

# Mixed-Methods Evaluation of a Randomized Control-Trial Community Health Worker Intervention to Improve Diabetes Management in the New York City Bangladeshi Community

Riley L<sup>1</sup>, Alam G<sup>1</sup>, Haq M<sup>1</sup>, Taher MD<sup>1</sup>, Wyatt L<sup>1</sup>, Tandon SD<sup>2</sup>, Tanner M<sup>3</sup>, Naik P<sup>4</sup>, Yousuf S<sup>5</sup>, Mukherji-Ratnam R<sup>6</sup>, Trinh-Shevrin C<sup>1</sup>, Islam N<sup>1</sup>

NYU Center for the Study of Asian American Health<sup>1</sup>; Northwestern University<sup>2</sup>; Bellevue Hospital (NY)<sup>3</sup>; Morris Heights Health Center<sup>4</sup>; Adhunika<sup>5</sup>; SUNY Old Westbury<sup>6</sup>

## BACKGROUND

High rates of diabetes among Bangladeshi immigrants in the U.S. and U.K. have been documented. However, few culturally- and linguistically-tailored health interventions have been implemented in this community. Findings are being presented for an NIH-funded community health worker (CHW) intervention designed to improve management and control amongst diabetic Bangladeshis in New York City.

## METHODS

Participants were recruited from clinic-based settings and randomized to either treatment or control group. Treatment group participants received five group educational seminars, two one-on-one visits, and phone calls as needed from a CHW over a 6-month period. Control group participants received an introductory educational session only, no visits from a CHW, and phone follow-up for data collection purposes only.

Survey questionnaires and clinical outcomes were collected at the Baseline, 3-Month, and 6-Month timepoints. Measures assessed behavior change in the areas of physical activity, nutrition, and access to primary and specialty care, as well as diabetes knowledge and management practices. Qualitative data was extracted from participant testimonies and CHW case notes.

Figure(s) 1: Project CHWs



Figure 2: CONSORT Flowchart, Screening/Enrollment:

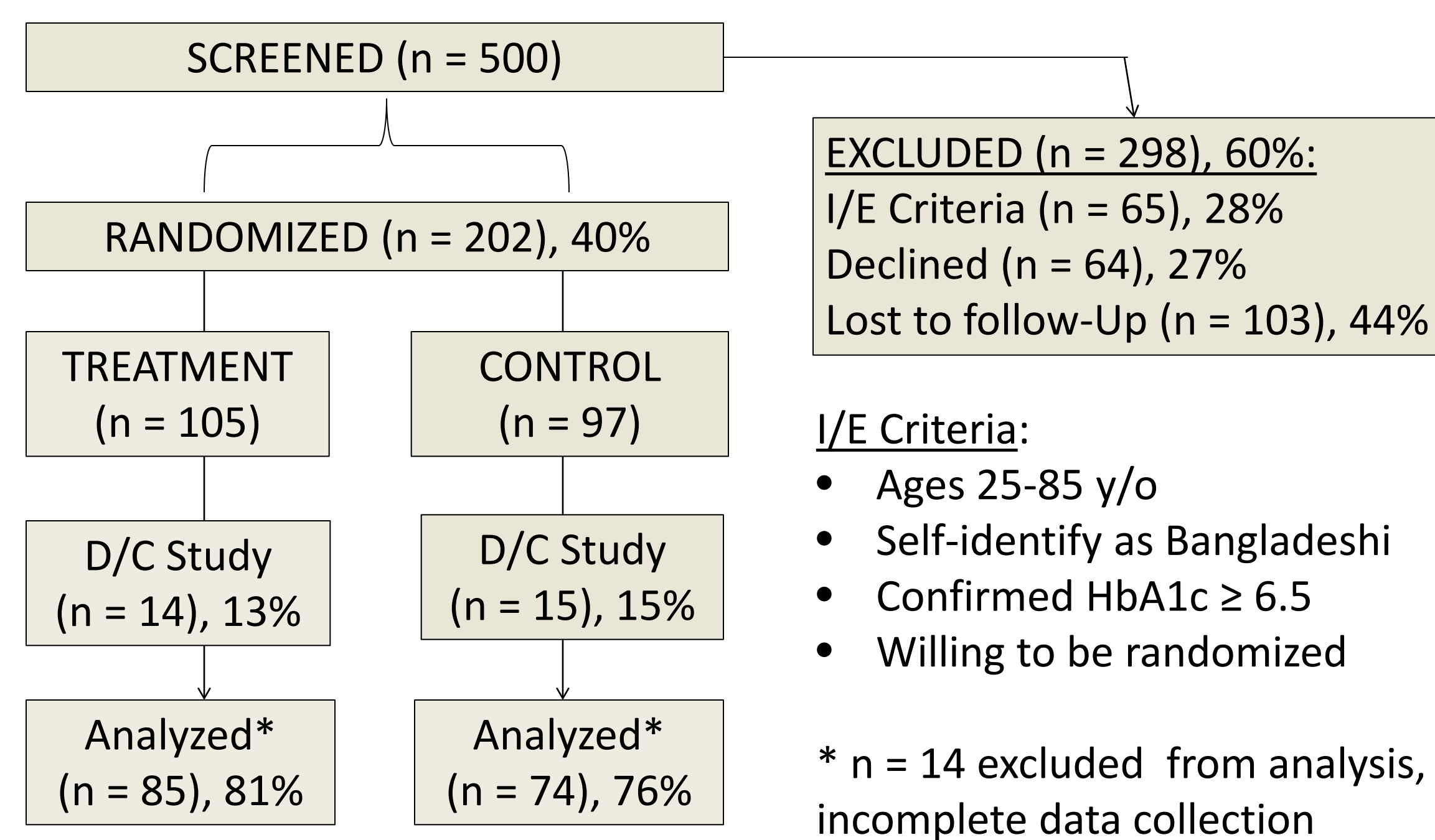


Table 2. Demographic Summary

	Treatment Group n = 85	Control Group n = 74
Male	n = 51 (60%)	n = 41 (55%)
Female	n = 34 (40%)	n = 33 (45%)

39% (n=66) of participants were between the ages of 50-59. The majority of participants (n = 91, 60%) have resided in the US for 11 or more years, yet n = 97 (56%) reported that they spoke English 'Not Well' or 'Not at All.' 70% (n = 57) of study participants who responded reported an annual household income of less than \$20,000.

## RESULTS

Program participants demonstrated statistically significant improvements in several areas related to self-reported physical activity, food-related behaviors such as portion control and healthier meal preparation, as well as knowledge related to diabetic management. Specifically, 67% of treatment group participants reported that they engaged in no physical activity at Baseline, as compared to 7% at the 6-Month follow-up (p <0.001, see Figure 3). Additionally, only 13% of treatment group participants reported knowing what HbA1c was at Baseline, as compared to 68% at follow-up (p <0.001, see Figure 4). In addition to improvements in physical activity, food-related behaviors, and diabetes knowledge, treatment group participants demonstrated statistically significant improvements in self-efficacy related to accessing and utilizing healthcare (Figure 5).

