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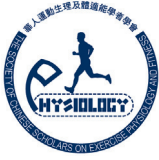
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Original article

Effect of a moderate-intensity demonstration walk on accuracy of physical activity self-report

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Abstract

Background/Objective: Providing a demonstration of a 10-minute bout of moderate-to-vigorous intensity physical activity (MVPA) immediately prior to subjective reporting of MVPA could influence self-reported activity by calibrating both duration and intensity. We assessed the effect of a demonstration of MVPA on subsequent MVPA recall, and explored whether this improved agreement with objective measures of MVPA.

Methods: A total of 846 individuals participated in four different physical activity interventions; two of which included a 10-minute moderate-intensity demonstration walk on a treadmill at baseline and 6-month visits immediately prior to reporting MVPA. Participants from three studies also wore accelerometers during the week overlapping with self-reported MVPA.

Results: Overall, those completing the demonstration walk reported significantly fewer minutes of MVPA per week at baseline ($b = -11.69$, standard error = 2.53, $p < 0.01$). The effect of the demonstration walk at 6 months was not significant ($p = 0.06$). Correlations with accelerometers at baseline were higher in the two studies with the demonstration walk ($\rho = 0.28, 0.26$) than the study without ($\rho = 0.04$). Correlations with accelerometers increased overall from baseline to follow-up.

Conclusion: A 10-minute demonstration of MVPA was associated with reporting fewer minutes of MVPA and improved agreement with objective PA measures at baseline. These findings support combining self-report PA assessments with hands-on MVPA demonstrations.

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Keywords: chronic disease prevention; exercise; experiential learning theory; measurement

Introduction

The benefits of regular moderate-to-vigorous physical activity (MVPA) are well documented and extensive, and include reduced morbidity and mortality from cardiovascular disease, diabetes, cancer, depression, and other pervasive conditions.^{1,2} Despite these benefits, participation in regular MVPA is low. It is recommended that adults acquire at least

150 minutes per week of MVPA in order to realize significant health benefits,³ yet recent population-based surveys estimate that only 30–35% of American adults achieve this, and 30–40% report never engaging in any MVPA.⁴ Given the broad health benefits of regular MVPA, there is a need for wide reaching interventions that promote MVPA across diverse populations.

In order to assess the success and public health potential of large-scale interventions, accurate measures of MVPA are essential. The use of objective measures of PA, particularly accelerometry has generally shown good validity and reliability.^{5–7} However, while these objective measures have become a preferred method of measurement in many studies,

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their use is not always feasible on a large scale, and they provide limited contextual information related to the type of MVPA being performed. Thus, while objective measures should be used whenever possible, there is still a need for valid self-report measures, which can offer additional information or be used when objective measures are not available.

While many subjective measures have shown acceptable reliability, agreement with objective measures is often low.⁸ Most population-based surveys have traditionally relied on self-report to assess population level prevalence of PA, yet the recent use of accelerometry in the National Health and Nutrition Examination Surveys (NHANES) revealed that self-reported MVPA may be greatly overestimated; while 51% of adults reported ≥ 150 minutes MVPA each week, accelerometry readings showed that $< 5\%$ were active for 30 minutes per day.⁹ This over-reporting may be partially due to social desirability bias, which suggests people respond to questions in a manner that will be viewed favorably by others,^{10,11} and has been linked to over-reporting MVPA.¹² However, there is also the possibility that over-reporting is due in part to respondents' limited understanding PA intensity thresholds (i.e., the difference between light- and moderate-intensity activity). In order for self-report measures to be accurate, participants must both honestly and accurately report both duration and intensity of activities, either of which could be overestimated or misunderstood. According to the Experiential Learning Theory (ELT), learning is the process whereby knowledge is created through the transformation of experience.¹³ Consistent with the ELT, providing respondents of a self-report MVPA measure with a hands-on experiential demonstration of 10 minutes of MVPA immediately prior to completing a recall measure may improve accuracy through improved understanding of MVPA intensity and duration.

