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Original Research

Development of the Physical Activity Tracking Preference Questionnaire

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ABSTRACT

International Journal of Exercise Science 12(5): 297-309, 2019. The present study aims to develop the Physical Activity Tracking Preference Questionnaire (PATPQ), a measure of unit (distance, steps, calories, minutes) preference for tracking physical activity. The PATPQ was developed in two phases. During Phase One, the initial PATPQ was created (24 items), was assessed by an expert panel for face validity, and tested in 557 adults. Results were used to revise and modify the PATPQ. In Phase Two, the item pool was expanded and tested in 374 adults. Kuder-Richardson Formula 20 scores for internal consistency and interclass correlations for test-retest reliability were calculated. Internal consistency for the final questionnaire was 0.78, 0.79, 0.89 and 0.69 for the distance, steps, calories, and minutes components, respectively. Test-retest reliability coefficients were within acceptable ranges (0.65-0.75). Overall, the PATPQ can be used to identify individual preferences for tracking physical activity to help personalize exercise programs.

KEY WORDS: Exercise, measurement, health behavior, tracking units, exercise prescription

INTRODUCTION

Substantial evidence indicates that physical activity is important for prevention and treatment of several chronic diseases, including coronary heart disease, fatigue, hypertension, stroke, type II diabetes, obesity, metabolic syndrome, several cancers, osteoporosis, depression, and anxiety (9, 12, 14, 21, 29, 33, 35). Given the health benefits of physical activity, numerous professional health organizations and governmental agencies recommend that individuals engage in regular physical activity. Current guidelines from the American Cancer Society (15), the U.S. Federal Guidelines on Physical Activity (32), Healthy People 2020 (11), and the American College of Sports Medicine (9) recommend that adults ages 18 and up should accumulate at least 150 minutes of moderate intensity or 75 minutes of vigorous intensity physical activity, or an equivalent combination of both, throughout the week. Despite the consensus across health organizations regarding the need to engage in physical activity to ensure positive health outcomes, data from the National Health and Nutrition Examination Survey (2005-2006) suggest only 9.6% of Americans meet physical activity recommendations (31). Research has sought to improve adherence to physical activity recommendations by identifying key factors in promoting physical activity such as self-monitoring, goal-setting, and social support (5, 17, 20, 30); however, there is immense variability across individuals regarding personal motivation for physical activity (2, 18).

Studies show that an individual's attitude and motivation toward engaging in physical activity is influenced by both situational and internal aspects, including mode and intensity of physical activity in addition to individual characteristics and preferences (13, 34). For instance, Lochbaum and Bixby (17) examined the influence of physical activity modality choice on enjoyment during and following an acute bout of aerobic physical activity compared to an in-class lecture control among 42 female university students. Participants reported higher levels of enjoyment during and after participating in their most preferred mode of physical activity compared to both their non-preferred modes and the in-classroom lecture control condition. Additionally, higher levels of enjoyment were reported during the in-class lecture compared to their non-preferred mode of physical activity. Parfitt and Gledhill (23) investigated the choice of three different types of exercises (i.e., cycle ergometer, rower and treadmill) on physiological responses in 20 participants over three separate 20-minute sessions and found that engagement in one's preferred mode of activity positively influenced enjoyment and psychological well-being as well as lower fatigue and ratings of perceived exertion. Furthermore, there were indications of lower distress when participating in the individual's high-preference mode of activity. Similar results have been shown regarding tolerance and intensity of physical activity (3, 7, 13, 23, 34). Together these studies indicate that personal preferences may have an important role in an individual's motivation to engage or not engage in physical activity and highlight the utility of understanding variability in individual preferences. To date, research has been limited to investigating individual preferences for intensity tolerance and modes of physical activity (4, 6, 7, 16, 27). It is unclear how preferences for additional factors related to physical activity may shape adherence.

Self-monitoring is an important strategy for adherence to physical activity recommendations and is utilized in the majority of interventions aimed at increasing physical activity levels (19, 36). Self-monitoring one's volume of physical activity can be assessed by several tracking methods: minutes, steps, distance traveled, and estimated energy expenditure (calories). To our knowledge, previous research has not studied the effects of tracking method preference on physical activity adherence. The development of a measure that assesses personal physical activity tracking preferences (steps, distance, calories, or minutes) is a vital first step for future research in this area. Therefore, the purpose of this study was to develop and evaluate a questionnaire to identify individual physical activity tracking preferences. The Physical Activity Tracking Preference Questionnaire (PATPQ) was iteratively developed via two phases assessing the internal consistency and test-retest reliability of the measure, as well as its associations with other measures of physical activity.

