

# Power Up for Health: Pilot Study Outcomes of a Diabetes Prevention Program for Men from Disadvantaged Neighborhoods

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## Abstract

There is a significant evidence base for the Diabetes Prevention Program, a lifestyle intervention to prevent onset of type 2 diabetes among high-risk individuals; however, translation of this intervention for men has been challenging. This report presents outcomes of the pilot study of an adapted 16-week diabetes prevention program entitled “Power Up for Health.” The study goal was to better engage men of color with prediabetes from disadvantaged neighborhoods of New York City. It was implemented at five different recreation centers located in predominantly low-income neighborhoods across New York City. The curriculum was facilitated by male lifestyle coaches only; one group was conducted in Spanish. Primary outcome was weight loss from baseline to 16 weeks. Other measures included lifestyle activities, depressive symptoms, and self-reported health status. Men ( $N = 47$ ) were screened by telephone. Of the 29 eligible men who began the program, 25 attended at least 4 sessions (52% non-Latino Black, 32% Latino, mean age  $51.7 \pm SD 9.9$  years, mean body mass index  $35 \pm SD 6.9$  kg/m<sup>2</sup>). End of program outcomes ( $n = 23$ ) varied by site and included a mean weight loss of 3.8% (9.7 lbs); 3 of the 5 sites had a mean weight loss of 5.6%, meeting the national goal of 5%–7%. Men ( $n = 23$ ) attended a mean of 11.6 of 16 sessions. Improvement in depressive symptoms, healthy eating and exercise, and health status were also seen. While recruitment was challenging with many lessons learned, the adapted men’s diabetes prevention program shows promise of success for participants and their coaches.

## Keywords

diabetes prevention, diabetes, men’s health interventions, behavior modification/change, men of color

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Type 2 diabetes mellitus (diabetes) presents an enormous burden worldwide; in the U.S. population, it is estimated that 29 million adults have diabetes and another 86 million are at risk (Centers for Disease Control, 2017). It is well documented that men of color, especially those who reside in high-poverty urban areas, have excess mortality compared to other groups (Geronimus, Bound, & Colen, 2011; Treadwell & Young, 2013). Men of color have a greater burden of diabetes complications compared to whites (Graham & Gracia, 2012; Treadwell et al., 2010). While many factors may contribute to these health disparities, such as access to health care, chronic stress, and inequalities in key social determinants of health (Graham & Gracia, 2012; Jones, Crump, & Lloyd, 2012), solutions have been limited thus far.

There is a significant evidence base for the Diabetes Prevention Program, a lifestyle intervention to delay or prevent the onset of diabetes among high-risk individuals (American Diabetes Association, 2017a; Knowler et al.,

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2002). Translation of this successful intervention as a group-based program in community settings has shown promising accomplishments over the last decade (Ely et al., 2017; New York State Health Foundation, 2015); however, the National Diabetes Prevention Program—NDPP (National Diabetes Prevention Program, 2017), which has been funded and supported by the Centers for Disease Control and Prevention (CDC), has not yet reached its potential of serving all high-risk populations equally.

Reviews of research on diabetes prevention programs show that there are inconsistent sex-specific differences in benefits related to diabetes prevention for individuals who have attended these programs (Glechner et al., 2015). Once enrolled, retention rates and weight loss among men are similar to those of women. A lower number of at-risk men enroll in these programs, with even lower rates of recruitment and attendance by Black and Latino men (Ely et al., 2017). Targeted efforts for men may be necessary and several published reports of community-based diabetes prevention or weight loss programs specifically for men, for example, in-person programs in the United States (Dean, Griffith, McKissic, Cornish, & Johnson-Lawrence, 2018; Treadwell et al., 2010) and remote programs in Australia (Aguiar et al., 2016), have shown some promise. However, more robust studies on implementing diabetes prevention interventions for men are needed, particularly studies targeting men of color.

The purpose of this report is to present the primary and secondary outcomes of a federally funded pilot study of an adapted diabetes prevention program entitled “*Power Up for Health*.” Closely based on the NDPP curriculum, *Power Up for Health* was adapted to better engage men of color from urban, disadvantaged communities. The term “disadvantaged” is used here to designate communities characterized by high poverty rates and low resources. This report can be examined more fully in the context of two additional interconnected reports from the pilot study (Gary-Webb et al., 2018; Realmuto et al., 2018) describing further pilot study details on intervention adaptation and implementation, as well as lessons learned from qualitative research components. This study was approved by the Institutional Review Boards of the Albert Einstein College of Medicine and the New York Academy of Medicine.