Therefore, the purpose of the current study was to assess the effect of implementing a 10-minute experiential demonstration of moderate-intensity MVPA on a subsequent self-report recall measure of MVPA; in this case, the Seven-Day Physical Activity Recall Questionnaire (7-Day PAR), both at baseline and follow-up in four physical activity randomized controlled trials. To test this aim, we compared self-reported

MVPA levels of participants who completed the 10-minute moderate-intensity demonstration at baseline and 6-month follow-up against participants who did not. We hypothesized that those completing the experiential demonstration walk prior to completing the 7-Day PAR would report significantly fewer minutes of MVPA during the past week compared to those not completing the walk. We also sought to explore whether this experiential demonstration improved accuracy of self-report recall by comparing self-reported MVPA against an objective measure of MVPA among a subsample of participants who did and did not complete the 10-minute demonstration walk. We hypothesized that those completing the demonstration walk prior to completing the 7-Day PAR would show greater agreement with objectively measured MVPA collected via accelerometers.

Methods

Studies included

Secondary data analysis was performed using data collected from four previous randomized controlled trials: Stride I,¹⁴ Stride II,¹⁵ Seamos Activas (Activas),¹⁶ and Seamos Saludables (Saludables).¹⁷ All four trials were interventions designed to increase MVPA, were led by the same investigative team (Marcus et al), and were conducted in the same geographic location (Greater Providence, RI, USA). In general, participation criteria were similar across all four studies. Participants were healthy, aged between 18 years and 65 years and underactive. Stride I and II recruited both men and women, as well as participants from all racial and ethnic categories, whereas Activas and Saludables included female Latinas only. Small, yet notable between-study differences were also present for PA inclusion criteria (< 90 min/wk MVPA for Stride I and II vs. < 60 min/wk MVPA for Activas and Saludables), and body mass index inclusion criteria (< 35.0 kg/m² for Stride I, < 40.0 kg/m² for Stride II and Activas, and < 45.0 kg/m² for Saludables).

All four studies had at least one treatment arm in common, that being 6 months of a print-based MVPA intervention. Participants randomized to the tailored print arm were similar across all four studies (see Table 1 for mean baseline values).

Table 1
Participant characteristics in each study at baseline.

	Stride I (English, no demo) <i>n</i> = 239	Stride II (English, demo) <i>n</i> = 248	Activas (Spanish, no demo) <i>n</i> = 93	Saludables (Spanish, demo) <i>n</i> = 266
Age, y (SD)	45.25 (9.61)	46.84 (9.98)	41.37 (11.18)	40.67 (9.98)
BMI (SD)	28.55 (5.56)	28.05 (4.42)	29.32 (4.71)	29.40 (4.70)
Gender (% female)	82.0	87.1	100	100
Race (% white)	89.5	84.7	24.7	35.3
Ethnicity (% Hispanic or Latino)	2.1	3.6	100	100
Employment (% full time)	90.4*	81.9*	37.6	30.5
Education (% at least some college)	93.3	87.4	40.9	46.2
Marital status (% married/partnered)	63.6	63.7	50.5	57.0

**p* < 0.05 for between-study differences in language-matched pairs (Stride I vs. Stride II, Activas vs. Saludables).
SD = standard deviation.

Participants were all middle-aged [mean age ranged from 41.6 (10.0) years to 46.3 (10.4) years], mostly female (75% female for Stride I, 88% female for Stride II, and all female for Activas and Saludables), and mostly overweight [mean BMI ranged from 28.0 (4.05) kg/m² to 29.6 (4.3) kg/m²].

In all four studies, those randomized to the intervention condition received printed materials through the mail on the same schedule (weekly, monthly, and then bimonthly). Materials were individually tailored based on participants' responses to monthly psychosocial questionnaires and their stage of motivational readiness for change. Participants in the control conditions received materials on wellness topics other than physical activity (e.g., diet and smoking) mailed on the same schedule to control for contact.

