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BARRIERS TO PARTICIPATION IN SUPERVISED EXERCISE THERAPY REPORTED BY PEOPLE WITH PERIPHERAL ARTERY DISEASE

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Abstract

OBJECTIVE.—This study identified barriers to participation in supervised exercise therapy covered by the Centers for Medicare and Medicaid Services (CMS), reported by people with lower extremity peripheral artery disease (PAD).

METHODS.—People with PAD participating in research studies of walking impairment due to PAD in the Chicagoland area were asked to complete a questionnaire between 03/15/2019 and 7/12/2022 assessing their experience and attitudes about supervised exercise therapy. Participants were identified using mailed postcards to people age 50 and older in Chicagoland, from medical centers in Chicago, and using bus and train advertisements. The questionnaire was developed based on focus group feedback from people with PAD.

RESULTS.—Of 516 participants with PAD approached, 489 (94.8%) completed the questionnaire (mean age 71.0 years (standard deviation (SD) 8.7), mean ankle-brachial index (ABI): 0.71 (SD: 0.25), 204 (41.7%) women and 261 (53.4%) Black). Of the 489 participants, 416 (85.1%) reported that their physician had never prescribed or recommended supervised exercise therapy. Overall, 357 (73.2%) reported willingness to travel three times weekly to the medical center for supervised exercise participation. However, of these, 214 (59.9%) reported that they

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CONFLICTS of INTEREST

In the past three years, Dr. McDermott has received research funding from Regeneron and Helixmith. She has received other research support from ArtAssist, Helixmith, Mars, Chromadex, and ReserveAge, all outside the submitted work

were unwilling or unable to pay the \$11 per exercise session co-pay required for supervised exercise covered by CMS. Of 51 people with PAD who reported prior participation in supervised exercise, only five (9.8%) completed the 12 weeks of supervised exercise therapy covered by CMS and 29 (56.9%) completed six or fewer weeks. Of 131 (26.8%) unwilling to travel three times weekly to a center for supervised exercise, the most common reasons for unwillingness to participate were “too time-consuming” (55.0%), “too inconvenient” (45.8%), and “lack of interest in treadmill exercise” (28.2%).

CONCLUSIONS.—Approximately two to four years after CMS began covering supervised exercise for PAD, most people with PAD in this study from a large urban area had not participated in supervised exercise therapy. Of those who participated, most completed fewer than half of the sessions covered by CMS. The required CMS co-payment was a common barrier to supervised exercise participation by people with PAD.

TABLE OF CONTENTS SUMMARY

489 people with lower extremity peripheral artery disease (PAD) were questioned about barriers that may prevent their participation in supervised exercise therapy, covered by the Centers for Medicare and Medicaid Services. The \$11 co-pay per exercise session, inconvenience, and lack of interest in treadmill exercise were common barriers to supervised exercise therapy participation by people with PAD.

Keywords

Peripheral artery disease; intermittent claudication; exercise; guidelines; costs

INTRODUCTION

Supervised treadmill exercise is recommended by clinical practice guidelines as first-line therapy to improve walking impairment in people with lower extremity peripheral artery disease (PAD) and has been covered by the Center for Medicare and Medicaid Services (CMS) since 2017^{1–5}. Evidence suggests that most people with PAD do not participate in supervised exercise therapy^{6–7}. In a 2019 questionnaire study of 135 physicians (vascular surgeons, vascular medicine specialists, and cardiologists) from all 50 states in the U.S., 54% of respondents reported lack of access to an exercise facility for referring patients with PAD and 49% had never referred a patient with PAD for supervised treadmill exercise⁶. However, attitudes and perceived barriers regarding supervised exercise therapy among people with PAD in the U.S. are understudied. Therefore, this study was designed to determine whether most people with PAD would report willingness to participate in supervised exercise therapy and to identify perceived barriers toward participation in supervised exercise therapy among people with PAD. We hypothesized that most people with PAD would report interest in supervised exercise participation, but that the requirement for regular travel to the medical center and the \$11.00 per session co-pay would be major barriers to participating in supervised exercise. We further hypothesized that people who were older, female, Black, or with lower six-minute walk distance would have lower rates of participation in supervised exercise based on prior evidence that these characteristics are associated with poorer access to healthcare in people with PAD.⁸

METHODS

Participants were people with PAD, identified from across the Chicagoland area and in the surrounding suburbs, who attended a visit at Northwestern medical center between 03/15/2019 to 07/12/2022 to participate in one of multiple ongoing research studies focused on walking impairment. All participants completed the study questionnaire at a research study visit, when the questionnaire was administered by a trained and certified research coordinator. All participants with PAD who signed a consent form were asked to complete the questionnaire. The study was approved by the Institutional Review Board at Northwestern University. Participants gave written informed consent.