METHODS

Participants

Convenience samples of adults (≥ 18 years old) were recruited in two phases through multiple platforms, including social media (i.e., LinkedIn, Facebook, and Twitter), e-mail, and Amazon Mechanical Turk (MTurk). In both phases, participants completed the PATPQ, and demographic and health behavior questionnaires online via Qualtrics Survey Software (Qualtrics, Provo, UT) in a single session. On average, participants took 11 minutes to complete the study questionnaires, and were compensated $0.25 for their time. Web-based informed consent was obtained from all participants prior to participation and all study activities were deemed exempt by the Yale University Institutional Review Board.

Protocol

In Phase One, twenty-four items of physical activities, matched in terms of modality and effort required to complete each session, were initially created. Physical activity modalities consisted of both activities of daily living (e.g., raking leaves and household cleaning) and planned aerobic exercises (e.g., running, biking, swimming). Each pair reflected equivalent forms of physical activity, and differed only by the self-monitoring unit used to track the sessions (i.e., miles, steps, calories, minutes). Questions were divided into six blocks of four items each and presented on individual screens through computer administration (described in further detail below). Participants were instructed to select 1 response in each physical activity pair to indicate their preferred goal, using the prompt: "For each of the pairs below, select the option that you prefer." Example items were "Treadmill for 1 mile vs. Treadmill for 2,000 steps" and "Dance to burn 300 calories vs. Dance for 30 minutes."

A group of ten professionals with expertise in physical activity prescription (n=6 academic; n=4 clinical) was recruited to review the initial questionnaire for face validity. Expert feedback suggested that the activities of daily living (e.g., raking leaves, mowing the lawn, mopping the floor) were of low importance. These items were removed and replaced with planned aerobic exercises (e.g., running, biking, swimming). Subsequent pilot testing sought feedback regarding formatting and readability from a sample of advanced public health graduate students (n=17). The final questionnaire in Phase One consisted of 24 unique sets of items of physical activity sessions with planned exercise modalities only.

Phase Two aimed to address the limitations of Phase One, analyze the reliability of the PATPQ using a new MTurk-only sample, and assess test-retest reliability on a subsample of Phase Two study participants. In Phase Two, the item pool was increased to include additional preference comparisons matched for exercise modality and effort. Seventy-one additional sets of items of physical activities were created and added to the questionnaire (total items=93). For each of the four self-monitoring units (distance, steps, calories, minutes), 13 items directly compared activities measured in distance vs. steps, 16 items compared distance vs. calories, 15 items compared distance vs. minutes, 12 items compared steps vs. calories, 18 items compared steps vs. minutes, and 19 items compared calories vs. minutes.

In order to decrease the time burden of the questionnaire and to only retain items that provided the most variability in responses, the number of items were reduced by using frequency statistics to identify items with equal distributions for each direct comparison (distance vs. steps, distance vs. calories, distance vs. minutes, steps vs. calories, steps vs. minutes, and calorie vs. minutes). Within each category, the top four items with even distributions were retained. The distributions of the final items are presented in Table 1.

The PATPQ identified participant physical activity preferences through calculating component scores. Component scores were calculated as the sum of the number of times each physical activity measure was chosen. Participants were then placed into a preference category based on their highest component score.

Demographic information collected included: race/ethnicity, sex, highest education level, height and weight. Body mass index (BMI) was calculated as weight (kg)/height (m^2). Physical activity was assessed by the Godin Leisure-Time Exercise Questionnaire (8). The questionnaire asks participants the number of times per week they engage in light, moderate, and strenuous leisure time physical activity for at least 15 minutes, multiplied by the respective anticipated Metabolic Equivalent (MET)s of 3, 5, and 9, and then summed to obtain the weekly leisure time score (possible range 0–119). Higher scores indicate higher levels of weekly leisure physical activity. The Obligatory Exercise Questionnaire (OEQ) was used to measure excessive exercise activity (24). The 20-item questionnaire assesses aspects of compulsion to exercise. Total scores are calculated from the sum of item responses (range: 20–80) and higher scores reflect higher levels of personal obligation to exercise. Additionally, participants were asked to rate their health on a Likert scale (1=excellent to 5=poor) (10). Scores were continuous and means and standard deviations were reported. Participants were also asked if they were currently dieting to lose weight (yes/no), exercise preference (aerobic, resistance, no preference), self-perception of weight (underweight, appropriate weight, overweight), weight change in the past 12 months (gained ≥10 pounds, lost ≥10 pounds, maintained ±10 pounds), ever participated in a race/walk/fun run (yes/no), and if they use a fitness device (e.g., Fitbit, Garmin VivoFit, Jawbone Up band, smartphone application) to track exercise (yes/no).

