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Short Report

# Improving cardiovascular health in black men through a 24-week community-based team lifestyle change intervention: The black impact pilot study

Joshua J. Joseph[a,†,*], Timiya S. Nolan[b,†], Amaris Williams[a], Alicia McKoy[a,c], Songzhu Zhao[a], Emmanuela Aboagye-Mensah[a], Bjorn Kluwe[a], James B. Odei[d], Guy Brock[a], Dana Lavender[e], John Gregory[e], Darrell M. Gray II[a,c]

[a] The Ohio State University College of Medicine, OH, United States
[b] The Ohio State University College of Nursing, OH, United States
[c] The Ohio State University James Center for Cancer Health Equity, OH, United States
[d] The Ohio State University College of Public Health, OH, United States
[e] The African American Male Wellness Agency, National Center for Urban Solutions, OH, United States

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ABSTRACT

*Background:* Higher cardiovascular health scores, using American Heart Association's (AHA) Life's Simple 7 (LS7), have been associated with lower risk of cardiovascular disease, type 2 diabetes, cancer, and mortality among all racial/ethnic groups. Nationally, Black men have the lowest levels of LS7. Thus, a study was conducted to evaluate the impact of a community-based team lifestyle change program on LS7 among Black men.

*Methods:* Black adult males ($n$ = 74) from a large Midwestern city participated in Black Impact, a 24-week community-based team lifestyle change program adapted from the Diabetes Prevention Program and AHA's Check, Change, Control Blood Pressure Self-Management Program, which incorporates AHA's LS7 framework. The change in a LS7 score (range 0–14) from baseline to 12 and 24 weeks was evaluated using a linear mixed-effects model adjusted for age, education, and income.

*Results:* The mean age of participants was 52 ± 10 years. The men were sociodemographically diverse, with annual income ranging from <$20,000 (7%) to ≥$75,000 (25%). Twenty-five percent were college graduates, 73% had private insurance, and 84% were employed. In fully adjusted models, LS7 score at baseline was 7.12 and increased 0.67 (95%CI: 0.14, 1.20, $p$ = 0.013) and 0.93 (95%CI: 0.40, 1.46, $p$<0.001) points at 12 and 24 weeks, respectively, compared to baseline. Sensitivity analysis evaluating 5 components (excluding diet and physical activity) and 6 components (excluding diet) also showed significant increases at 12 and 24 weeks (all $p$<0.01).

*Conclusions:* The Black Impact lifestyle change single-arm pilot program showed that a community-based lifestyle intervention has the potential to improve LS7 in Black men. Further randomized studies are urgently needed to improve cardiovascular health and advance cardiovascular health equity in Black men.

## 1. Introduction

United States (US) Black populations account for 12% of total, but 32% of preventable cardiovascular disease (CVD) deaths [1,2]. Higher attainment of American Heart Association's (AHA) Life's Simple 7 (LS7) scores has been associated with lower risk of CVD, type 2 diabetes (diabetes), cancer, and mortality [3–6]. In the US, men compared to women and Black compared to non-Hispanic White (White) populations have lower attainment of AHA LS7 ideal cardiovascular health (CVH) metrics (physical activity, diet, cholesterol, blood pressure, body mass index [BMI], smoking, and glycemia) [7,8]. Lower attainment of CVH is a major contributor to Black men having more years of life lost due to chronic conditions and the shortest life-expectancy of any race/sex group [7,9],

Unfortunately, there are a paucity of interventions aimed at improving LS7 among Black men. In a systematic review of community-engaged and community-based participatory research (CBPR) interventions focused on LS7 attainment in Black adults, only two studies evaluated all LS7 metrics [10–12]. None of the studies had a high proportion of Black men or embraced the complete LS7 framework to improve CVH in Black men. Thus, interventions focused on improving LS7 in Black men

* Corresponding author at: The Ohio State University College of Medicine, 579 McCampbell Hall, 1581 Dodd Drive, Columbus, OH 43210, United States.
*E-mail address:* joseph.117@osu.edu (J.J. Joseph).
† These authors contributed equally to the manuscript.