Participant Identification

Multiple diverse methods were used for recruitment^{9,10}. First, recruitment letters were mailed to participants identified using lists of patients with PAD at Northwestern Medical Center. Second, postcards advertising research in PAD were mailed to people age 50 and older residing in the Chicago area. The postcard advertisements were mailed to individuals age 50 and older because they are more likely to have PAD than younger individuals. Only individuals who responded to the postcard advertisement, attended a study visit, and were found to have PAD were eligible to participate. Third, advertisements were placed on Chicago Transit Authority buses and trains. Fourth, individuals with PAD who completed prior studies with the study's principal investigator (MMM) and expressed interest in future research were invited to participate. Fifth, potential participants with PAD were referred by clinicians at Northwestern Medicine for study participation.

Inclusion and Exclusion Criteria

The inclusion criterion was an ankle-brachial index (ABI) ≥ 0.90 in either leg (8–10). Individuals with a resting ABI ≥ 0.91 and ≤ 1.00 at baseline were eligible if their ABI dropped by $\geq 20\%$ following a heel-rise test^{11,12}. Individuals with a resting ABI greater than 0.90 were potentially eligible if they had evidence of PAD from a vascular laboratory or angiogram⁹. Vascular laboratory criteria consisted of abnormal ABI or toe brachial index pressures and angiogram required stenosis of 70% or more for eligibility. Exclusion criteria for the research studies that the participants were identified from consisted of major limb amputation, wheel-chair confinement, use of a walking aid other than a cane, a walking limitation for a reason other than PAD, chronic limb-threatening ischemia, a Mini-Mental Status Examination score < 23 , significant visual or hearing impairment, planned major surgery in the next 4–12 months, or lower extremity revascularization or orthopedic surgery during the previous three months^{9,10}.

Questionnaire

The study questionnaire was developed by the study principal investigator (MMM) based on feedback obtained during focus groups from people with PAD who had participated in prior research studies, including clinical trials of exercise therapies for PAD^{9,13,14}. During these focus groups, participants were asked about barriers to participation in supervised exercise therapy. The questionnaire was also developed based on barriers to supervised exercise participation identified in prior study¹⁵. In the questionnaire, participants

were asked whether their doctor (i.e. any physician caring for them) had prescribed or recommended supervised treadmill exercise and whether the participant was willing to take part in supervised exercise therapy, consisting of treadmill exercise therapy at a medical center three times weekly for 12 weeks. Those who indicated that they were not willing to participate were asked to indicate the primary reason that they were unwilling to take part in supervised exercise. They were subsequently asked for two additional primary reasons for unwillingness to take part in supervised exercise. Those who indicated willingness to participate in supervised exercise were next asked whether they would still be willing to participate if they were asked to pay \$11 per exercise sessions, consistent with the co-pay for supervised exercise required by CMS. The questionnaire was administered by a research coordinator, certified in questionnaire administration by the study principal investigator (MMM).

Ankle Brachial Index (ABI) Measurement

A hand-held Doppler probe (Pocket Dop II; Nicolet Biomedical Inc, Golden, CO) was used to measure systolic pressures twice in the right and left brachial, dorsalis pedis, and posterior tibial arteries^{9,10,16}. The ABI was calculated by dividing the mean of the dorsalis pedis and posterior tibial pressures in each leg by the mean of the four brachial pressures^{9,10,16}. The denominator of the ABI was the mean of the four systolic brachial pressures except when participants who met both of the following two criteria: 1) the brachial artery systolic pressure in one arm (i.e. left) was higher than the opposite arm (i.e. right) in both measurement sets; 2) in at least one measurement set, the brachial artery systolic pressure was higher than the opposite arm by at least 10 mm. For participants who met these two criteria, brachial artery systolic pressures in the arm with highest pressures were used to calculate the ABI.