Figure 3. Self-Reported Engagement in Physical Activity

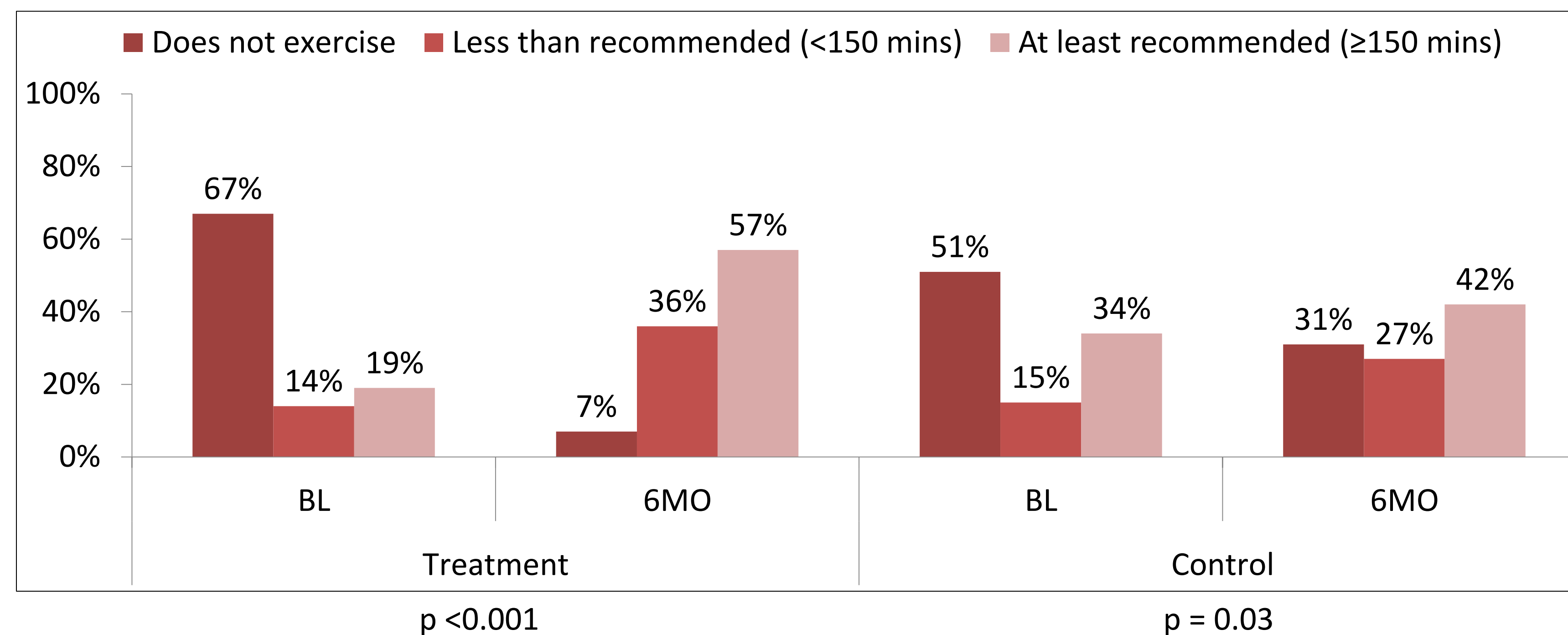