## Methods

### Study Overview

This pilot study had a quasi-experimental intervention design. The participants were mainly Black and Latino adult men with a body mass index (BMI) of  $\geq 25$ , of whom at least half of the total sample had prediabetes by

a recent glycosylated hemoglobin (A1c) of 5.7%–6.4% (American Diabetes Association, 2017a) either self-reported or documented by A1c test result from a provider. The remaining participants who did not have a recent A1c were screened by telephone and determined to be at high risk for type 2 diabetes by the American Diabetes Association (ADA) type 2 diabetes risk survey (American Diabetes Association, 2017b).

### Setting

*Power Up for Health* was implemented in five different recreation centers of the New York City Parks (NYC Parks) sites. These centers were located in disadvantaged neighborhoods with predominantly low-income residents and limited access to resources across three NYC boroughs (Manhattan, the Bronx, and Brooklyn). The program was held in a neighborhood recreation center so that participants, when necessary, could become familiar with and utilize the exercise facilities. As an incentive for participation in the study, participants were given a free 6-month membership to NYC Parks' recreation centers after attending at least four *Power Up for Health* sessions.

### Recruitment

Recruitment occurred in neighborhoods with higher proportions of Black and Latino residents near each of the five recreation centers. Recruitment was done using multiple methods: flyers in English and Spanish posted in sites throughout the community; presentations at community meetings; targeted mailings to male residents in nearby public housing developments; outreach through letters from providers in clinical practice settings; social media postings; and selected use of Black and Latino male community outreach workers in three of five neighborhoods. While the project had minimal free media coverage (e.g., a website), a few paid media announcements, such as in local newspapers, were done, but were limited by budget constraints.

### The Intervention

The *Power Up for Health* program included the 16-weekly, 1-hr core sessions of the NDPP, with the curriculum adapted (see more details in Gary-Webb et al., 2018) to better engage men from disadvantaged, urban neighborhoods. Modifications to the NDPP curriculum were made by the research team in an iterative manner under the guidance of an Advisory Panel of experts in men's health promotion, male community leaders, and the *Power Up for Health* coaches. The curriculum was facilitated by male lifestyle coaches who had received training as an NDPP coach and also trained in the

delivery of the *Power Up for Health* curriculum. Ongoing discussions of cultural issues in men's health promotion occurred throughout the coach training and implementation of this program, with emphasis on the perceptions and experience of these Black and Latino male coaches from urban neighborhoods.

Participating men with prediabetes were strongly encouraged to attend each weekly group session. If they missed a session, however, by protocol the coaches proactively offered a telephone make-up of that session to each participant to be done after they received the session materials by email or by mail from study staff. These telephone make-up sessions were delivered as individual topic sessions (i.e., not multiple missed sessions grouped in one phone call) and independent of the in-person sessions.

### Measures

The primary outcome was weight loss reported as percent of weight lost and change in weight in pounds (lb) from baseline to 16 weeks among those who attended at least four sessions. The baseline and final weight for each participant were assessed by study staff using research quality scales; these same scales were used by the trained coaches for the weekly weigh-in of participants. Secondary outcomes included: changes in assessments of healthy eating and physical activity using items from the Summary of Diabetes Self-Care Activities (SDSCA) (Toobert, Hampson, & Glasgow, 2000); a one-item self-report of health status extracted from the National Health Interview Survey (Parsons et al., 2014); and a 2-item screen for depressive symptoms using the Patient Health Questionnaire-2 item survey, the PHQ-2 (Kroenke, Spitzer, & Williams, 2003), with each item scored 0–3, and using a cut-off of 3 as a positive screen for depressive symptoms. The program tracked attendance (both in-person attendance and by telephone make-up session) at each site across the 16-week program.