Medical History

The questionnaire on supervised exercise was administered by a trained coordinator using standardized methods^{9,10}. Medical history, race, and demographics were obtained by questionnaire^{9,10}. Information on race was based on patient self-report, collected by research coordinators using an open-ended question, and classified with fixed categories. This information was collected to assess the generalizability of results and comply with funding agency reporting requirements. Information on the nature of exertional leg symptoms was collected with a validated questionnaire.¹⁷ Participants were categorized according to whether they experienced classical intermittent claudication, exertional leg symptoms that were not classic for intermittent claudication, or reported no exertional leg symptoms (i.e., asymptomatic). Classical intermittent claudication was defined as exertional calf discomfort that resolved within 10 minutes of rest and did not begin at rest¹⁷.

Six-minute walk

The six-minute walk was administered using standard methods^{9,10,18}. A research coordinator administered instructions for the test using a script^{9,10,18}. Participants were asked to walk back and forth along a 100-foot hallway, with the goal of walking as far as possible during the six minutes. The distance covered at the completion of the six minutes was recorded.

Statistical Methods

Descriptive statistics were used to summarize the results from the questionnaire. T-tests and chi-square were used to compare questionnaire responses according to median age, sex (male compared to female), and race (Black race compared to not Black race). Logistic regression was used to adjust associations of age, sex, and race with questionnaire responses for mean income of less than \$75,000 per year or \$75,000 per year or greater. Income was assessed by matching the participant's zip code to US census data on zip code and income.¹⁹

RESULTS

Of 516 participants with PAD who signed a consent form between 03/15/2019 and 07/12/2022, 489 (94.8%) completed the questionnaire and were included. The mean age and ABI of participants were 71.0 years (standard deviation (SD) (8.7)), and 0.71 (SD: 0.25), respectively. The 489 participants included 204 (41.7%) women and 261 (53.4%) people who were Black (Table 1).

Characteristics associated with referral to or participation in supervised exercise therapy

Of the 489 participants, 416 (85.1%) reported that their physician had never prescribed or recommended supervised exercise therapy. Compared to those who reported not receiving a physician recommendation for supervised exercise, those who reported receiving a physician recommendation for supervised exercise had a significantly higher prevalence of stroke ($P = 0.015$), heart failure ($P = 0.043$), and knee arthritis ($P = 0.011$) (Table 1). Compared to those who reported never having participated in supervised exercise, individuals who reported prior participation in supervised exercise had a significantly higher prevalence of heart failure ($P = 0.007$), and knee arthritis ($P = 0.001$) (Table 1).

Reasons for lack of interest in participating in supervised exercise

One hundred thirty-one participants (26.8% of the entire cohort) reported that they were unwilling to participate in supervised exercise. Among these 131 people, the most commonly reported primary reasons for lack of interest in supervised exercise participation were that supervised exercise was too time consuming ($N=26$ (19.9%)), that supervised exercise was too inconvenient ($N=20$ (15.3%)), or that the participant lacked interest in exercising on a treadmill ($N=19$ (14.5%)) (Table 2). Reasons for lack of interest in participating in supervised exercise were not substantially different according to source of recruitment (data not shown). Similarly, results in Tables 1 and 2 were not substantially different when analyses were repeated using the highest pressure in each extremity to calculate the ABI, among people with $ABI < 0.90$ (data not shown).

Association of CMS co-pay on willingness and ability to participate in supervised exercise

Among all 489 participants, 357 (73.2%) initially reported that they would be willing to travel three times weekly to participate in supervised exercise. However, of these 357, 214 participants (59.9%) reported that they were no longer willing or that they were unable to pay \$11 per exercise session (a total of \$396 for all 36 sessions), the co-pay required by CMS for each exercise session covered by CMS for PAD (4).

Attendance at supervised exercise, among those who participated in supervised exercise

Of 73 participants who reported that their physician had prescribed or recommended supervised exercise, 51 (69.9%) reported participation in supervised exercise sessions. Of these, five (9.8%) reported that they completed all 12 weeks of supervised exercise covered by CMS after a first referral for supervised exercise, 26 (51.0%) reported completing at least six weeks but fewer than 12 weeks of exercise, and 14 (27.5%) reported completing fewer than six weeks of supervised exercise (Figure 1).

