

## INTRODUCTION

Cardiovascular disease is the leading cause of death in the United States and poorly controlled hypertension (HTN) is a modifiable risk factor for acute cardiovascular events.<sup>1,2,3</sup>

The UF Mobile Outreach Clinic (MOC) is a flexible means of delivering primary and preventative care to uninsured individuals in Gainesville, Florida. Most MOC patients are of low socioeconomic status and/or belong to racial and ethnic minority groups.

Prior studies have shown that non-Hispanic African Americans and Hispanics have a higher prevalence of uncontrolled HTN compared to non-Hispanic whites.<sup>2</sup> Furthermore, blood pressure (BP) control rates in patients treated for HTN have been demonstrated to be higher in white patients than in black patients.<sup>4</sup> Socioeconomic and racial disparities apparent in HTN control rates and the epidemiology of cardiovascular disease is a national public health concern.<sup>5</sup>

This retrospective quality improvement study seeks to describe the difference in sociodemographic distribution of BP control prior to and after receiving treatment at MOC. The results of this study will educate MOC's screening and management practices of patients with elevated BP. The benefit of using free safety-net clinics, like MOC, to improve BP management at the populational level would be a reduction of disparities surrounding incidence and prevalence of HTN and cardiovascular disease.

## METHODS

- Inclusion Criteria:** patients with two MOC visits at least 14 days apart between 1/1/2021 and 12/31/2021, and complete medical records.
- Extracted Data:** patient demographics, race, ethnicity, gender, household income, new patient status, body mass index (BMI), smoking history, heart rate, and systolic blood pressure (SBP) and diastolic blood pressure (DBP) of visit one and visit two.
- A manual chart review of (n=211) qualifying patients was conducted to determine the prevalence of hypertension. Criteria for HTN included known HTN diagnosis, self-reported diagnosis, or active use of antihypertensive agents prescribed by MOC.
- Using the 2017 AHA Guidelines, our study defined BP control as SBP or DBP < 140 and 90 mmHg, respectively.<sup>6</sup>
- BMI was grouped as follows: Underweight <18.5, 18.5 ≥ Normal < 25, 25 ≤ Overweight < 29.9, Obese >30.
- SBP, DBP, and BP control rates were compared across SES, demographic, and BMI groups between visits; and stratified by a) known HTN diagnosis b) BP control groups and c) patients who established care with MOC in 2021.
- A logistic regression was conducted using new/old patient status, HTN diagnosis, BMI group, race/ethnicity group, and history of smoking.
- Data organization, visualization, and analysis were conducted in Microsoft Excel and SAS statistical software.