Stride I and Stride II were delivered in English to both men and women, who were mostly non-Latino white participants. The tailored print intervention arm for Stride I and II (the arms analyzed in this study) were identical. Activas and Saludables were delivered in Spanish to female Latina participants. The Spanish-language intervention content was essentially the same as that in the English studies, with the addition of information on topics identified in formative research as being especially important to Latinas' health behavior (e.g., cultural/gender roles and childcare duties). Activas was a smaller ($n = 93$) pilot study used to power the larger Saludables randomized trial ($n = 266$), thus, the tailored print intervention arms for these two studies were again identical. For each study, approval was given by the Institutional Review Board at Brown University, Providence, RI, USA, and participants provided informed consent.

Measures

MVPA was measured both at baseline and post-intervention (6 months) for all four studies. The primary outcome for all four trials was weekly minutes of MVPA measured using the 7-Day PAR; a validated self-report measure that has shown acceptable reliability and sensitivity to changes in MVPA.^{18,19} The 7-Day PAR was administered by trained interviewers either in person or on the telephone. All staff received the same training and certification procedure to conduct the 7-Day

PAR, and, for all four studies, the same 7-Day PAR protocol was followed at both baseline and post-intervention. Within each study, the same trained interviewer completed all interviews to maintain measurement consistency. The same individual completed all interviews for both Stride I and II, while two separate individuals (fluent in Spanish) completed interviews for Activas and Saludables. Participants were asked to report their time spent in sleep, and moderate, hard, and very hard intensity activities for each day during the previous week. Days were broken into mornings and evenings to improve recall, and verbal examples were given for each intensity of physical activity. Consistent with adapted protocols,²⁰ times spent in moderate, hard, and very hard activities were only included if reported in continuous bouts of ≥ 10 minutes duration. All research staff members who administered the 7-Day PAR for all four studies completed the same 7-Day PAR quality control training session to maintain consistent accuracy and reliability within and between trials.

Participants of two trials (Stride I and Activas) were administered the 7-Day PAR at baseline and follow-up with no experiential demonstration walk. Participants of the other two trials (Stride II and Saludables) were administered the 7-Day PAR at both baseline and follow-up immediately following a 10-minute experiential demonstration walk at moderate intensity conducted on a treadmill. For the demonstration walk, the treadmill was set at 0% grade and speed was controlled by a research staff member. The walk began at 3.0 mph (estimated 3.5 METs) and increased 0.1 mph every minute for 10 minutes until 4.0 mph (estimated 5.0 METs) was reached to allow participants to experience a range of moderate-intensity walking. Participant's heart rate and rating of perceived exertion were assessed at 2-minute intervals throughout the 10-minute walk. In order to accommodate different fitness levels, heart rate zones were calculated prior to the treadmill walk. In the case that a participant's heart rate exceeded what was considered moderate intensity for the individual, the pace of the walk was slowed until the person's heart rate returned to moderate intensity. Participants were asked to recall activity during the 7 days prior to the day the 7-Day PAR was administered, thus the 10 minute demonstration walk was excluded from the measurement.

Table 2
Accelerometer protocols for each study.

	Stride I	Stride II	Seamos Activas	Seamos Saludables
No. wearing accelerometer	71	248	0	266
Accelerometer used	Single-axis ActiGraph	Single-axis ActiGraph	N/A	ActiGraph GT3X
Valid wear time	≥ 10 h on 3 d	≥ 10 h on ≥ 5 d	N/A	≥ 10 h on ≥ 5 d (≥ 3000 min)
Minimum bout duration	10 min	10 min	N/A	10 min
MVPA min/wk at baseline	7.77 ^a (SD = 21.12)	17.06 (SD = 37.63)	N/A	9.20 (SD = 28.04)
Moderate intensity cut point	1952	1952	N/A	1952
Correlation with subjective at baseline	0.04 ^a	0.28	N/A	0.26
	$p = 0.85$	$p < 0.01$		$p < 0.01$
Correlation with subjective at 6 mo	0.24 ^a	0.31	N/A	0.44
	$P = .35$	$P < .01$		$P < .01$

N/A = not applicable; SD = standard deviation.

^a Weekly minutes are prorated to 7 days based on 3 days of wear time.