Questionnaire responses by age, sex, race, and degree of walking impairment

Analyses were repeated to identify differences in response to study questions according to participant age, sex, race, and baseline six-minute walk distance (Table 3). Among all participants, those who were Black were more likely to report willingness to participate in three times weekly supervised exercise, compared to those who were not Black ($P=0.001$) (Table 3). However, among all participants who reported willingness to participate in three times weekly supervised exercise, those who were Black were more likely to state that they were unwilling or unable to pay \$11 per session to participate ($P=0.017$) (Table 3). This finding was attenuated and no longer statistically significant after additional adjustment for mean income in the participant's zip code of residence ($P=0.059$). Among participants who received a referral for participation in supervised exercise, women were more likely to report having participated, than men ($P=0.004$) (Table 3). Among participants who participated in SET, people older than the cohort's median age were significantly more likely to complete at least 12 weeks of SET, compared to those below the median age (Table 3). However, this finding was no longer statistically significant after additional adjustment for mean income in the participant's zip code of residence ($P=0.074$).

DISCUSSION

In this study of 489 people with PAD, conducted approximately 2–5 years after the start of CMS insurance coverage for supervised exercise therapy for PAD, 416 (85.1%) of people with PAD reported that their physician(s) had never prescribed or recommended supervised exercise therapy and only 51 (10.4%) reported that they had ever participated in supervised exercise therapy. Of the participants who reported that they were unwilling to participate in supervised exercise, most indicated that supervised exercise was either too inconvenient or too time consuming as a primary reason for lack of interest. Nearly 1/3 indicated lack of interest in exercising on a treadmill as a primary reason for lack of interest in supervised exercise. Of the 357 people with PAD who initially reported that they were willing to travel three times weekly to a medical center for participation in supervised treadmill exercise, 59.9% were unwilling or unable to pay the \$11 co-pay required per exercise session by CMS⁴. This barrier to participation was significantly more common among participants who were Black, compared to those who were not Black, but was no longer statistically significant by race when analyses were additional adjusted for income, measured by zipcode.¹⁹ Even among the people who reported prior participation in supervised exercise, fewer than 10% had completed the 12 weeks of supervised exercise covered by CMS⁴. Since patients in this study were participating in research studies, including clinical trials to improve walking impairment in PAD, it is possible that these results represent a 'best case

scenario' regarding interest in and barriers to participation in supervised exercise by people with PAD.

Due et al. administered an online questionnaire to physicians (vascular surgeons, cardiologists, and vascular medicine physicians) to assess physician-reported rates of referring patients with PAD for supervised exercise⁶. One-hundred thirty-five physicians (15% questionnaire response rate), including one or more physician from every state, participated. Of the 135 physician respondents, 49% reported that they had never referred a patient with PAD for supervised exercise and 54% reported that the lack of available supervised exercise programs in their community was a major barrier to referring patients with PAD for supervised exercise therapy. In a systematic review of 7,517 people with PAD who were eligible to participate in a clinical trial of supervised exercise, Harwood et al reported that only 24.2% elected to participate in the clinical trial of supervised exercise.¹⁵ The most common reasons for declining to participate were lack of interest in supervised exercise, comorbidities affecting the ability to participate in exercise, and lack of transportation to supervised exercise sessions.¹⁵ This study by Harwood et al. focused on the attitudes of people with PAD regarding participation in clinical trials of exercise, while data reported here focused on attitudes and experiences regarding supervised treadmill exercise prescribed by a physician and covered by CMS, outside of randomized trials. In this systematic review, 75.1% of 4,012 participants completed a supervised exercise program. This rate was substantially higher than the completion rate of 8.7% reported here by people with PAD. This large difference in rates of completing a supervised exercise program is likely due to the fact that Harwood studied adherence to exercise among patients who were participating in randomized clinical trials of supervised exercise, while data reported here was specific to supervised exercise prescribed by a physician in a clinical practice setting.

Data reported here identified that the CMS co-pay of \$11/session (total of \$396 for 12 weeks of supervised exercise therapy) was a major barrier to supervised exercise participation among people with PAD. Sixty-one percent of people who were interested in supervised exercise reported that this co-pay was either not possible or made them no longer interested in supervised exercise therapy. An additional common barrier was lack of interest in exercise on a treadmill. CMS covered exercise for PAD does not require that the exercise take place on a treadmill, although the exercise must take place at a healthcare facility. These results suggest that alternative forms of exercise, such as walking around a track or ergometry exercise, may be important alternatives to treadmill exercise for people with PAD. These results may underscore the importance of offering home-based exercise as an alternative to supervised exercise for patients with PAD.^{20–22} Home-based exercise circumvents many barriers to supervised exercise reported by people with PAD, can be highly effective, and is recommended by clinical practice guidelines as a reasonable therapy for PAD^{1,8,20,21}. However, no multi-centered definitive randomized trials have demonstrated that a smart-phone app helps patients adhere to regular home-based walking exercise or significantly improve their six-minute walk distance.²³ Furthermore, CMS does not currently pay for home-based exercise for PAD.