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are paramount. Black Impact was a CBRP intervention developed to assess the feasibility, acceptability, and impact of a 24-week CBPR study focused on improving the attainment of LS7 CVH scores in Black men in a large Midwestern city [8,13,14]. This report focuses on the change in CVH scores during the study intervention.

## 2. Methods

### 2.1. Community engagement

In 2016, the African American Male Wellness Agency (AAMWA) and Ohio State University researchers formed a collaborative academic-community partnership to expand programming focused on preventing and improving control of chronic disease among Black men [8,13,14]. Academic-community partners interacted directly with community members to formulate programming topics and strategies using the PETAL framework for CBPR, including: 1) prioritizing health equity; 2) engaging the community; 3) targeting health disparities; 4) acting on the data; and 5) learning and improving [10,13,15,16]. Community members voiced a desire for physical activity, nutrition, and mental health programming. A consensus was built around a team-based intervention "Black Impact" with physical activity and nutrition, delivered by community-engaged health professionals and trainees. Black Impact was grounded in the social cognitive theory at the individual level, and used a multi-level framework consistent with the socioecological model [17,18].

### 2.2. Study design and recruitment

At the 2019 AAMWA walk, Black men were apprised of the upcoming study. The study team met with potential participants at community locations during Fall 2019 and reviewed the consent documents. The inclusion criteria were: 1) Black men; 2) age 18 years or older; 3) poor or average CVH (<4 LS7 ideal metrics); English speaking; 5) living in Metropolitan Columbus, Ohio; 6) no healthcare provider-imposed limitations on physical activity; and 7) appropriate for a group setting. In February 2020, 100 Black males were enrolled in the pilot study and divided into 6 geographic-based teams [19]. Due to COVID-19, the study was paused prior to initiation. In July 2020, the study began with 74 participants with programming through December 2020 (Supplemental Figure 1). Twelve and 24-week biometric health screenings occurred at study sites, and survey data was collected electronically. The study was reviewed and approved by The Ohio State University Biomedical Sciences IRB (Study ID: 2019H0302) and was registered on ClinicalTrials.gov Identifier: NCT04787978. All participants provided written informed consent.

### 2.3. Intervention

The 24-week community-based lifestyle intervention was adapted from the Diabetes Prevention Program[20] and AHA Check, Change, Control program applying evidence-based strategies and stakeholder feedback [21]. Participants were not randomized, and all received the intervention [6]. Participants were grouped into 6 teams of 8–25 participants based on participant proximity to a central meeting location (e.g. recreation center). Each team had a personal trainer and health coach. The personal trainers had pre-intervention meetings with an American College of Sports Medicine Certified Personal Trainer (ACSM-CPT). They were trained in a standardized 45-minute workout with increasing intensity over the study intervention consistent with Exercise is Medicine (Supplemental Methods). An ACSM-CPT intermittently observed team workouts to ensure a homogeneous dose and intensity of physical activity across teams.

The Black Impact curriculum was adapted from the Diabetes Prevention Program[20] and the AHA Check, Change, Control program [22]. During the development of the curriculum, community members and stakeholders emphasized the importance of sessions/instruction which included: cooking, grocery store shopping, mental health, historical trauma, stress, financial wellness, and cancer screening. Thus, sessions focused on those topics were included in the curriculum (Supplemental Table 1). Health coaches (2 physicians and 1 nurse practitioner who were experienced in lifestyle change and trained on the Black Impact protocol) implemented the curriculum after the physical activity portion of the weekly team sessions for ~30 min. Key health coach activities included delivering education and establishing, monitoring progress in wellness goals in their assigned 2 teams, and directing nursing students. Healthy food samples, cross-trainer shoes, GARMIN watches, and workout bands were provided to all participants. Individual incentives (e.g., gift cards) were provided to participants for survey completion at 0, 12 and 24 weeks. All participants received a one-year gym membership to a local recreation and park center at study completion.