PA was also measured objectively for three studies using the hip-worn Actigraph accelerometer (Actigraph, LLC, Pensacola, FL, USA). A random subsample of participants in Stride I (30%), regardless of treatment arm, were instructed to wear a single-axis Actigraph activity monitor (formerly the Computer Science and Applications Inc (CSA)) on their right hip for 3 days at baseline and 6 months. These participants completed an additional 3-day PAR interview to correspond with the days of accelerometer wear. All participants in Stride II wore the same single-axis Actigraph activity monitor at baseline and 6 months, for 7 days corresponding to administration of a 7-day telephone-administered PAR. All participants in Seamos Saludables were instructed to wear the ActiGraph GT3X accelerometer for 7 days prior to completing the 7-Day PAR. No participants of Activas provided objectively measured MVPA data. ActiGraph accelerometer data were processed using the ActiLife 5 software (ActiGraph, Pensacola, FL) with a cut-point of 1952 as the minimum threshold for MVPA and 10 minutes as the duration for minimum activity. See Table 2 for details on accelerometer protocols.

Statistical analysis

Baseline demographics were compared between pairwise studies (Stride I vs. Stride II, Activas vs. Saludables) using *t* tests/nonparametric tests (for skewed variables) for continuous variables and χ^2 tests for categorical variables. Unadjusted mean min/wk of MVPA at baseline was calculated for each of the four studies, based on the primary outcomes (self-reported MVPA from the 7-day PAR). The subsets of participants randomized to the Tailored Print condition in each of the studies were used for post-intervention 6-month analyses, and mean min/wk of self-reported MVPA was calculated for each of the studies.

Using a series of generalized linear models, we compared self-reported min/wk of MVPA at baseline between participants enrolled in one of four studies that either did (Stride II and Saludables) or did not (Stride I and Activas) include the 10-minute moderate intensity demonstration walk (3.0–4.0 mph) prior to the 7-Day PAR, controlling for any significant between-study differences (employment status for the Stride studies). Pairwise analysis was used to compare English (Stride I and Stride II) and Spanish (Activas and Saludables) study pairs. As all four studies had one treatment arm in common (6-month tailored print intervention), we also compared self-reported MVPA within treatment pairs who did and did not complete the walk at 6 months, controlling for between-study differences. As a subsequent step, we considered the aggregated data. That is, data from all four studies were combined with indicators noting whether it was an English language study (vs. Spanish language) and whether or not the study included a 10-minute demonstration walk. This allowed us to test the main effects of English versus Spanish, demonstration walk versus no demonstration walk, and the interaction between the two, on mean min/wk of self-reported MVPA at baseline and 6 months, using a similar generalized linear modeling approach. Due to the lack of objectively

measured MVPA in the first of the Spanish language studies (Activas) and only partial data on the first of the English language studies (Stride I), we did not pursue this same analysis for the objectively measured outcome.

As an exploratory step, we used Spearman rank correlations to assess the accuracy of reporting of MVPA with and without the experiential demonstration walk, by comparing agreement between self-reported MVPA (from the 7-day PAR) with objectively measured MVPA (from accelerometer). For participants in Stride I, who wore the accelerometer for only 3 days, we performed correlations with the 3-day PAR and also prorated the accelerometer data to 7 days to correlate it with the 7-day PAR. As accelerometry was not used for all participants in all four studies, sample size was restricted to available cases.

Results

A full description of the four study samples is in Table 1. Participants were 43.5 years of age on average [standard deviation (SD) = 10.2] and almost all were women (91%). More than half were married/partnered (58.7%) and the mean BMI at baseline was 28.8 (SD = 4.9). All participants in the Spanish language studies were female and identified themselves as Hispanic/Latino. The percentage of minority participants in the English language studies was small (2.1% in Stride I and 3.6% in Stride II). The only significant pairwise difference was with respect to employment status (in the English language pair), such that a greater percentage of Stride I participants were employed full time (90.4%) compared to Stride II (81.9%).

Unadjusted mean min/wk of MVPA (self-reported) at baseline is presented in Figure 1.