Data reported here found that people who were Black were significantly more likely to be interested in supervised exercise therapy participation, but significantly less likely to

be willing or able to pay the \$11 co-pay per session, compared to people who were not Black. These results are likely related to social barriers associated with Black race, such as lower socioeconomic status or lower income. The significant association of Black race with lack of willingness or ability to pay the \$11 co-pay per session was attenuated and no longer statistically significant when analyses were additionally adjusted for estimated income above or below \$75,000, which was estimated based on zipcode.¹⁹ The greater interest in supervised exercise among people who are Black could also indicate difficulty finding a safe space near home to walk for exercise in an unsupervised setting.

Participants with a history of stroke and those with a history of heart failure were more likely to report receiving a referral to participate in SET. Although reasons for these differences are unclear, people with history of stroke and those with a history of heart failure had a higher prevalence of myocardial infarction and angina, compared to those without history of stroke and compared to those without history of heart failure. People with PAD who had history of stroke or heart failure in this study also had lower six-minute walk distances than those without a history of stroke or heart failure. It is possible that physicians are more likely to refer people with PAD to SET if they have a history of myocardial infarction or angina or if they have more walking difficulty.

This study had several limitations. First, the study was cross-sectional and descriptive. Questionnaire responses were not linked to subsequent outcomes. Second, data were collected in the greater Chicago area. Results may not be generalizable to people with PAD outside of Chicago, such as in rural communities where lack of nearby supervised exercise programs may present even greater barriers to supervised exercise participation as well as different reasons for difficulty participating, compared to participants enrolled in this study. Third, the people with PAD who completed the questionnaire were participating in research studies focused on walking impairment in PAD. It is possible that people with PAD who were not participating in research may have responded differently to the questionnaire and may have been even less likely to report willingness to participate in SET. Fourth, reported data were based on self-report and not validated with medical record review. However, findings regarding recommendations for SET reflect the recommendations that patients with PAD recall receiving from their physician. Individuals who do not recall a recommendation to participate in SET are unlikely to participate in SET. Fifth, among those who expressed unwillingness to participate in supervised exercise, it is possible that receipt of a referral from a physician may change their mind about participation. Sixth, some participants recruited by a postcard mailing may not have known about their PAD diagnosis prior to study participation, it is possible that the low rates of prior supervised exercise participation may partially reflect that participants and their physicians were unaware of their PAD diagnosis. However, this factor should not have affected responses to other questions, which focused on attitudes and barriers to supervised exercise therapy. Seventh, respondents to study recruitment methods included lower proportions of people with Hispanic ethnicity and just 26 participants (5.3%) had Hispanic ethnicity. Reasons for lower rates of participation by people of Hispanic ethnicity are unclear, but it is possible that the lack of a Spanish language consent form or Spanish language study questionnaires negatively affected the ability to enroll people of Hispanic ethnicity. Results may not be generalizable to people who are of Hispanic ethnicity. Eighth, the questionnaire was

developed specifically to collect data on willingness to participate in supervised exercise and barriers to participation in supervised exercise perceived by people with PAD. While the questionnaire was administered by trained and certified coordinators, the questionnaire was not otherwise validated.

CONCLUSION

Approximately two to four years after CMS began covering supervised exercise for PAD, most people with PAD in a large urban area had not participated in supervised exercise therapy. Of those who had participated, most reported completing fewer than half of the sessions covered by CMS. The required CMS co-payment and inconvenience were major barriers to supervised exercise participation reported by people with PAD. Findings should be confirmed in larger populations that include people living in rural settings.

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ARTICLE HIGHLIGHTS**Type of Research:**

Observational, cross-sectional

Key Findings:

Of 489 people with peripheral artery disease in Chicago, 85.1% reported that their physician had never prescribed or recommended supervised exercise therapy. Of 357 who were interested in participating in supervised exercise, 214 (59.9%) were unwilling or unable to pay the \$11/session co-pay required for supervised exercise covered by the Center for Medicare and Medicaid Services.