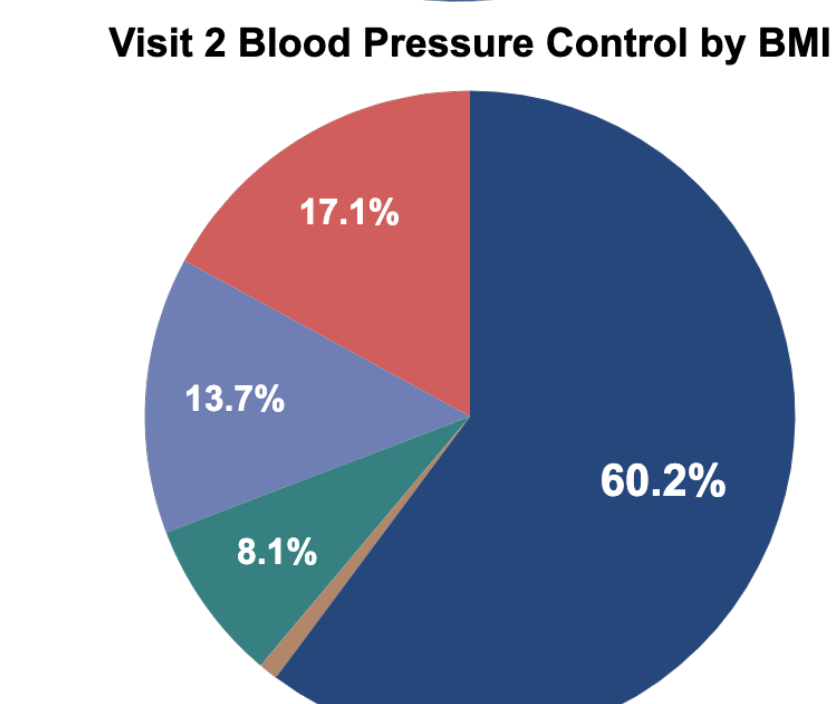
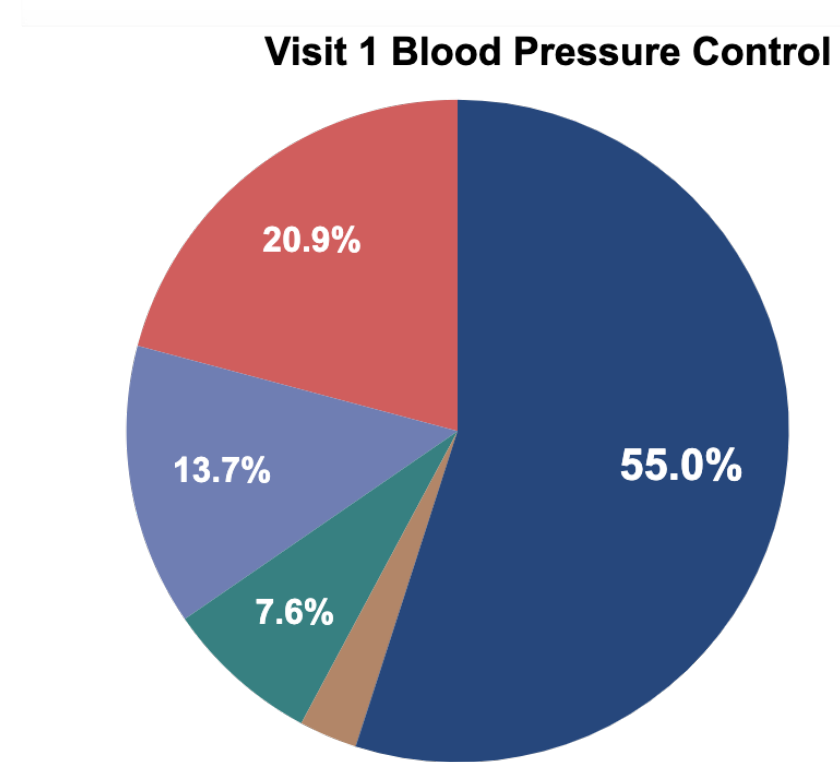