### Statistical Analysis

As a pilot study, the sample size was chosen to ascertain feasibility and to gain experience with implementation of the modifications to the standard DPP curriculum. It was not powered to support hypothesis tests of effectiveness; accordingly descriptive statistics, but neither *p*-values nor other inferential statistics, are presented. Categorical variables are disaggregated by study site with counts and percentages shown in contingency tables. Continuous variables are described by their means, standard deviations, and ranges. Absolute changes in continuous variables are calculated as the end of study value minus the baseline value. Percent

changes are calculated as the absolute change, divided by the baseline value, multiplied by 100.

Unless otherwise stated, all analyses are restricted to participants who were confirmed to fully meet CDC criteria for eligibility for a NDPP program (National Diabetes Prevention Program, 2017). Pre-post program change analyses are restricted to those participants who attended at least four program sessions—a standard for participation status in NDPP programs.

### Results

This pilot study was funded for 2 years by the National Institutes of Health with the following goals: to work closely with our Advisory Panel to adapt the NDPP 16-week curriculum for diabetes prevention programs to better engage men; to recruit and train men of color (Black and Latino) from the target disadvantaged communities to become effective *Power Up for Health* lifestyle coaches; and to implement and evaluate the modified program in NYC Parks' sites located in disadvantaged neighborhoods. The program accomplished these goals within the scope of the study budget. This report presents the pilot outcome data in two ways: as five case studies by site, coach, and participant characteristics, as well as by individual outcomes. This report also presents average overall weight loss and program attendance data by site; these are metrics important for the NDPP recognition program. Details about intervention adaptation, recruitment strategies, and description of our coaches' training program are presented in detail elsewhere in this journal (Gary-Webb et al., 2018).

Screening for eligibility and participant engagement information is described in the study flow chart in Figure 1.

Eligibility screening occurred by telephone when a potential participant called the project telephone line. Of the 47 individuals screened, 18 (38.3%) either did not meet eligibility criteria ( $n = 8$ ) or were eligible but subsequently declined to join the program ( $n = 10$ ). Of those who completed the baseline weight and surveys just prior to session one, 86.2% attended at least four sessions and were counted as *Power Up for Health* participants.

Table 1 reports the demographic characteristics of men who: (a) were screened, (b) enrolled, and (c) engaged in at least four sessions of the program. Of those who were engaged for at least four sessions, 52% were non-Latino Black and 32% were Latino. The mean age was  $51.7 \pm SD 9.9$  years and mean BMI was  $35 \pm SD 6.9$  kg/m<sup>2</sup>.

With counsel from the *Power Up for Health* Advisory Panel, investigators attempted to compare the participants at each of the five sites in terms of selected social determinants of health from demographic and social characteristics collected at baseline including age, education attained, employment status,