Statistical Analysis

Sample demographics and all outcome measures were summarized by descriptive statistics (i.e., means and standard deviations for continuous variables and frequencies and percentages for categorical variables). The Kuder-Richardson Formula 20 (KR-20) coefficients were calculated to analyze the reliability of the scale for dichotomous items. The ranges of KR-20 coefficients were considered low for values less than 0.5; moderate for values between 0.5 and 0.8; and high for values greater than 0.8 (28). Intraclass correlations (ICC) were calculated to assess test-retest reliability using mixed effects modeling. The ICC estimates were considered low for values less than 0.5; moderate for values between 0.50 and 0.75; and high for values greater than 0.75 (26). A series of analyses of variance (ANOVA) tests for continuous variables and chi-square tests for categorical variables were conducted to compare differences in participant characteristics between preference groups. Pairwise comparisons were adjusted using a Sidak-correction for inflation in Type I error and statistical significance was determined at a 0.05 alpha level. All analyses were conducted using SAS 9.4 (SAS Institute Inc., Cary NC).

RESULTS

Participant characteristics for Phase One and Phase Two are presented in Table 2. In Phase Two, of the 500 participants who consented and initiated the survey, 374 participants with <10% missing data were included in the final analysis. Age ranged from 18-89 years with an average age of 37.5 (±13.5). Participants were 62.6% female; with an average BMI of 28.6 (±8.7). Approximately 30% were overweight (BMI 25-29.9 kg/m2) and 31% were obese (BMI ≥ 30 kg/m^2). Two weeks following completion of the survey, a subset of 64 participants completed a retest (Table 2).

Reliability analyses in Phase One conducted on the initial item pool indicated that two items did not make a positive contribution to the internal consistency of its component; therefore, these items were deleted. The remaining 22 items were retained for further analyses. The inter-item correlation for the scale was 0.33 (range: 0.11-0.42) for distance, 0.40 (range: 0.18-0.42) for steps, 0.41 (range: 0.29-0.52) for calorie, and 0.34 (range: 0.05-0.45) for minute components. The internal consistencies of the final 22 items were moderate, with KR-20 coefficients of 0.69, 0.75, 0.75 and 0.70 for the distance, steps, calories, and minutes components, respectively (Table 3).

The reliability of the four constructs for Phase Two are shown in Table 3. Results show moderate to high KR-20 coefficients of internal consistency, which included 0.78, 0.79, 0.89 and 0.69 for the distance, steps, calories, and minutes components, respectively. ICC was used for test-retest reliability, and the ICC coefficients of the four constructs were within acceptable ranges: distance = 0.71, steps = 0.65, calories =0.73, and minutes = 0.75 (Table 3).

Table 1. Distribution of selected items in Phase Two (n=374)