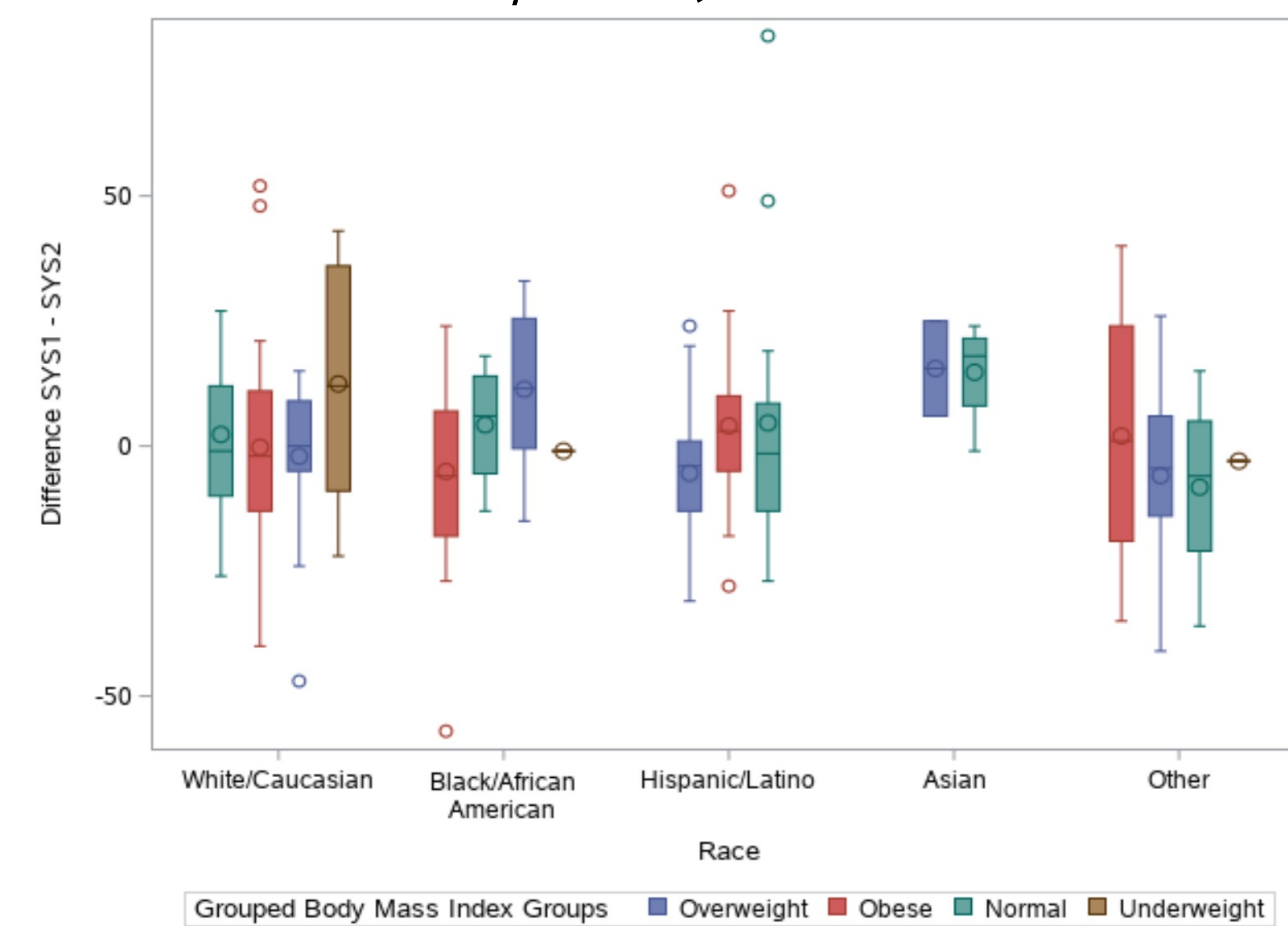
**Table 2**