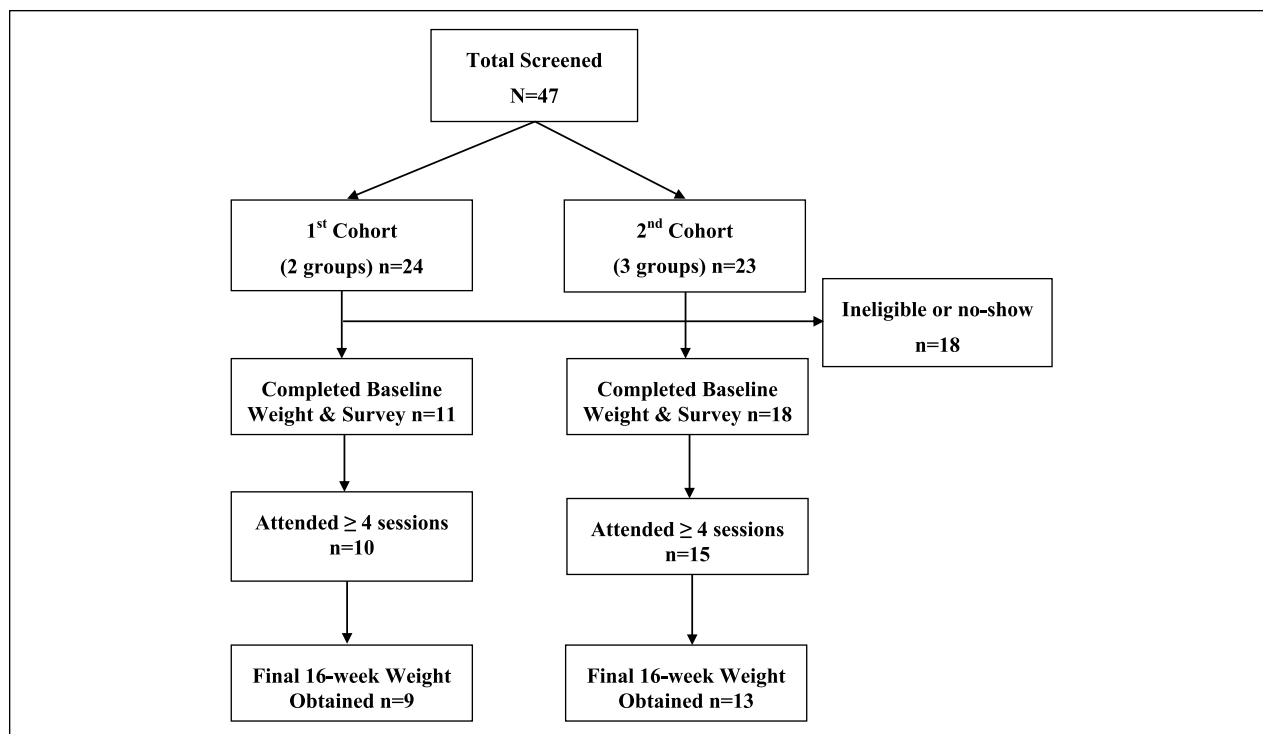


Figure 1. Flow diagram of Power Up for Health participation from screening to final outcome.

Table 1. Demographic Characteristics of Screened, Enrolled, and Engaged Men.

	Screened potential participants (N = 47 <sup>a</sup> )		Enrolled participants with baseline measures (N = 29 <sup>b</sup> )		Participants engaged in ≥4 sessions (N = 25 <sup>b</sup> )	
	Mean (SD)	Range	Mean (SD)	Range	Mean (SD)	Range
<b>Age (years)</b>	51.1 (11.8)	21–76	49.9 (11.5)	21–73	51.7 (9.9)	33–73
<b>Weight (lbs)</b>	248.2 (61.8)	150–422	247.4 (56.9)	160–386	246.1 (59.3)	160–386
<b>BMI (kg/m<sup>2</sup>)</b>	35.0 (7.0)	24.0–53.8	35.2 (6.6)	25.6–53.8	35.0 (6.9)	25.6–53.8
Race/ethnicity	n (%)		n (%)		n (%)	
White, non-Latino	4 (9)		4 (14)		3 (12)	
Black, non-Latino	24 (51)		15 (51)		13 (52)	
Latino	11 (23)		8 (28)		8 (32)	
Other	2 (4)		2 (7)		1 (4)	
Missing	6 (13)		0 (0.0)		0 (0)	

Note. <sup>a</sup>All 47 participants were screened by telephone, including questions on height and weight; thus, only self-reported data are available. <sup>b</sup>All weights, heights, and calculated BMIs for enrolled and engaged participants are based on the study data collected in person. BMI = body mass index.

total household income, and marital status. With these limited pilot data, remarkable differences by site were not seen in the male participants that might account for the different outcomes by site at the end of the program. The majority of participants were middle-aged, had completed at least some college (77%), worked full- or part-time (60%), had an annual family income

of <\$40K (43% had income of <\$20K), and were either married or living with a partner (50%).

Table 2 characterizes each of the five programs by neighborhood, recreation center (RC) attributes (i.e., facility exercise resources), implementation months, the number of participants with complete outcome data, Spanish or English language, and selected coach

**Table 2.** Pilot Program Characteristics by Neighborhood Recreation Center.

RC sites	Site description	Program months	No. of participants with complete outcome data	Language	Male coach descriptions
RC 01	Manhattan (Harlem) Full facilities <sup>a</sup>	Sept 2015–Jan 2016	6	English	African American, personal trainer
RC 02	Bronx (South Bronx) Full facilities	Sept 2015–Jan 2016	3	English	African American, retired, volunteer fitness instructor
RC 03	Bronx (Fordham Heights) Limited facilities <sup>b</sup>	July–Oct 2016	4	Spanish	Latino, bilingual, community health specialist
RC 04	Brooklyn (Crown Heights) Full facilities	July–Oct 2016	4	English	Same coach as RC 02
RC 05	Manhattan (Harlem) Limited facilities	July–Oct 2016	5	English	African American, chef, former <i>Power Up</i> participant at RC 01

Note. <sup>a</sup>Full facility sites had weight rooms, cardio equipment, fitness classes, basketball courts, swimming pool (indoor or outdoor). <sup>b</sup>Limited (smaller) facility sites had weight rooms, cardio equipment, fitness classes, but may not have indoor basketball courts, swimming pools. RC = recreation center.