Figure 4. Knowledge of Hemoglobin A1c

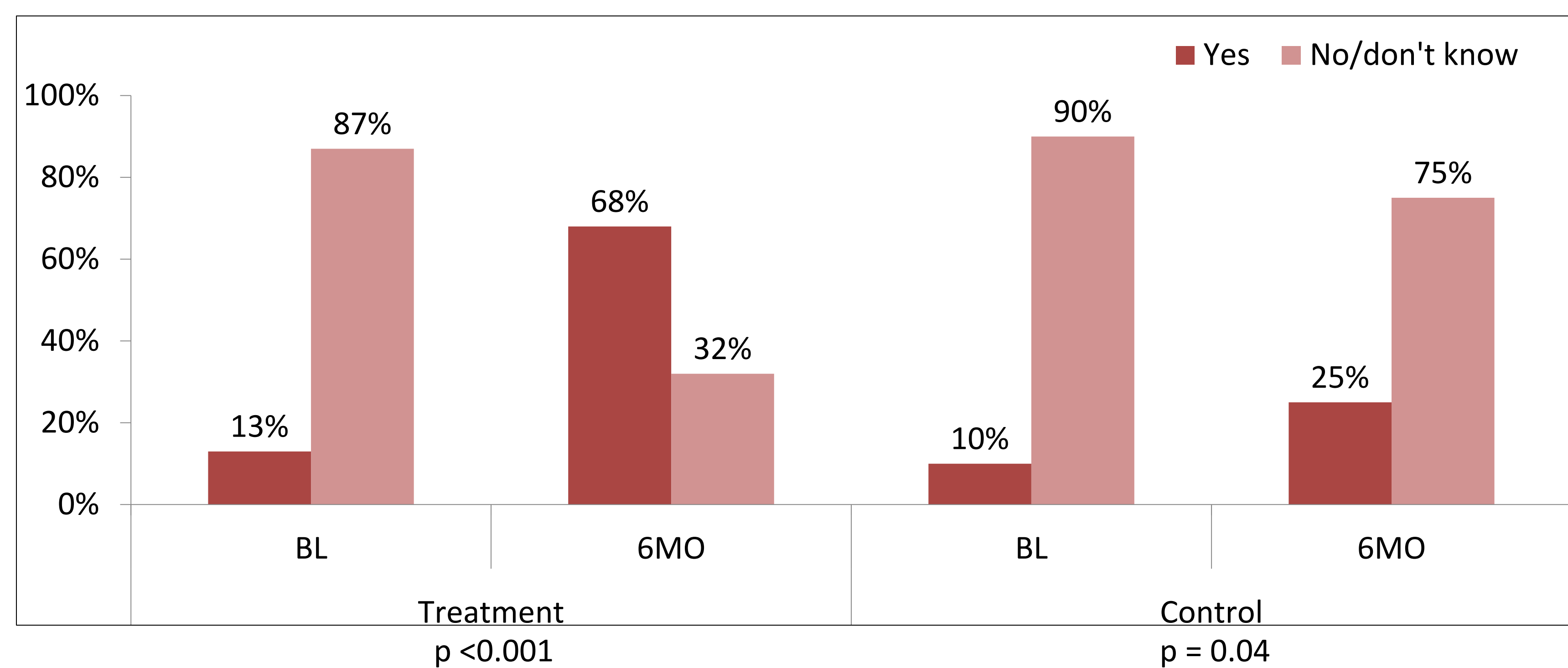
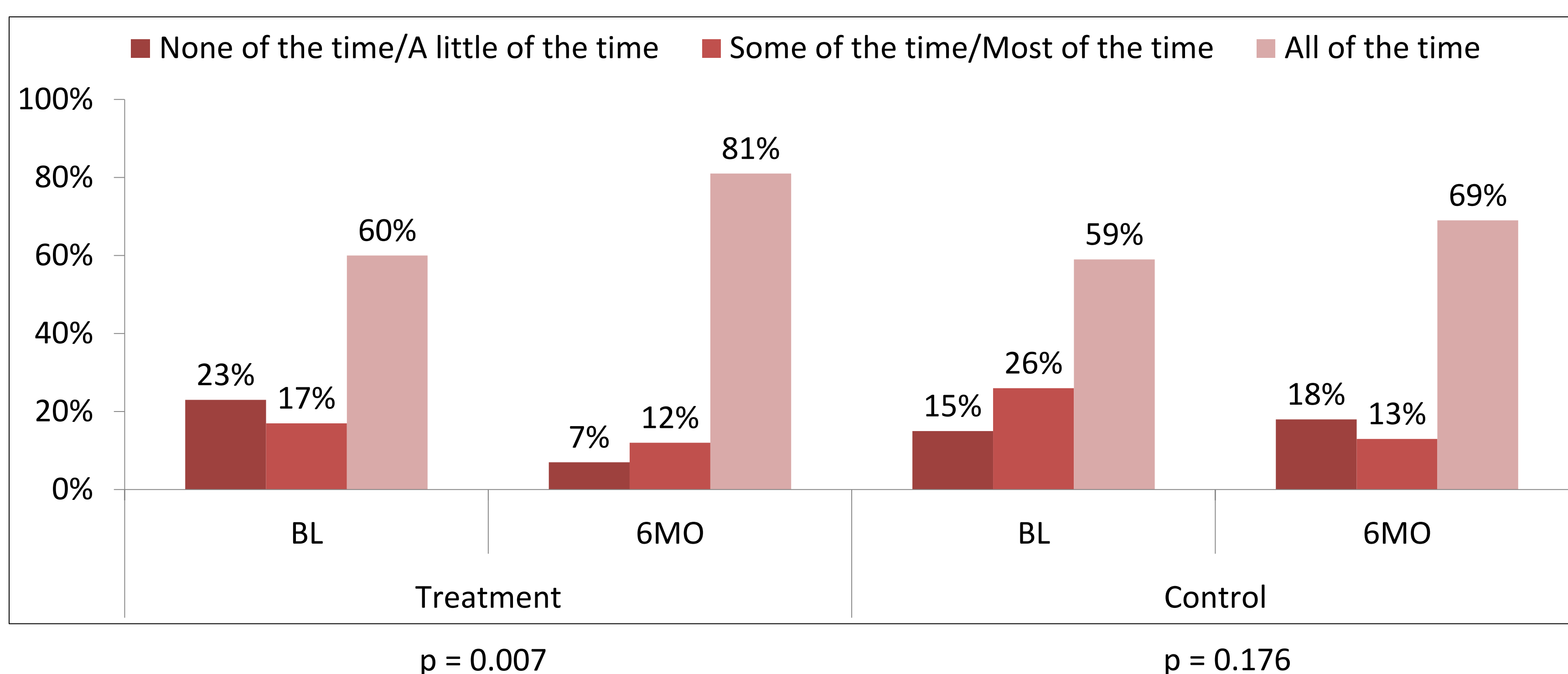