At baseline, a total of 594 of 846 participants reported zero minutes of MVPA (69%) and means ranged from 2.5 (SD = 8.8) in Seamos Saludables to 19.6 (SD = 25) in Stride I. When data were aggregated across studies, there was a significant main effect of the demonstration walk [$b = -11.7$, standard error (SE) = 2.5, $p < 0.01$] on mean min/wk of

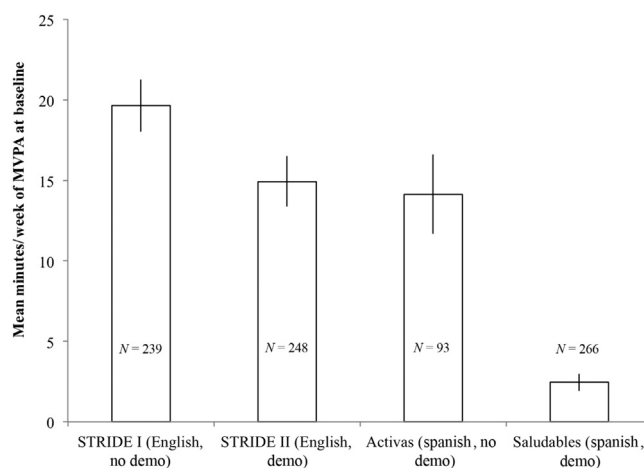


Figure 1. Unadjusted mean min/wk of MVPA at baseline. Error bars show standard errors. MVPA = moderate-to-vigorous intensity physical activity.

MVPA at baseline, such that those who completed the walk reported significantly fewer minutes than those not completing the walk. This difference was also significant when comparing the pairs of studies separately (significant moderating effect of study language on the associations between the demonstration walk and MVPA outcome, $b = 6.97$, $SE = 3.17$, $p = 0.03$). In the English studies, those completing the demonstration walk reported 4.7 ± 4.8 fewer minutes at baseline than those not completing it ($p < 0.05$), while the difference in the Spanish language studies was 11.7 ± 18.0 minutes at baseline ($p < 0.05$). Those in the Spanish language studies reported significantly fewer minutes of MVPA overall at baseline ($b = 5.5$, $SE = 2.6$, $p = 0.03$).

Figure 2 shows unadjusted mean min/wk of self-reported MVPA after completion of the 6-month intervention. Mean MVPA at 6 months ranged from 73.0 min/wk in Seamos Saludables to 169.7 min/wk in Activas. When data was aggregated across studies, there was a marginal overall effect of demonstration walk ($b = 24.9$, $SE = 12.5$, $p = 0.06$). Looking at study pairs separately, this was mostly driven by differences in the Spanish pair, in which those who completed the demonstration walk reported significantly fewer minutes of MVPA per week at 6 months than those not completing the walk (mean difference = 99.9 ± 32.2 ; $p < 0.05$). The difference between the English studies, however, was not significant.

To test whether the demonstration walk improved the accuracy of the self-report MVPA measure, we compared the correlations between self-report and objectively measured MVPA amongst participants who did and did not complete the demonstration walks at baseline and in the 6 months following the MVPA intervention. At baseline, a total of 585 participants wore the accelerometer across the three studies. For Stride I participants who did not complete the demonstration walk, we observed correlations with the 3-day PAR of 0.05 ($p = 0.85$) at baseline and 0.24 ($p = 0.35$) at 6 months. Correlating prorated accelerometer data with the 7-day PAR produced nearly

identical results to the 3-day PAR at baseline (0.04) and 6 months (0.24). For Stride II participants who did complete the demonstration walk, we observed correlations of 0.28 at baseline and 0.31 at 6 months (for both, $p < 0.01$). Participants in Activas did not use accelerometers, thus we were not able to compare correlations between the Spanish language studies, but for Seamos Saludables, which included the demonstration walk, correlations were 0.26 at baseline and 0.44 at 6 months ($p < 0.01$ for both).