**Table 3.** Weight Loss of Men With an End of Program (16 Week) Weight by RC and Program Attendance.

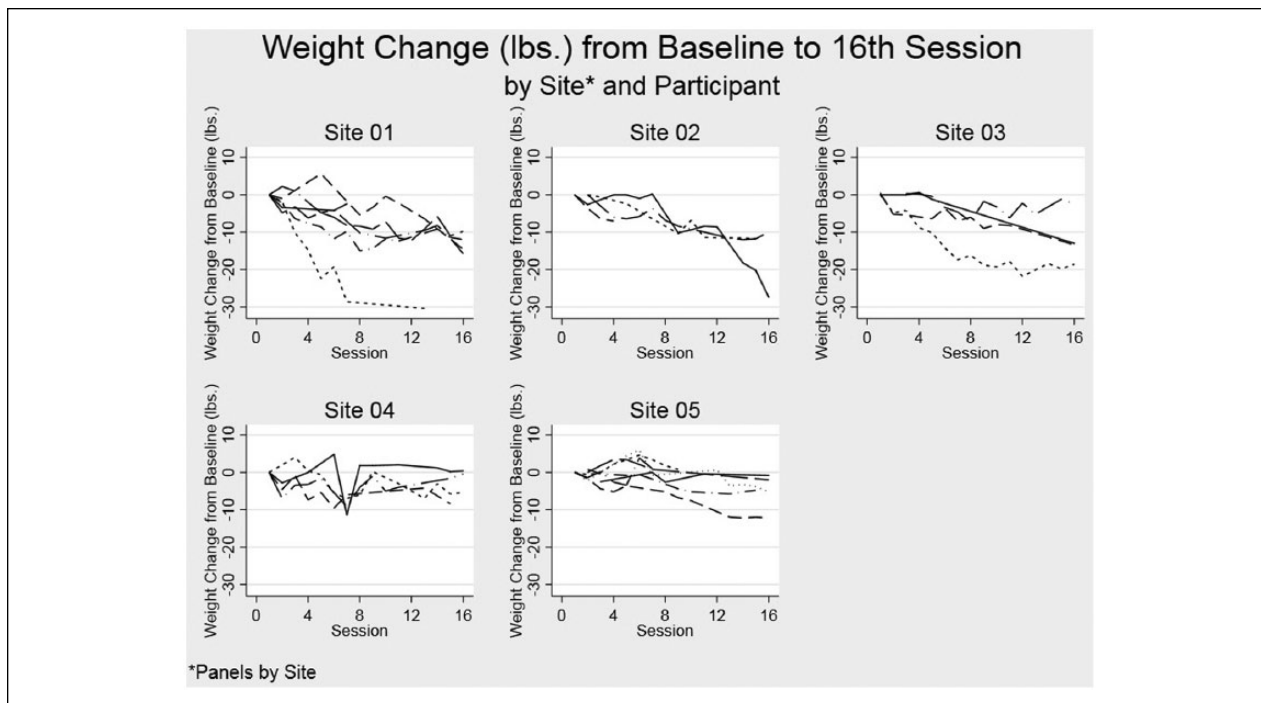
Mean weight loss in lbs (range)						
Attendance	All sites (n = 22)	RC01 (n = 6)	RC02 (n = 3)	RC03 (n = 4)	RC04 (n = 4)	RC05 (n = 5)
4–8 sessions	10.6 (2.0–23.2)	14.1 (5.0–23.2)	N/A	12.2 (12.2–12.2)	N/A	2.0 (2.0–2.0)
9–16 sessions	9.4 (–0.6–27.6)	12.9 (9.5–15.4)	17.6 (10.6–27.6)	11.6 (2.2–19.2)	3.1 (–0.6–8.4)	4.6 (0.0–12.2)
Total	9.7 (–0.6–27.6)	13.3 (5.0–23.2)	17.6 (10.6–27.6)	11.8 (2.2–19.2)	3.1 (–0.6–8.4)	4.0 (0.0–12.2)
<b>Percent weight loss<sup>a</sup> from baseline (range)</b>						
4–8 sessions	3.9% (0.8–7.9)	4.9% (2.0–7.9)	N/A	5.1% (5.1–5.1)	N/A	0.8% (0.8–0.8)
9–16 sessions	3.8% (–0.2–8.1)	5.4% (3.5–8.1)	6.2% (5.1–7.0)	5.3% (1.3–7.4)	1.3% (–0.2–3.7)	1.8% (0.0–4.6)
Total	3.8% (–0.2–8.1)	5.2% (2.0–8.1)	6.2% (5.1–7.0)	5.3% (1.3–7.4)	1.3% (–0.2–3.7)	1.6% (0.0–4.6)