Take Home Message:

Two to four years after the Center for Medicare and Medicaid Services began covering supervised exercise for peripheral artery disease, participation rates were low in this cohort of people with peripheral artery disease in a large urban area. The required co-payment was among the most common barriers to supervised exercise participation.

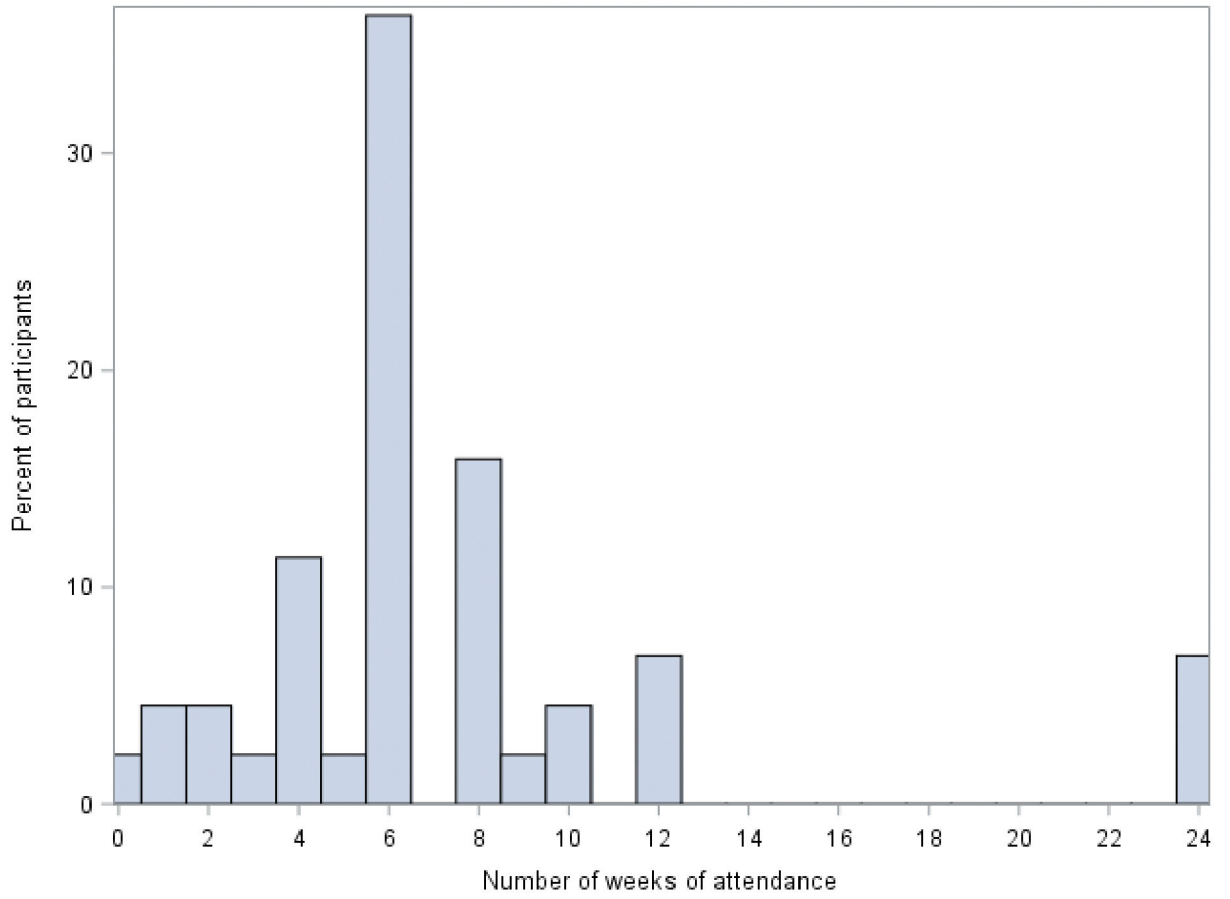


Figure 1. Distribution of number of weeks of supervised exercise therapy attendance in people with peripheral artery disease (N=51)

Table 1:

Baseline characteristics of participants with peripheral artery disease

Characteristics	All participants with PAD (N=489)	Presence or absence of reporting receipt of a physician recommendation to participate in supervised exercise		Presence or absence of reporting prior participation in supervised exercise	
		YES (N=73)	NO (N=416)	YES (N=51)	NO (N=438)
Age (years), mean (SD)	70.99 (8.71)	71.27 (8.00)	70.94 (8.84)	71.74 (7.94)	70.90 (8.80)
Number (%) > age 65 years	372 (76.39)	59 (50.82)	313 (75.60)	43 (84.31)	329 (75.46)
Female, n (%)	204 (41.72)	32 (43.84)	172 (41.35)	28 (54.90)	176 (40.18)
Black race, n (%)	261 (53.37)	44 (60.27)	217 (52.16)	31 (60.78)	230 (52.51)
Hispanic ethnicity, n (%)	26 (5.32)	4 (5.48)	22 (5.29)	2 (3.92)	24 (5.48)
Medicare insurance	304 (63.33)	54 (73.97) ⁷	250 (61.43) ⁷	42 (82.35) ⁸	262 (61.07) ⁸
Medicaid insurance	98 (20.46)	16 (21.92)	82 (20.20)	12 (23.53)	86 (20.09)
ABI, mean (SD)	0.71 (0.25)	0.68 (0.28)	0.71 (0.25)	0.67 (0.30)	0.71 (0.25)
ABI, mean (SD) ¹⁰	0.75 (0.25)	0.73 (0.27)	0.76 (0.25)	0.73 (0.28)	0.76 (0.25)
BMI (kg/m ²), mean (SD)	29.25 (6.39)	30.25 (6.50)	29.07 (6.36)	29.94 (6.03)	29.17 (6.43)
Baseline six-minute walk distance (meters), mean (SD)	318.99 (103.49)	303.58 (101.27)	321.73 (103.76)	295.27 (106.86) ⁶	321.79 (102.85) ⁶
Current smoker, n (%)	152 (31.28)	16 (21.92)	136 (32.93)	11 (21.57)	141 (32.41)
Myocardial infarction, n (%)	90 (18.79)	16 (22.22)	74 (18.18)	13 (25.49)	77 (17.99)
Heart failure, n (%)	64 (13.36)	15 (20.83) ¹	49 (12.04) ¹	13 (25.49) ⁵	51 (11.92) ⁵
Stroke, n (%)	96 (20.00)	22 (30.56) ²	74 (18.14) ²	15 (29.41) ⁴	81 (18.88) ⁴
Angina, n (%)	72 (15.00)	16 (22.22)	56 (13.73)	12 (23.53)	60 (13.99)
Diabetes, n (%)	176 (36.67)	28 (38.89)	148 (36.27)	22 (43.14)	154 (35.90)
Hip arthritis, n (%)	99 (20.67)	19 (26.39)	80 (19.66)	14 (27.45)	85 (19.86)
Knee arthritis, n (%)	158 (32.92)	33 (45.83) ³	125 (30.64) ³	27 (52.94) ⁹	131 (30.54) ⁹
Classic intermittent claudication symptoms, n (%)	70 (14.58)	9 (12.50)	61 (14.95)	7 (13.73)	63 (14.69)
Exertional leg pain not consistent with claudication, n (%)	349 (72.71)	56 (77.78)	293 (71.81)	39 (76.47)	310 (72.26)
Asymptomatic, n (%)	61 (12.71)	7 (9.72)	54 (13.24)	5 (9.80)	56 (13.05)
Residence in zip code where median household income <75k, n (%)	231 (47.24)	36 (49.32)	195 (46.88)	25 (49.02)	206 (47.03)

¹P = 0.043²P = 0.015³P = 0.011⁴P = 0.076⁵P = 0.007

$$^6P = 0.084$$

$$^7P = 0.003$$

$$^8P = 0.003$$

$$^9P = 0.001$$

¹⁰The ABI was re-calculated, in which the denominator was the mean systolic pressure from the brachial artery with the highest pressure. The numerator for each leg used the highest pressure (dorsalis pedis or posterior tibial) in each leg. The ABI for the leg with lowest ABI is shown.