Discussion

Our results showed a significant effect of an experiential 10-minute moderate-intensity demonstration walk on self-reported MVPA amongst both Spanish- and English-speaking adults. Participants who completed the demonstration walk immediately prior to completing the 7-Day PAR at baseline reported significantly fewer weekly minutes of MVPA compared to those who did not complete the demonstration walk. This effect was also observed amongst Spanish-speaking adults after completing a 6-month MVPA intervention, but not among English-speaking adults at the completion of the same 6-month MVPA intervention.

Importantly, there was a higher degree of agreement between self-reported MVPA and objectively measured MVPA among participants who completed the 10-minute demonstration walk compared to those who did not complete the walk. For participants not completing the demonstration walk at baseline, correlations between objective and self-report MVPA were markedly low (0.04), while participants completing the demonstration walk had higher and statistically significant correlations at baseline (0.28 and 0.26). This suggests the experiential demonstration may have improved self-report accuracy through improved understanding of what constitutes MVPA. The agreements between the 7-Day PAR and the objective data measured via Actigraph accelerometers in our studies are similar, albeit slightly lower than those reported in a previous study. Sloane et al²¹ reported moderate agreement between data collected from a telephone administered 7-Day PAR and an RT3 accelerometer with correlation coefficients ranging from 0.24 to 0.54. As Sloane et al²¹ pointed out, a potential reason for the poor agreement between the 7-Day PAR and accelerometry is the fact that they measure different dimensions of PA. While the PAR measures recalled minutes of activity, accelerometry measures accelerations, which are then used to approximate minutes of activity using count thresholds.

These data suggest that a 10-minute experiential demonstration walk may serve as an effective and practical calibration of both duration and intensity of MVPA prior to conducting self-report MVPA assessments. These findings also suggest the typical over-reporting of MVPA may not simply be due to social desirability, but at least in part to an incomplete understanding of what a 10-minute bout of MVPA actually feels like. The common practice of providing simple verbal descriptions (e.g., “you may be slightly out of breath and sweat a bit”) and examples (e.g., “brisk walking or biking on a flat surface”) of MVPA, as is done in many self-report MVPA

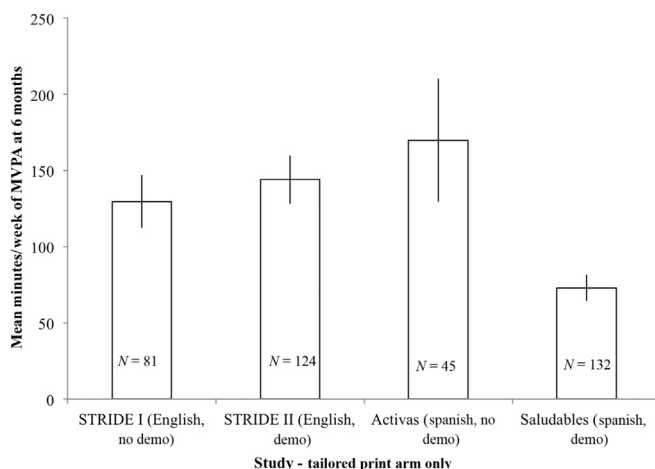


Figure 2. Unadjusted mean min/wk of self-reported MVPA at 6 months. Error bars show standard errors. MVPA = moderate-to-vigorous intensity physical activity.

assessments including the 7-Day PAR, may be an insufficient means of educating previously sedentary individuals on the duration and intensity of MVPA for accurate reporting. Given the low baseline levels of MVPA in the participants in the current studies, it is likely they had a low initial understanding of MVPA. For instance, after completing the demonstration walk, several participants noted that they had never completed any MVPA of that intensity or duration before. However, given previous reports of < 5% of US adults engaging in regular MVPA,⁹ it is likely that the experiential demonstration would be useful for improving understanding of MVPA in most populations.