	N	Uncontrolled BP		Controlled BP	
		Visit 1	Visit 2	Visit 1	Visit 2
<b>BMI Visit 1</b>					
Underweight	9	133.6	86.4		
Normal	52	127.7	82.0		
Overweight	56	136.1	87.2		
Obese	94	139.4	88.0		
<b>BMI Visit 2</b>					
Underweight	7	123.9	79.9		
Normal	55	126.0	79.7		
Overweight	62	138.5	87.1		
Obese	87	138.2	88.4		
<b>Old Patients (N)</b>					
Underweight BMI					
White/Caucasian	1	2	2	1	
Normal BMI					
White/Caucasian	7	8	2	1	
Black/AA	1	1	1	1	
Hispanic/Latino	6	6	2	2	
Asian	1	1	0	0	
Other	1	1	0	0	
<b>Overweight BMI</b>					
White/Caucasian	7	5	8	10	
Black/AA	1	4	3	7	
Hispanic/Latino	5	7	5	2	
Other	2	3	2	1	
<b>Obese BMI</b>					
White/Caucasian	9	10	9	8	
Black/AA	9	9	7	7	
Hispanic/Latino	9	14	7	2	
Other	0	0	1	1	

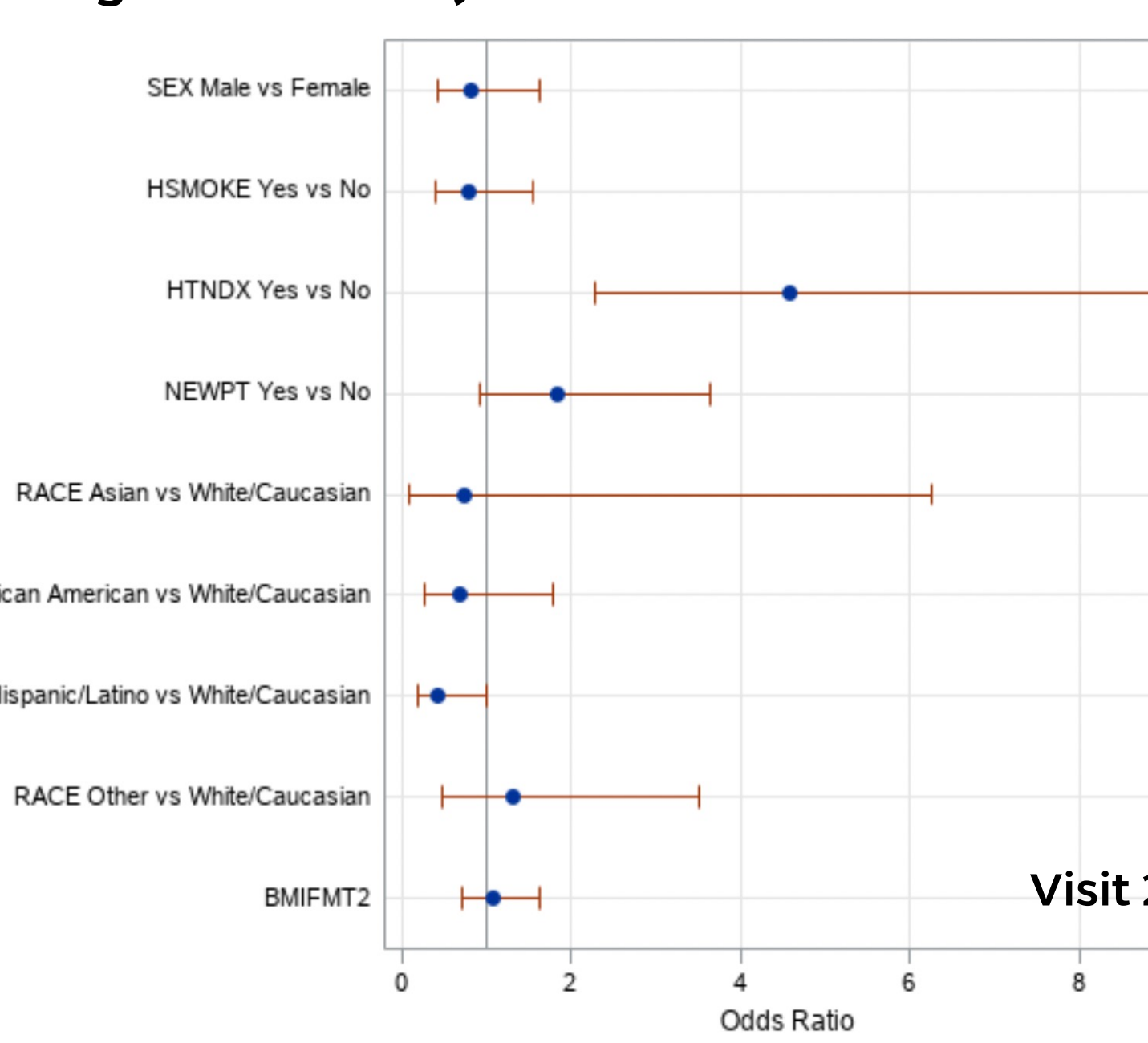
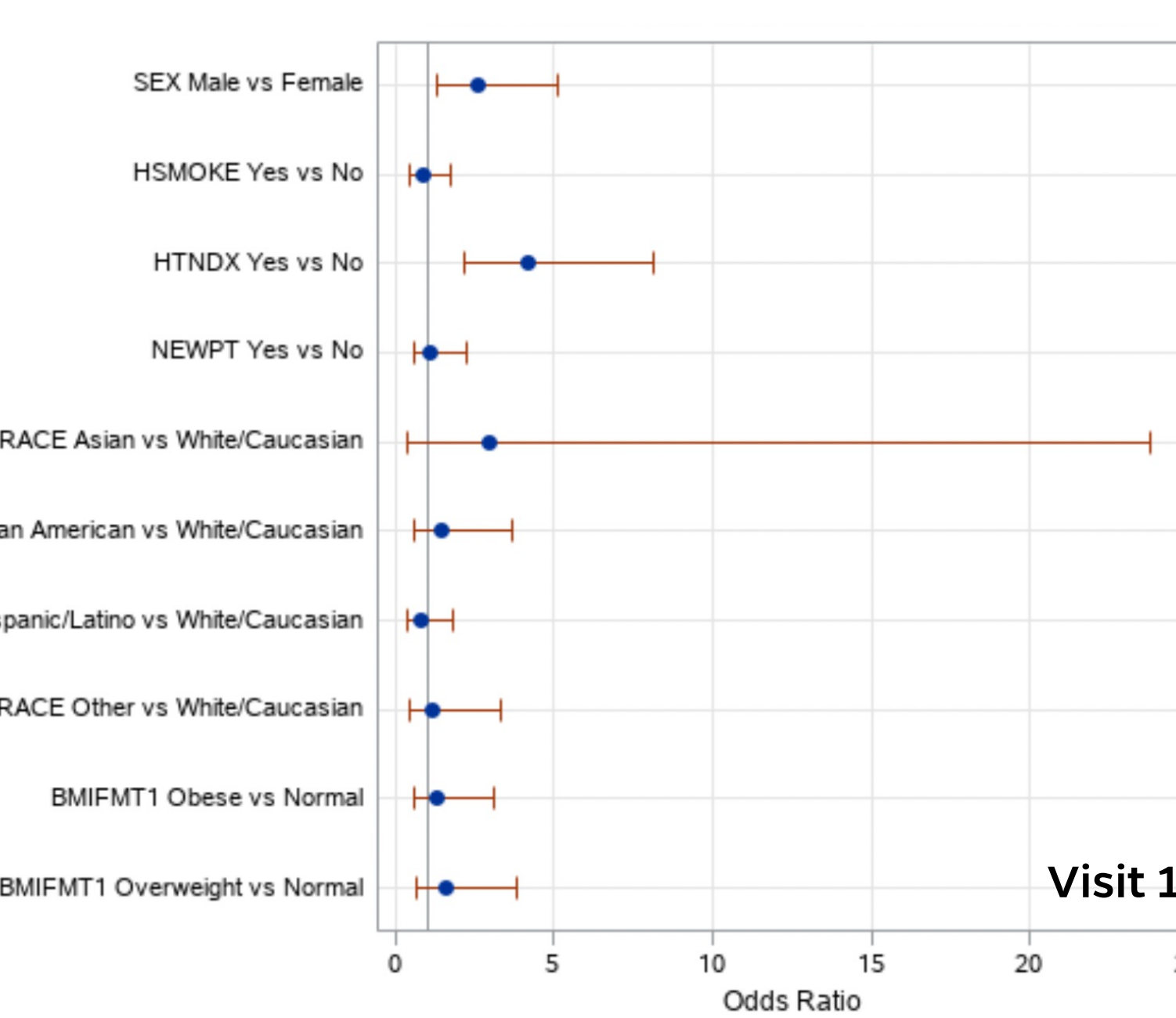
**Table 3**