Note. <sup>a</sup>National Diabetes Prevention Program Goal is 5%–7% weight loss from baseline weight. N/A = not applicable; RC = recreation center.

characteristics. Each site was chosen by the study team with input from the NYC Parks staff according to neighborhood characteristics (high poverty and low resources), high proportions of Black and/or Latino residents and relative ease of access. Coaches ( $n = 4$ ) had diverse occupations and various levels of health promotion experience. One coach taught at two different sites (RC 02 and RC 05); another coach “graduated” from being a *Power Up* participant to be trained subsequently as a coach. The Spanish language coach at RC 03 was a community health specialist for a major health

system and, as such, was the most experienced in facilitating community health promotion sessions. It is important to note the seasonal variation in implementation: the first two groups’ sessions spanned the Thanksgiving through New Year’s holidays in the fall and winter months, while the latter three were in the more moderate weather months of the summer and early fall.

The primary outcomes of weight loss in pounds (lbs) and in percent of body weight lost from baseline is reported in Table 3, overall, by site, and by number of



**Figure 2.** Weight change by site and participant from baseline to end of program.

sessions attended. The mean weight loss for those who had an end of program measure of weight ( $n = 22$ ) was 9.7 lbs. Three of the five sites had substantially greater weight loss than the other two sites.

These three sites (RC 01–03) reached the NDPP goal of 5%–7% weight loss, with an average weight loss of 5.6%. The average percent weight loss across all five sites was 3.8%. The average number of sessions attended across all sites was 11.6 sessions, which exceeds the NDPP goal of participants attending on average at least 9 sessions. Investigators did not observe an expected association between attendance at a greater number of sessions and greater weight loss, as observed in NDPP programs across the United States (Ely et al., 2017).

Figure 2 displays each participant’s weight change from baseline to their last attended session by site. This figure demonstrates the diversity in weight change patterns among participants. It is noteworthy that both RC 04 and RC 05 had several participants who experienced weight gain and more cyclical patterns of weight change compared to the other three sites which, in a small sample, could account for differences among sites.

There were improvements in several self-reported health behaviors as measured by selected Summary of Diabetes Self-Care Activities (Toobert et al., 2000) items. For example, for the 23 participants who had both baseline and outcome measures, there were improvements in numbers of days in the last week for: increased physical activity (both duration per day and doing a

**Table 4.** Changes in Activities From Baseline to Final Survey at 16 Weeks ( $N = 23$ ).

	Mean (SD)	Minimum no. of days	Maximum no. of days
Number of days out of 7 days with at least 30 min of activity			
<b>Baseline</b>	1.9 (1.6)	0	5
<b>Final</b>	4.4 (1.9)	1	7
<b>Number of days out of 7 days participating in a specific exercise session (such as swimming, walking, bike riding)</b>			
<b>Baseline</b>	1.2 (1.5)	0	4
<b>Final</b>	3.9 (2.0)	0	7
<b>Number of days out of 7 days eating 5 or more portions of fruit/vegetables</b>			
<b>Baseline</b>	3.4 (2.5)	0	7
<b>Final</b>	4.5 (2.2)	0	7
<b>Number of days out of 7 days eating food with high fat content (such as red meat or full-fat dairy)</b>			
<b>Baseline</b>	3.8 (2.3)	0	7
<b>Final</b>	2.1 (1.6)	0	5

specific exercise session), eating five or more servings of fruits and vegetables, and eating fewer high-fat foods, as reported in Table 4.