### 2.4. Data collection and measures

Assessments were performed at baseline, 12 and 24 weeks. Data from participants included self-reported measures (sociodemographic and health history), survey data, and biometric measurement including blood pressure (mmHg), fasting cholesterol (mg/dl), fasting glucose (mg/dl), weight (lbs), and BMI ($kg/m^2$).

The sociodemographic data included age, education, race, ethnicity, employment status, insurance status, and annual income. The self-reported health history included hypertension, diabetes, hyperlipidemia, and smoking status, as well as medications for chronic conditions.

The survey data included the Diet History Questionnaire(DHQ)-III[23] and the Centers for Medicare and Medicaid Services (CMS) Accountable Health Communities Health-Related Social Needs Screening Tool [24]. The valid and reliable DHQ-III consisted of 135 food and beverage line items and 26 dietary supplement questions [25–27]. The social needs screening tool included 26 questions addressing living situation, food security, transportation, utilities, safety, financial strain, employment, family and community support, education, physical activity, substance abuse, mental health, and disabilities [24]. Physical activity minutes per week calculated using the validated moderate physical activity 2-question physical activity questionnaire with the CMS screening tool [28].

Biometric screenings were performed by trained healthcare staff, including nurses, nursing students, and physicians. Blood pressure was checked via an automated oscillometric sphygmomanometer (Omron 5 series) with two measurements performed after the participants were seated for 5 min and averaged. Weight was measured using a zeroed and calibrated Omron Body Composition Monitor and Scale (Model: HBF-514C). Height was measured via a tape measurer. BMI was calculated by multiplying weight (lbs) by 703 and then dividing by height squared ($inch^2$). Blood total cholesterol and glucose were measured in the fasting state using the Cardio Check Silver® (Polymer Technology, Inc., Heath, OH, USA) device.

### 2.5. Cardiovascular health outcomes

The main outcome measure was LS7 (CVH) score (range 0–14). The CVH score was summed based on the individual LS7 metrics (glucose, cholesterol, blood pressure, BMI, physical activity, diet and smoking) categories of poor (0 points), intermediate (1) and ideal (2) CVH at baseline, 12 and 24 weeks (Supplemental Table 2). The individual LS7 metrics were additionally evaluated at baseline, 12 and 24 weeks.

### 2.6. Statistical analysis

Descriptive statistics were performed for all variables, including mean (standard deviation [SD]) for continuous variables and frequencies and percentages for categorical variables. Change in CVH score