Figure 5. Comfort with Communicating with Healthcare Providers



## RESULTS (cont.)

No significant changes in HbA1c were observed in the treatment group. However, statistically significant improvements in weight (mean loss = 2 lbs) and BMI were demonstrated (p = 0.01, p = 0.03, respectively). No significant changes in the aforementioned clinical outcomes were demonstrated by the control group.

Table 2. Summary Primary & Secondary Clinical Outcomes

	Treatment				Control			
	n	Mean (SD)	Mean (SD)	p-value	n	Mean (SD)	Mean (SD)	p-value
HbA1c	86	7.6 (1.1)	7.5 (1.3)	0.420	80	7.9 (1.5)	7.7 (1.4)	0.264
Weight	82	148.5 (23.8)	146.9 (23.8)	0.014	62	148.6 (23.0)	148.0 (24.0)	0.390
BMI	82	26.3 (3.6)	26.1 (3.8)	0.031	61	26.5 (4.1)	26.4 (4.1)	0.390
Waist-to-Hip Ratio	82	0.94 (0.06)	0.95 (0.06)	0.313	61	0.95 (0.10)	0.95 (0.08)	0.511
Systolic BP	77	132.1 (17.1)	127.5 (13.9)	0.012	56	128.8 (15.6)	126.1 (15.2)	0.313
Diastolic BP	77	80.1 (11.3)	77.8 (8.2)	0.093	56	77.7 (10.0)	76.6 (10.6)	0.460
Cholesterol	73	153.7 (41.7)	145.2 (34.1)	0.033	67	152.4 (40.1)	153.1 (36.0)	0.834
Triglycerides	73	146.0 (77.2)	136.9 (71.7)	0.289	67	160.6 (103.3)	155.3 (98.8)	0.581
HDL	73	41.9 (9.1)	42.0 (8.8)	0.873	67	42.8 (8.8)	41.6 (7.8)	0.030
LDL	72	83.3 (34.2)	77.2 (27.6)	0.071	64	80.7 (38.5)	83.0 (31.5)	0.526

## QUALITATIVE

"By doing exercise and eating healthy, I lost 5 lbs after joining the DREAM Project. I used to eat white rice. I learned about whole wheat bread and brown rice from CHWs. Now, I eat them instead of white rice."

Participant testimonial: 48 y/o male, T2DM for 10 yrs, reduced A1c from 7% - 6.2%

"At first she couldn't travel to sessions because she [had] never been to hospital by herself and never taken subway. After teaching her how to come, she feels more empowered, and even referred her family members to participate."

Project CHW case note: in reference to a 52 y/o female who had never learned to travel via public transportation despite having lived in NYC for over a decade

## CONCLUSIONS

Significant improvements were demonstrated in the treatment group in several clinical & behavioral domains relevant to diabetes control, as well as self-efficacy. Findings suggest that a CHW intervention in this community can be effective, however more evidence is needed. Results from a fifth cohort of participants are forthcoming. Additionally, qualitative analysis of participant & CHW interviews, as well as CHW case notes, points to key primary & secondary domains impacting CHW efficacy, such as communal concordance, participant empowerment, and increased trust of CHW vs. provider.

Correspondence: Lindsey Riley, MPH [lindsey.riley@nyumc.org](mailto:lindsey.riley@nyumc.org)

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