The screening measure for depressive symptoms using the PHQ-2 (Kroenke et al., 2003) indicated an improvement from baseline to 16 weeks. At baseline, 6

of 25 participants screened positive for depressive symptoms (a score  $>3$ ); by end of program ( $n = 23$ ), no one screened positive for depressive symptoms. The two participants who did not complete the end of program PHQ-2 had, in fact, screened negative for depressive symptoms at baseline. Thus, each participant who had a positive screen for depressive symptoms at baseline converted to a negative screen at end of program.

The single item to assess a change in self-reported health status from baseline to end of program ( $n = 23$ ) showed that those who responded “poor” at baseline ( $n = 5$ ), each improved their self-report to “fair” ( $n = 2$ ), “good” ( $n = 2$ ), or “very good” ( $n = 1$ ). Of those who responded “fair” at baseline ( $n = 8$ ), five reported their health status as “good” and one responded “very good” at end of program. Site RC 05 participants reported somewhat worse health status at baseline compared with the other four sites.

In the event that a participant missed a session, a telephone make-up session completed by their coach was part of the study protocol. These data were analyzed to make some preliminary observations about the effect of a telephone make-up session completed compared to those who missed a session with no make-up. These data (not reported here) cautiously suggest that those who had a telephone make-up session the first time they missed a session differed in three ways from those who did not complete a make-up session. First, those who had a telephone make-up session were more likely to attend the final core session at 16 weeks; second, they were more likely to attend subsequent sessions after the make-up session; and finally, they lost more weight than those who missed the session but had no make-up session completed.

## Discussion

The *Power Up for Health* pilot study accomplished several critical goals, including the adaptation of the NDPP curriculum to focus on men of color from urban, disadvantaged neighborhoods, as well as implementation and evaluation of the program in five NYC Parks’ recreation sites and facilitated by male lifestyle coaches. The *Power Up* Advisory Panel played an active role during design, implementation and evaluation, helping to guide the modifications and interpret the pilot findings in order to develop the lessons learned. This report focuses on the quantitative findings from the evaluation. Two other related reports with descriptive and qualitative findings (Gary-Webb et al., 2018; Realmuto et al., 2018) complete the narrative of the mixed methods findings from the pilot study of the *Power Up for Health* program.

Recruitment of eligible individuals was much more difficult than expected by the research team and the Advisory Panel. Considering subsequent experiences implementing this program, several explanations are

possible. While many different modalities were utilized for recruiting men, the pilot budget did not allow for more intense recruitment strategies that may have been necessary to “cast a wider net” to reach these at-risk men. Expanded use of print and social media, sports and community leaders in recruitment should be an investment for future programs. In addition, while this program offered the only male-focused diabetes prevention program in the NYC area, there were multiple mixed-gender NDPP programs, often associated with clinical centers, as alternatives for referral of men with prediabetes in the target neighborhoods during the study recruitment periods. *Power Up for Health* was appropriately, and clearly, identified as a research project and as such, there could have been some distrust of research in these neighborhoods. The challenging recruitment experience reported here is consistent with other literature (Ely et al., 2017; Laws, St George, Rychetnik, & Bauman, 2012; New York State Health Foundation, 2015) describing the difficulties of recruiting for health promotion programs from minority populations and specifically men.

Table 1 reported the demographic characteristics of those screened, enrolled, and engaged participants, with no obvious differences from the broader population of the five neighborhoods, other than that *Power Up for Health* participants met the eligibility criteria for the pilot study. While the small number of participants was a concern in this pilot study (Figure 1), the quality of these preliminary data drawn from fairly comprehensive mixed methods of evaluation provides a detailed, though not highly generalizable report of findings. A larger study is now needed to provide evidence of effectiveness and generalizability. Investigators were encouraged, however, by the engagement, active participation, and positive feedback from the men enrolled in the pilot study and the male lifestyle coaches.