**Table 1**
Characteristics of participants in the black impact pilot study.

| Baseline Characteristics[a] | $N = 74$[b] |
|---|---|
| Age | 52.1 (10.3) |
| Education | |
| < High School or GED | 0 (0%) |
| High School or equivalent | 8 (11.0%) |
| Some College | 28 (38.4%) |
| Vocational/Technical School (2 year) | 7 (9.6%) |
| College Graduate (4 year) | 18 (24.7%) |
| Master's Degree (MS) | 11 (15.1%) |
| Professional Degree (MD, JD, etc.) | 1 (1.4%) |
| Race | |
| African American/Black | 71 (97.3%) |
| African American/Black & Native American | 1 (1.4%) |
| African American/Black & Other | 1 (1.4%) |
| Ethnicity | |
| Hispanic/LatinX | 1 (1.4%) |
| Non-Hispanic/LatinX | 72 (98.6%) |
| Smoking Status (cigarettes or cigars)? | |
| I currently smoke | 11 (15.1%) |
| I have never smoked | 47 (64.4%) |
| I quit smoking > 1 year ago | 13 (17.8%) |
| I quit smoking ≤ 1 year ago | 2 (2.7%) |
| Employment Status | |
| Unemployed | 5 (6.9%) |
| Employed | 61 (83.6%) |
| Retired | 7 (9.6%) |
| Insurance Status | |
| Uninsured | 9 (12.3%) |
| Medicaid/Medicare | 7 (9.6%) |
| Military insurance | 4 (5.5%) |
| Private insurance | 53 (72.6%) |
| Individual Annual Income | |
| <$20,000 | 5 (6.9%) |
| $20,000- $49,999 | 20 (27.4%) |
| $50,000- $74,999 | 23 (31.5%) |
| ≥$75,000 | 18 (24.7%) |
| Rather not say | 7 (9.6%) |
| Self-Reported Hypertension | |
| No | 29 (39.7%) |
| Yes | 44 (60.3%) |
| Self-Reported Diabetes | |
| No | 54 (74.0%) |
| Yes | 19 (26.0%) |
| Self-Reported Hyperlipidemia | |
| No | 45 (61.6%) |
| Yes | 28 (38.4%) |
| Systolic Blood Pressure (mmHg) | 140 (20.0) |
| Diastolic Blood Pressure (mmHg) | 87.9 (13.7) |
| Blood Glucose (mg/dL) | 127 (57.1) |
| Total Cholesterol (mg/dl) | 160 (44.4) |
| Weight (lbs) | 238 (64.1) |
| Body Mass Index (kilograms/meter$^2$) | 33.1 (7.4) |
| Physical Activity (minutes/week)[c] | 225 (219) |
| Medications | |
| Blood Pressure Medication (%) | 38 (51.4%) |
| Diabetes Medication (%) | 18 (24.3%) |
| Lipid-Lowering Medications (%) | 21 (28.4%) |
| AHA LS7 Cardiovascular Health[d] | |
| Smoking (%) | |
| Poor | 11 (14.9%) |
| Intermediate | 2 (2.7%) |
| Ideal | 61 (82.4%) |
| Physical Activity (%) | |
| Poor | 5 (6.8%) |
| Intermediate | 29 (39.2%) |
| Ideal | 37 (50.0%) |
| Blood Pressure (%) | |
| Poor | 36 (48.6%) |
| Intermediate | 32 (43.2%) |
| Ideal | 5 (6.8%) |
| Glucose (%) | |
| Poor | 22 (29.7%) |
| Intermediate | 34 (45.9%) |
| Ideal | 18 (24.3%) |
| Body mass index (%) | |
| Poor | 41 (55.4%) |
| Intermediate | 26 (35.1%) |
| Ideal | 7 (9.5%) |
| Cholesterol (%) | |
| Poor | 5 (6.8%) |
| Intermediate | 29 (39.2%) |
| Ideal | 40 (54.1%) |
| Diet (%) | |
| Poor | 28 (37.8%) |
| Intermediate | 32 (43.2%) |
| Ideal | 1 (1.4%) |

(*continued on next page*)

**Table 1** (*continued*)

[a] Mean (SD) or percentages are listed, p-values calculated using chi-square (categorical variables), and ANOVA (parametric continuous variables).

[b] $n = 74$ participants for age, blood glucose (mg/dL), total cholesterol (mg/dL), weight (lbs), BMI, medications, LS7 Smoking, LS7 Glucose, LS7 BMI, and LS7 Cholesterol; 71 participants for physical activity (minutes/week) and LS7 Physical Activity; 61 participants for LS7 Diet; and 73 participants for all other categories.

[c] Physical activity was calculated from the Centers for Medicare and Medicaid Services (CMS) Accountable Health Communities Health-Related Social Needs Screening Tool's 2 questions on physical activity.

[d] AHA = American Heart Association, LS7 = Life's Simple 7, Cardiovascular Health recommendations were defined by AHA 2020 guidelines (see Supplemental Table 2).

(range 0–14) at 12 and 24 weeks was calculated using a linear mixed-effects model with random intercepts for each participant. The models were adjusted for age, education, and income. Additionally, analyses were performed using 6 components of the CVH score excluding diet (range 0–12) and 5 components excluding diet and physical activity (range 0–10). Statistical significance for all analyses was defined as two-sided alpha < 0.05. Statistical analyses were performed using SAS 9.4 (SAS Institute, Inc.; Cary, North Carolina, USA), R version 3.4.3 (R Foundation for Statistical Computing, Vienna, Austria), and Python version 3.8.3 (Python Software Foundation).