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Table 2:

Reasons for lack of interest in supervised exercise among participants with PAD who reported unwillingness to participate in supervised exercise (N=131)

Reason	Number (%) of participants who selected the reason as their PRIMARY reason for lack of interest in supervised exercise	Number (%) of participants who selected this reason as AMONG THEIR TOP THREE REASONS for lack of interest in supervised exercise
Too time consuming	26 (19.9%)	72 (55.0%)
Too inconvenient	20 (15.3%)	60 (45.8%)
Not interested in walking on a treadmill	19 (14.5%)	37 (28.2%)
No transportation	10 (7.6%)	17 (13.0%)
Too difficult	8 (6.1%)	34 (26.0%)
Not interested in exercising	4 (3.1%)	10 (7.6%)
Other health issues	3 (2.3%)	11 (8.4%)
No insurance coverage	1 (0.8%)	2 (1.5%)
Other	40 (30.5%)	68 (51.9%)*

* Of these, 26 reported that they already had a treadmill and/or were already exercising at home on their own.

Table 3:

Associations of age, race, sex, and baseline six-minute walk distance on questionnaire responses (N=489)

	Race		Age		Sex		Baseline six minute walk	
	Participants who were Black (N=261)	Participants who were not Black (N=228)	Below median age of 70.7 years N=243	Above median age of 70.7 years N=244	Male (N=285)	Female (N=204)	Six minute walk below median (N=242)	Six minute walk above median (N=241)
Number (%) who said "YES"								
Has your doctor prescribed or recommended supervised treadmill exercise?	44 (16.9%)	29 (12.7%)	35 (14.4%)	38 (15.6%)	41 (14.4%)	32 (15.7%)	41 (16.9%)	32 (13.3%)
If your doctor were to prescribe supervised treadmill exercise, would you be willing to travel three times per week for 12 weeks to exercise?	207 (79.6%) ¹	150 (65.8%) ¹	185 (76.5%)	170 (69.7%)	208 (73.0%)	149 (73.4%)	183 (75.9%)	169 (70.1%)
Subset of participants who reported that they would be willing to travel three times weekly for supervised treadmill exercise								
	Participants who were Black (N=207)	Participants who were not Black (N=150)	Below median age (70.7 years) (N=185)	Above median age (70.7 years) (N=170)	Male (N=208)	Female (N=149)	Six minute walk below median (N=183)	Six minute walk above median (N=169)
Would you be willing to pay \$11 per session (\$33 per week) for 12 weeks?	72 (34.8%) ²	71 (47.3%) ²	76 (41.1%)	66 (38.8%)	83 (39.9%)	60 (40.3%)	70 (38.3%)	71 (42.0%)
	Race		Age		Sex		Baseline six minute walk	
	Participants who were Black (N=44)	Participants who were not Black (N=29)	Below median age (70.7 years) (N=35)	Above median age (70.7 years) (N=38)	Male (N=41)	Female (N=32)	Six minute walk below median (N=41)	Six minute walk above median (N=32)
Subset of participants whose doctor prescribed or recommended supervised treadmill exercise								
Did your doctor provide a referral for supervised exercise?	30 (68.2%)	22 (75.9%)	24 (68.6%)	28 (73.7%)	27 (65.9%)	25 (78.1%)	30 (73.2%)	22 (68.8%)
Did you participate in supervised exercise?	31 (70.5%)	20 (69.0%)	23 (65.7%)	28 (73.7%)	23 (56.1%) ³	28 (87.5%) ³	30 (73.2%)	21 (65.6%)
Among people who reported participation in supervised treadmill exercise								

	Race		Age		Sex		Baseline six minute walk	
	Participants who were Black (N=261)	Participants who were not Black (N=228)	Below median age of 70.7 years N=243	Above median age of 70.7 years N=244	Male (N=285)	Female (N=204)	Six minute walk below median (N=242)	Six minute walk above median (N=241)
	Number (%) who said "YES"							
	Participants who were Black (N=31)	Not Black (N=20)	Below median age (70.7 years) (N=23)	Above median age (70.7 years) (N=28)	Male (N=23)	Female (N=28)	Six minute walk below median (N=30)	Six minute walk above median (N=21)
Completed at least 12 weeks of supervised exercise	5 (16.1%)	6 (30.0%)	2 (8.7%) ⁴	9 (32.1%) ⁴	6 (26.1%)	5 (17.9%)	6 (20.0%)	5 (23.8%)

¹P = 0.001

²P = 0.017

³P = 0.004

⁴P = 0.043