The five program sites, class sizes, and coach characteristics are best appreciated in Table 2. As reported elsewhere (Gary-Webb et al., 2018), recruitment methods became more intensive for the three later groups as difficulty was observed in recruiting this target group of men for the first two groups (RC 01 and RC 02). Engagement of participants with their coach may have been affected by the coaches’ personalities and past experience with health promotion or group dynamics. For example, the coach for RC 02 shared with his group his own powerful history regarding large weight loss and his personal efforts to prevent diabetes. The coach for the Spanish language group at RC 03 shared with participants his own self-management behaviors for well-controlled type 2 diabetes. These coaches may have been viewed as positive role models for the participating men. Lessons learned regarding working with male lifestyle coaches with male participants included: the necessity of

consistent support and follow-up with coaches, individually and as a group; allowing the coaches to share their positive experiences and challenges with each other—to learn from each other; promoting the techniques of facilitating their groups rather than teaching or lecturing; and encouraging coaches to engage participants in discussion of weight gain as soon as coaches see it happening to individuals in their group. Behavioral problem-solving approaches were generally new knowledge and skills for these coaches (Venditti et al., 2014). Other resources to support the curriculum (e.g., handouts, food models, activities) were requested by coaches to aide in the learning process with their groups.

The primary outcome of weight loss (Table 3) was very different across the five sites. Three of the five sites (RC 01–03) had weight loss at 5.7% weight loss on average, which exceeded the NDPP weight loss goal of 5%–7% from baseline. The last two groups at RC 04, 05 had significantly less weight loss from baseline, at 1.3% and 1.6% respectively. Interestingly, the seasons (months) that the program was presented did not affect the weight loss in expected ways, such as weight gain from eating at holiday gatherings. The two groups spanning the colder weather and the fall-winter holidays, when social occasions can put individuals at high risk for overeating, achieved above the 5% weight loss goal from baseline. Two groups (RC 04, 05) that spanned the summer and early fall months when outdoor physical activity is often more feasible had much lower weight loss from baseline. In fact, participants in these last two groups experienced more weight gain (see Figure 2) compared to RC 01–03. Compared to the other groups, RC 05 participants reported worse health status at baseline, although health status was based on response to a single self-report item and, therefore, may have been a measurement limitation.

While a positive association is often reported between attendance at DPP sessions and weight loss, this association was not seen in our pilot study. The limited sample size was most likely the reason for the lack of association. As noted previously, clear differences were not seen among sites in the selected social determinants of health measured; thus, the authors cannot speculate further about the differences in outcomes by site because of the limitation of this small sample size.

As noted in these results, the self-reported lifestyle behaviors, health status, and screen for depressive symptoms improved over the 16 weeks. Part of the support for the coaches was to alert them if a participant had screened positive for depressive symptoms, with the suggestion to reach out to that participant if they were not engaged in the program. These improvements in health behaviors, health status, and depressive symptoms suggest that the coaches and the adapted curriculum were helpful to men in reaching their goals.

### Limitations

The small number of participants and the limited number of groups in this pilot study make generalizations difficult. It is likely more realistic to consider each group as a case report for lessons learned in implementation of the adapted NDPP core curriculum for men, and to modify the *Power Up for Health* program prior to launching a larger trial in the community. Recent analyses of NDPP participant-level data from across the United States, however, show promise for the national diabetes prevention effort and the need to continue focusing on high-risk men (Ely et al., 2017).

### Conclusions

These preliminary data presented here and in the related publications (Gary-Webb et al., 2018; Realmuto et al., 2018) form an important basis for a more rigorous clinical trial of a diabetes prevention program for men from disadvantaged, urban neighborhoods. Many lessons were learned regarding the training and support of coaches, male-oriented program materials and activities, and recruitment strategies. Coaches, participants, and the Advisory Panel suggested the positive addition of group physical activity at the time of each session; this advice is supported by recent research reports concerning African American men (Dean et al., 2016) and the *Power Up for Health* qualitative data reported (Realmuto et al., 2018). More research is needed on enhanced recruitment strategies for men from disadvantaged neighborhoods. In particular, it is important to offer a more feasible and acceptable program to at-risk men by the addition of exercise opportunities with each group session and by perhaps offering group sessions by telephone to decrease weekly attendance burden for men with prediabetes from disadvantaged neighborhoods.

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### Declaration of Conflicting Interests



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