## 3. Results

Baseline demographic characteristics are shown in Table 1. The mean age of participants was 52 years (SD 10) ranging from 27 to 73 years. All participants had a high school degree or equivalent. The majority of participants were employed with private insurance (84% and 73%, respectively). The income of participants was heterogeneous, ranging from <$20,000 (7%) to ≥$75,000 (25%). Sixty-percent, 26%, and 38% of participants reported hypertension, diabetes, and hyperlipidemia, respectively. A high proportion of participants were in the poor range for blood pressure (49%), glucose (30%), BMI (55%), and diet (38%).

The baseline CVH score of 7.12 increased by 0.67 (95%CI:0.14–1.20; $p = 0.013$) and 0.93 (95%CI:0.40–1.46; $p<0.001$) at 12 and 24 weeks, respectively, in fully adjusted analyses (Table 2). Similar findings were seen for CVH scores when excluding diet alone (6 components) or excluding diet and physical activity (5 components) at 12 and 24 weeks (all $p<0.01$). Among the individual continuous metrics, BMI, body weight, glucose, and cholesterol all declined significantly at 12 and 24 weeks (all $p<0.05$). Systolic blood pressure decreased at week 12 ($p = 0.04$), but was non-significant at week 24.

## 4. Discussion

Black Impact, a novel pilot study evaluating a 24-week community-based lifestyle intervention in Black men, improved AHA LS7 CVH. This is the first lifestyle change CBPR study examining LS7 CVH in Black men [10]. Additionally, Black Impact provides evidence of a significant

**Table 2**
Longitudinal change of continuous outcomes at baseline, week 12 and week 24 using linear mixed models in the Black Impact pilot study.