Characteristic	N	Mean SBP (Visit 1)	Mean DBP (Visit 1)	Mean SBP (Visit 2)	Mean DBP (Visit 2)
<b>Demographics (all)</b>	211	135.4	86.2	134.7	85.5
With HTN diagnosis	98	146.4	92.7	145.9	91.2
New patient	102	137.2	85.9	136.6	86.0
<b>Gender</b>					
Male	84	141.7	90.1	136.4	87.5
Female	126	131.3	83.7	133.6	84.0
Transgender	1	120.0	81.0	118.0	93.0
<b>Race and Ethnicity</b>					
White/Caucasian	72	137.9	89.3	136.7	87.5
Black/AA	36	136.7	86.1	137.0	86.7
Hispanic/Latino	67	128.9	82.9	127.4	81.1
Asian	6	147.2	80.0	132.2	74.8
Other	30	139.7	87.6	143.5	90.9
<b>Household Income</b>					
Income unknown	80	137.1	86.7	134.2	83.8
Below \$10,000	66	136.9	86.7	137.7	87.7
\$10,000 - \$14,999	17	132.7	86.9	134.2	87.0
\$15,000 - \$19,999	12	122.9	79.5	123.4	80.4
\$20,000 - \$29,999	12	140.8	84.4	137.1	84.9
\$30,000 - \$39,999	11	121.8	81.0	125.7	81.2
\$40,000 - \$49,999	4	137.0	90.5	127.5	83.0
\$50,000 - \$59,999	3	137.3	96.0	141.7	97.0
\$60,000 or above	6	140.0	92.3	143.7	94.5
<b>Tobacco History</b>					
Current or hx of	123	134.4	85.4	133.9	85.0
Never smoker	88	136.8	87.4	135.7	86.1

