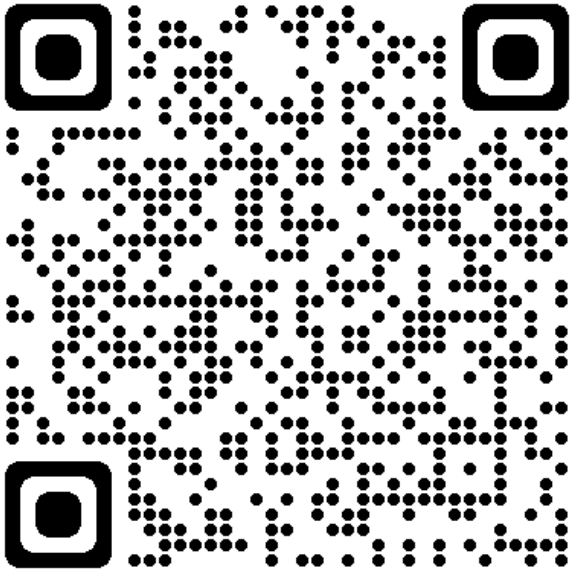
Q1: Within the past 12 months, we worried that our food would run out before we got money to buy more?



Q4: Was there a time in the past 12 months when you needed to see a doctor or buy medications but could not because of cost?



Complete Results



Discussion

- Statistical power
- Selection bias
- Missing data bias
- Self-report bias
- SDoH factors related to monetary resources

Future Directions

- Other chronic disease management

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Questions?