| Continuous Outcomes | Intervention Week | Number of Participants | Model 0 - Unadjusted | | | Model 1 – Age Adjusted | | | Model 2 – Age, Education and Income Adjusted | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Estimate | 95% CI | p-value | Estimate | 95% CI | p-value | Estimate | 95% CI | p-value |
| Body Mass Index (kg/m$^2$) | Baseline | 74 | 33.14 | (31.39, 34.89) | | 33.16 | (31.42, 34.90) | | 35.29 | (32.89, 37.69) | |
| | Week12–Baseline | 66 | −0.69 | (−1.04, −0.33) | <0.001 | −0.69 | (−1.04, −0.33) | <0.001 | −0.63 | (−1.02, −0.24) | 0.002 |
| | Week24–Baseline | 65 | −0.53 | (−0.88, −0.18) | 0.004 | −0.53 | (−0.88, −0.18) | 0.004 | −0.48 | (−0.86, −0.09) | 0.016 |
| Body weight (lbs) | Baseline | 74 | 237.74 | (222.72, 252.76) | | 237.89 | (222.94, 252.84) | | 250.91 | (229.39, 272.44) | |
| | Week12–baseline | 66 | −4.84 | (−6.71, −2.97) | <0.001 | −4.84 | (−6.71, −2.98) | <0.001 | −4.50 | (−6.53, −2.47) | <0.001 |
| | Week24–Baseline | 65 | −3.73 | (−5.61, −1.86) | <0.001 | −3.74 | (−5.61, −1.86) | <0.001 | −3.30 | (−5.33, −1.27) | 0.002 |
| Systolic Blood Pressure (mmHg) | Baseline | 73 | 139.88 | (136.03, 143.73) | | 139.86 | (136.00, 143.71) | | 139.67 | (134.30, 145.04) | |
| | Week12–Baseline | 66 | −4.65 | (−8.36, −0.94) | 0.014 | −4.64 | (−8.35, −0.93) | 0.015 | −4.12 | (−8.11, −0.14) | 0.043 |
| | Week24–Baseline | 65 | 1.27 | (−2.46, 5.00) | 0.501 | 1.28 | (−2.45, 5.01) | 0.500 | 1.89 | (−2.09, 5.88) | 0.349 |
| Diastolic Blood Pressure (mmHg) | Baseline | 73 | 88.06 | (85.27, 90.85) | | 88.03 | (85.25, 90.82) | | 87.09 | (83.34, 90.85) | |
| | Week12–Baseline | 66 | −2.20 | (−4.75, 0.35) | 0.091 | −2.19 | (−4.74, 0.36) | 0.092 | −2.12 | (−4.83, 0.59) | 0.124 |
| | Week24–Baseline | 65 | 0.75 | (−1.82, 3.31) | 0.565 | 0.75 | (−1.81, 3.32) | 0.564 | 1.39 | (−1.32, 4.09) | 0.313 |
| Fasting Glucose (mg/dl) | Baseline | 74 | 126.68 | (114.07, 139.28) | | 126.66 | (113.98, 139.34) | | 126.73 | (109.88, 143.59) | |
| | Week12–Baseline | 65 | −14.03 | (−23.51, −4.55) | 0.004 | −14.02 | (−23.50, −4.54) | 0.004 | −13.04 | (−23.14, −2.94) | 0.012 |
| | Week24–Baseline | 65 | −23.59 | (−33.07, −14.11) | <0.001 | −23.58 | (−33.06, −14.10) | <0.001 | −21.93 | (−31.96, −11.89) | <0.001 |
| Total Cholesterol (mg/dl) | Baseline | 74 | 159.88 | (150.26, 169.50) | | 159.90 | (150.25, 169.56) | | 159.58 | (147.50, 171.66) | |
| | Week12–Baseline | 65 | −12.29 | (−23.45, −1.13) | 0.031 | −12.31 | (−23.47, −1.15) | 0.031 | −13.26 | (−25.43, −1.08) | 0.033 |
| | Week24–Baseline | 65 | −14.35 | (−25.51, −3.19) | 0.012 | −14.36 | (−25.52, −3.20) | 0.012 | −15.87 | (−27.98, −3.77) | 0.011 |
| Moderate (min/week) | Baseline | 71 | 224.80 | (183.73, 265.86) | | 224.96 | (183.75, 266.17) | | 224.62 | (175.01, 274.22) | |
| | Week12–Baseline | 65 | −13.66 | (−63.07, 35.75) | 0.585 | −13.86 | (−63.29, 35.56) | 0.580 | −5.62 | (−57.06, 45.82) | 0.829 |
| | Week24–Baseline | 60 | −44.08 | (−94.92, 6.75) | 0.089 | −44.29 | (−95.15, 6.56) | 0.087 | −28.16 | (−81.45, 25.12) | 0.297 |
| Life's Simple 7 (LS7) Cardiovascular Health (CVH) Scores | | | | | | | | | | | |
| LS7 CVH Score excluding | Baseline | 73 | 5.22 | (4.82, 5.62) | | 5.22 | (4.82, 5.63) | | 5.07 | (4.53, 5.61) | |
| Diet & Physical Activity | Week12–Baseline | 65 | 0.54 | (0.22, 0.86) | 0.001 | 0.54 | (0.22, 0.86) | 0.001 | 0.55 | (0.21, 0.90) | 0.002 |
| (5 metrics, Score 0–10) | Week24–Baseline | 65 | 0.67 | (0.35, 1.00) | <0.001 | 0.67 | (0.35, 1.00) | <0.001 | 0.66 | (0.32, 1.01) | <0.001 |
| LS7 CVH Score excluding | Baseline | 70 | 6.74 | (6.32, 7.17) | | 6.74 | (6.32, 7.17) | | 6.50 | (5.93, 7.06) | |
| Diet[a] | Week12–Baseline | 60 | 0.61 | (0.22, 1.01) | 0.003 | 0.61 | (0.22, 1.01) | 0.003 | 0.61 | (0.19, 1.04) | 0.005 |
| (6 metrics, Score 0–12) | Week24–Baseline | 59 | 0.75 | (0.35, 1.15) | <0.001 | 0.75 | (0.35, 1.15) | <0.001 | 0.79 | (0.37, 1.22) | <0.001 |
| LS7 CVH Score with all 7 | Baseline | 60 | 7.45 | (6.94, 7.95) | | 7.45 | (6.94, 7.96) | . | 7.12 | (6.42, 7.82) | |
| Components[a] | Week12–Baseline | 43 | 0.68 | (0.21, 1.16) | 0.006 | 0.68 | (0.20, 1.16) | 0.006 | 0.67 | (0.14, 1.20) | 0.013 |
| (7 metrics, Score 0–14) | Week24–Baseline | 42 | 0.92 | (0.43, 1.41) | <0.001 | 0.92 | (0.43, 1.41) | <0.001 | 0.93 | (0.40, 1.46) | <0.001 |