**Difference in SBP between Visits 1 and 2 Stratified by Race/Ethnicity and BMI**

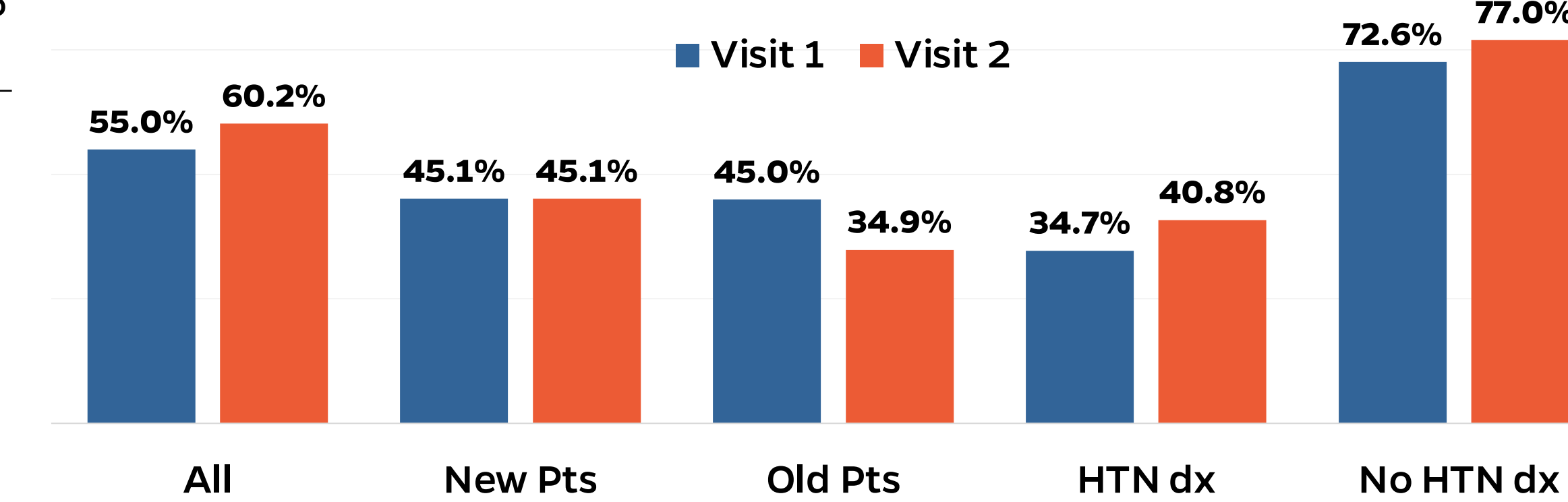


**Odds Ratio 95% Wald Confidence Limit from Logistic Regression Analysis for Uncontrolled BP**

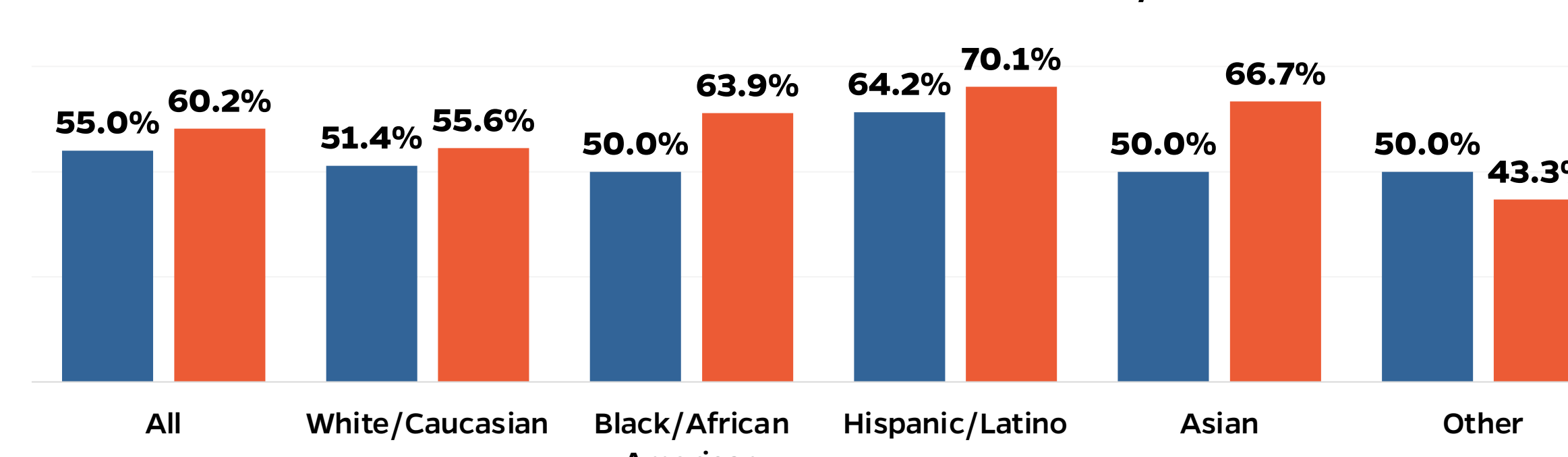


## RESULTS

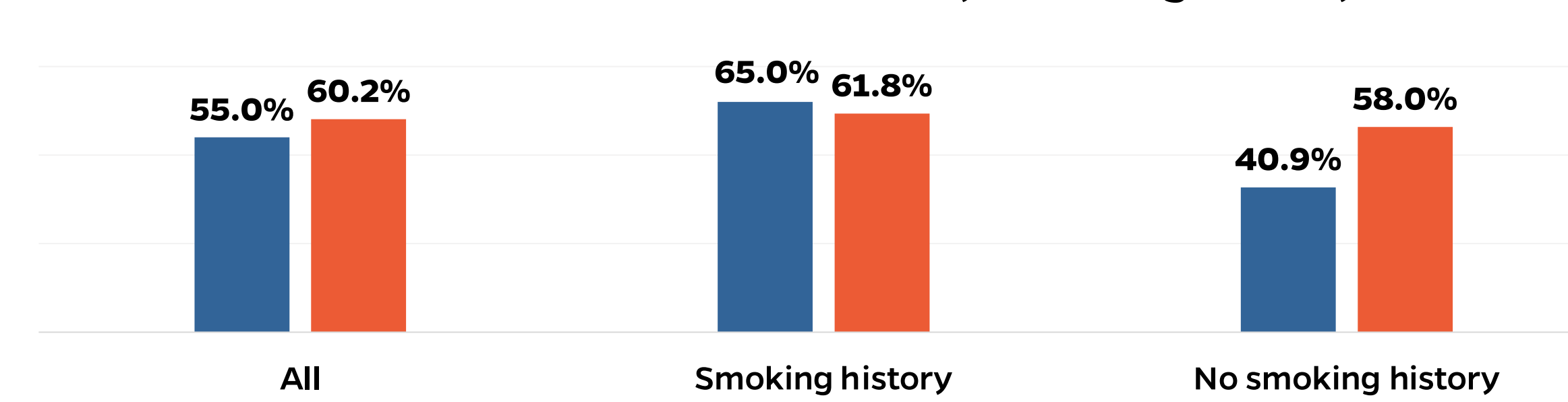
**Blood Pressure Control Rates (BP <140/90)**