Consistent with ELT,¹³ the experiential demonstration walk appears to have had the greatest effect at baseline, when participants were relatively unfamiliar with MVPA. The overall effect was not significant at 6 months, which may be because participants were more familiar with duration and intensity of MVPA bouts at that point after participating in the intervention for 6 months. Consistent with this, Rice et al²² showed that, among sedentary women who were given a description of MVPA, those who actually practiced a 10-minute bout of MVPA were more successful at demonstrating MVPA again 1 month later. In the current study, then, further calibration using a demonstration walk at 6 months may not have been as useful. This is supported by the finding that correlations with accelerometry were higher for all conditions following the 6-month MVPA intervention whether or not they completed the demonstration walk. There was a large and significant difference in self-reported MVPA between the Spanish-speaking participants who completed versus those that did not complete the demonstration walk following the 6-month MVPA intervention, yet the magnitude of this difference was large enough (99.9 min/wk) that it was unlikely to have been due entirely to the demonstration walk. Because of the smaller sample size in the Activas study, it was possible to devote more personalized attention to individual participants (e.g., calling participants when questionnaires were overdue), which could have resulted in greater adherence and greater behavior change.

In addition to improving the accuracy of self-report measures of MVPA, the experiential demonstration could also be useful in teaching participants the duration and intensity of activity that they should strive for as they attempt to increase their MVPA. Interventions aimed at increasing MVPA may be minimally effective if participants have an inaccurate perception of the target behavior. Even in cases where rigorous objective measures are available on all participants, completing an experiential demonstration of MVPA could be a useful teaching tool. Even in large population studies in which use of a treadmill may not be feasible, some variation of a demonstration walk, such as a 10-minute walk set to a metronome, could be especially helpful for teaching MVPA intensity and duration.

Limitations

This study was limited in that participants were not randomly assigned to participate in the demonstration walk

within one study. Rather, we compared participants across studies, thus between-study differences in MVPA could have been due to other factors, including differences in intervention fidelity and/or seasonality. However, within study pairs, participants were recruited from the same area using the same methods and inclusion/exclusion criteria, therefore, differences between participants at baseline should have been minimal. Correlations with objective measures were also only exploratory as not all participants in all studies wore accelerometers, and protocols were not identical across studies. Participants in Stride I wore the accelerometer for only 3 days, thus it is difficult to compare these results to those in the Stride II and Saludables studies. However, one might expect correlations with the 3-day PAR to be higher, as recall over a shorter time period (3 days) may be more accurate than over 7 days. This was not the case, and correlations in Stride I using the 3-day PAR were nearly identical to those using the 7-day PAR with prorated accelerometer data, suggesting the 3 days of wear time were representative of the whole week. Also, while correlations with accelerometers improved for those completing the demonstration, correlations between objective and recall measures were still low, consistent with previous literature.⁸ The low correlations may be due to the potential mismatch between the perceived intensity of the demonstration walk, which was based on heart rate and perceived effort, and the absolute intensity criterion of the accelerometer data. However, given all participants were sedentary at baseline, the mismatch is likely to have been low. Finally, nearly all our participants were female, thus these results may not be generalized to men.

Strengths

This study had several strengths, including the cross-sectional examination of four large and comparable MVPA trials led by the same team, using the same content, and conducted in the same geographic region. In all studies, the 7-Day PAR was conducted by staff members who went through the same rigorous training, certification, and quality control processes. Also, because hypotheses about the effect of the demonstration walk were formulated after the completion of the studies, there was little chance of bias in the measures. Objectively measured MVPA was gathered via accelerometers, which are generally considered the gold standard. Finally, when pooled together, the participants in these studies comprised a large ($n = 846$), diverse sample, and the effect of the experiential demonstration walk at baseline was seen across ethnicities.

Conclusion

These data suggest that including a 10-minute experiential demonstration walk of MVPA prior to administering self-report MVPA measures may improve accuracy. Given the minimal time and resources necessary to administer a 10-minute walk at moderate intensity in intervention studies, it is recommended that this experiential demonstration be

administered prior to administration of self-report measures of MVPA in order to more accurately measure baseline MVPA and changes over time, and to teach participants who wish to increase their MVPA the minimum duration and intensity needed in order to realize health benefits.

Conflicts of interest

The authors have no conflicts of interest relevant to this study.

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