Linear mixed models were used to explore the change of outcome measures across time with random intercepts for each participant using sequential models: Model 0, unadjusted; Model 1 adjusted for age, education and income. Differences between each time point with baseline and 95% confidence intervals (CI) and p-values are reported.

Example Interpretation: In Model 2, Week 12 BMI was 0.63 kg/m$^2$ lower (difference = −0.63, 95% CI −1.02, −0.24 [$p$ = 0.002]) compared with baseline after adjustment for age, education and income.

Diet was calculated using the Diet Health Questionnaire – III.[23].

Physical Activity was calculated using a validated moderate physical activity 2-question physical activity questionnaire collected with the surveys at baseline, week 12 and week 24 or during weekly sessions and carried forward to week 12 or 24 for participants missing physical activity at week 12 or 24.[24,28].

positive effect of the intervention on weight, BMI, cholesterol, glucose, and diet. The nearly 1-point increase in CVH score (0–14) from baseline to 24-weeks in Black Impact is a large effect size considering a 1-point higher CVH score is associated with an 18% and 19% lower odds of stroke and myocardial infarction, respectively [29], and an 11% and 19% lower risk of all-cause and cardiovascular mortality [30,31].

Only 2 CBPR lifestyle interventions have evaluated all 7 components of LS7 [10–12]. "Fostering African-American Improvement in Total Health [FAITH!] interventions focused on faith-based nutrition and exercise programming conducted in AA churches in Minnesota (~70% female) [11,12]. The first study recruited 37 adult church congregants and performed a 16-week education series implementing the LS7 framework with lectures, cooking, exercise, prayer, and personal reflection [11]. The proportion of participants meeting LS7 CVH scores of 7–8 (moderate) or 9–14 (ideal) compared to 0–6 (poor) increased from 70% to 82% [11]. In the second study, 50 AAs were recruited to a 10-week digital application of the FAITH! Program [12]. The LS7 CVH score increased from 8.3 to 9.0 ($P = 0.05$). The main differences between the FAITH! and Black Impact studies are the setting and study population. Black Impact was performed at recreation and park centers, was 100% male and had a larger number of participants. There are currently no other CBPR lifestyle interventions focused on Black men and all LS7 components for comparison, a group that may have less readiness for LS7 behavior change compared to Black women [32].

## 5. Strengths/Limitations

Strengths include: 1) a focus on an understudied population with inequities in CVH; 2) community engagement and collaborations among 12 organizations to develop and implement Black Impact; 3) use of validated surveys for physical activity and diet; and 4) use of evidence-based approaches for biometric data collection. Despite these strengths, the study should be considered in light of some limitations. First, the study was not randomized due to: 1) no previous test of intervention feasibility and acceptability; and 2) concerns raised from community members in regards to not receiving a potentially beneficial intervention (albeit, novel and not previously tested). Second, while the surveys were validated and, incentives were provided for completion, they were lengthy impacting completion rates. Even with omitting physical activity and diet in the CVH score, the study showed significant improvements in 5 CVH components at weeks 12 and 24. Finally, although the cohort was sociodemographically diverse, compared to US averages, participants had higher levels of employment (84% vs. 61%), and education (Bachelor degree or higher [41% vs. 20%]), which may limit generalizability [33,34].

In conclusion, Black Impact, a 24-week community-based lifestyle intervention increased CVH scores among Black men. Given the significant CVH inequities, collaborative community-based approaches with the potential to catalyze health equity such as Black Impact are urgently needed.

## Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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## Supplementary materials

Supplementary material associated with this article can be found, in the online version, at doi:10.1016/j.ajpc.2022.100315.

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