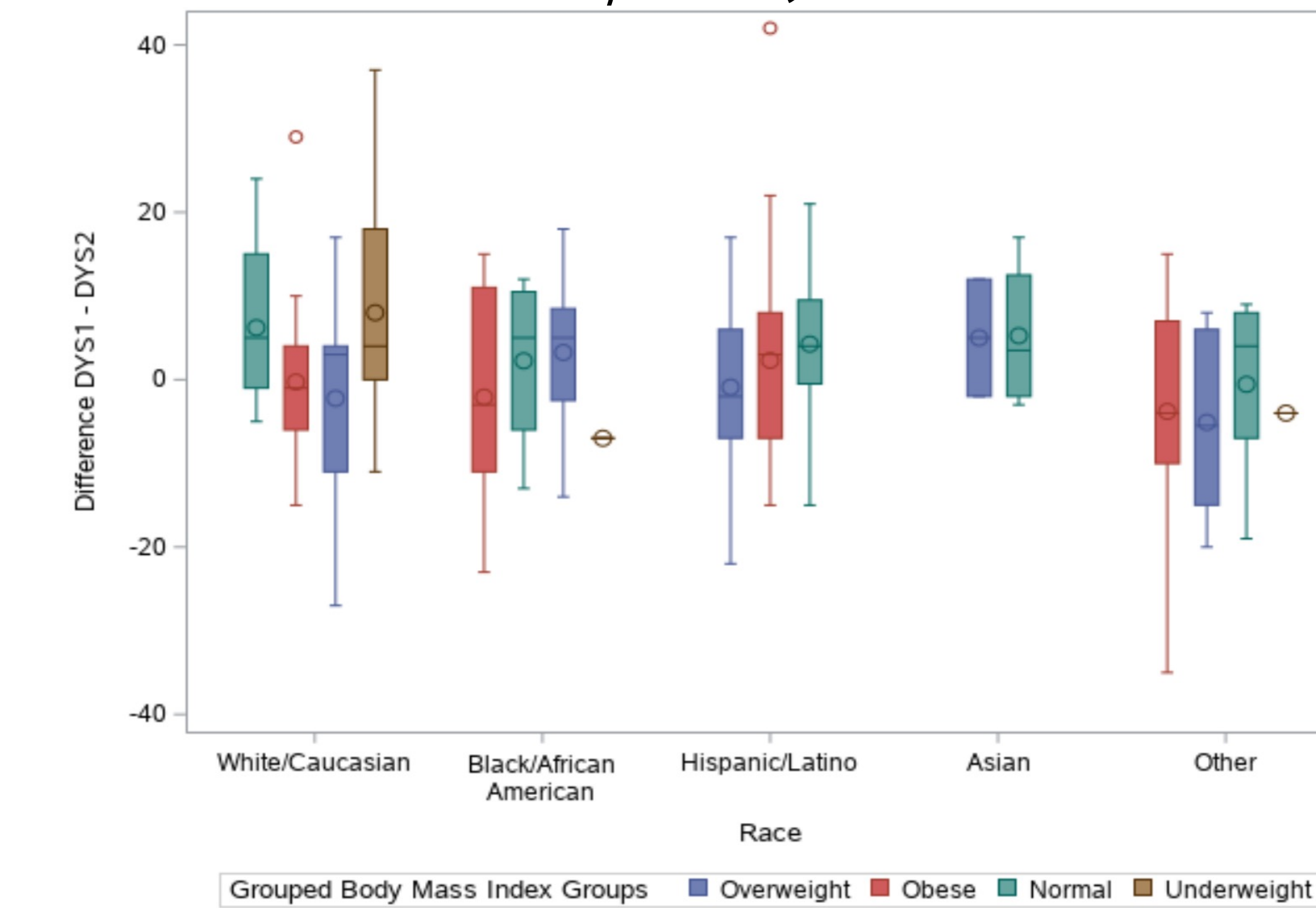
**Blood Pressure Control Rates by Race/Ethnicity**



**Blood Pressure Control Rates by Smoking History**



**Difference in DBP between Visits 1 and 2 Stratified by Race/Ethnicity and BMI**



## DISCUSSION

- Our study shows that 46.4% of the 211 MOC patients included have a documented diagnosis of hypertension, self-reported past medical history of hypertension, or are taking known antihypertensives medications. This is consistent with previous blood pressure control literature in treated uninsured patients with known HTN.<sup>7</sup>
- Logistic regression analysis showed that self-reported or diagnosed HTN was the only significant predictor of BP control.
- In patients with diagnosed or self-reported HTN, our sample demonstrated 34.7% BP control in visit 1 and 40.8% at visit 2. This suggests that our clinic has a positive impact in BP control rates in our patient population.
- The observed positive trends in BP control across minority and non-minority groups between visits reaffirms MOC's expected impact on chronic condition management in new and returning patients.
- Given that the MOC serves mostly minority patients, we were not surprised that BP control rates were not the same across different race/ethnicity groups. However, we were surprised that White/Caucasian individuals demonstrated lower blood pressure control proportions than comparably sized minority race/ethnicity groups.
- Many factors may account for the observed trends including but not limited to acquisition errors, BP cuff inaccuracy, low sample size, white coat hypertension, health habits, treatment adherence, patient-provider relationship, and medications taken. The variability in patient characteristics including past medical history, duration between two visits, willingness to follow up with MOC, and ability to be contacted all pose as potential confounders.
- It is important to clarify that this study was not designed with hypertension outcomes in mind; rather, it served to establish baseline population health statistics on which to base future clinic initiatives.
- Controlled, counterfactual analysis of differences in BP control rates and mean BP measurements between population subsets will be key to identifying sociodemographic and racial disparities for improvement in healthcare.

## CONCLUSIONS

Being seen at the Mobile Outreach clinic has some positive impact on blood pressure control, whether due to pharmacologic, educational, or other intervention methods. However, MOC stands to improve management of blood pressure in its patient, especially returning patients. Methods to explore include a lower threshold for intervention, visible AHA guidelines for rotating providers and students, and stricter management practices in those with known hypertension.

## ACKNOWLEDGEMENTS

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**References:**

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