	N	%		N	%	Construct Comparison
Walk for 3 miles	206	55	Walk to burn 300 calories	167	45	Distance vs Calories
Outdoor Cycling for 6 miles	225	60	Outdoor Cycling to burn 500 calories	148	40	Distance vs Calories
Stationary Bike for 10 miles	226	60	Stationary Bike to burn 500 calories	148	40	Distance vs Calories
Treadmill for 3 miles	229	61	Treadmill to burn 300 calories	145	39	Distance vs Calories
Walk 1 mile from your parked car to work	249	67	Walk 2,000 steps from your parked car to work	124	33	Distance vs Steps
Climb stairs for 1 mile	226	61	Climb stairs for 2,000 steps	147	39	Distance vs Steps
Treadmill for 2 miles	252	68	Treadmill for 4,000 steps	121	32	Distance vs Steps
Walk 0.5 miles from your parked car to work	254	68	Walk 1,000 steps from your parked car to work	119	32	Distance vs Steps
Hike for 3 miles	194	52	Hike for 45 minutes	179	48	Distance vs Minutes
Hike for 2 miles	181	49	Hike for 30 minutes	192	52	Distance vs Minutes
Bike 3 miles	179	48	Bike for 30 minutes	195	52	Distance vs Minutes
Outdoor Cycling for 6 miles	182	49	Outdoor Cycling for 60 minutes	190	51	Distance vs Minutes
Hike for 60 minutes	241	64	Hike to burn 350 calories	133	36	Minutes vs Calories
Run for 36 minutes	230	62	Run to burn 400 calories	144	39	Minutes vs Calories
Stationary Bike for 50 minutes	229	62	Stationary Bike to burn 380 calories	143	38	Minutes vs Calories
Step machine (e.g., Stairmaster) for 30 minutes	237	63	Step machine (e.g., Stairmaster) to burn 250 calories	137	37	Minutes vs Calories
Step machine (e.g., Stairmaster) for 30 minutes	272	73	Step machine (e.g., Stairmaster) for 6,000 steps	102	27	Minutes vs Steps
Jump rope for 30 minutes	270	72	Jump rope for 2,500 steps	104	28	Minutes vs Steps
Walk 20 minutes from your parked car to work	232	62	Walk 2,000 steps from your parked car to work	142	38	Minutes vs Steps
Hike for 45 minutes	273	73	Hike for 6,000 steps	101	27	Minutes vs Steps
Walk to burn 200 calories	186	50	Walk for 4,000 steps	188	50	Calories vs Steps
Hike to burn 350 calories	195	52	Hike for 6,000 steps	179	48	Calories vs Steps
Hike to burn 200 calories	190	51	Hike for 4,000 steps	183	49	Calories vs Steps
Treadmill to burn 300 calories	193	52	Treadmill for 6,000 steps	179	48	Calories vs Steps

Table 2. Demographic characteristics of samples

	Phase One Sample			Phase Two Sample			Test-Retest Reliability Sample		
	N	**Mean**	**SD**	**N**	**Mean**	**SD**	**N**	**Mean**	**SD**
Age (yrs.)	557	32.3	9.2	374	37.5	13.5	64	38.3	14.7
BMI (kg/m2)	516	25.2	5.8	372	28.6	8.7	64	27.5	7.7
	N	**%**		**N**	**%**		**N**	**%**	
Gender (%)									
Male	290	52.1		136	36.6		23	35.9	
Female	267	47.9		233	62.6		39	60.9	
Non-Binary	-	-		3	0.8		2	3.1	
Race/Ethnicity (%)									
White	280	53.5		263	70.5		43	68.3	
African American	20	3.8		37	9.9		8	12.7	
Hispanic/Latino	23	4.4		40	10.7		3	4.8	
Asian	179	34.2		23	6.2		7	11.1	
Other	21	4.0		40	10.7		2	3.2	
Education Level (%)									
High School/GED or Less	34	6.1		45	12.0		9	14.1	
Some College/Technical School	84	15.1		120	32.1		24	37.5	
College Graduate	242	43.5		151	40.4		22	34.4	
Graduate Degree	197	35.4		58	15.5		9	14.1	

Note: SD = standard deviation. BMI = Body Mass Index (weight(kg)/height(m2)).

The Phase Two sample revealed 25% of participants preferred minutes, 28% preferred distance, 25% preferred calories, 13% preferred steps, and 9% preferred multiple tracking units. A low frequency of participants had multiple tracking unit preferences (i.e., evenly preferred one modality to another) and were dropped from the subsequent analyses. Characteristics of participants by preference category are presented in Table 4. Those who preferred distance had significantly higher scores related to overall physical activity (Godin score) and excessive exercise activity (obligatory exercise) compared to individuals who preferred minutes (Godin score: $p=0.02$; obligatory exercise: $p=0.03$). Furthermore, tracking preference differed among participants who have previously participated in run/walk events ($p=0.01$), preferred type of exercise ($p=0.03$), and if they own a tracking device ($p<0.001$). Individuals preferring minutes rated their health significantly lower than individuals preferring distance ($p<0.01$) and preferring steps ($p= 0.03$).

There were no significant differences between groups for age, BMI, education level, current dieting status, self-perception of weight, or weight change during the past 12 months (all $p >0.05$). There was a statistically significant difference between males and females in tracking preferences ($p<.0001$). Among men, the majority preferred distance (43.2%), while women preferred calories (33.3%) and minutes (31.4%). For race, the majority of African-American participants preferred minutes (48.4%), while the majority of Hispanic/Latino participants indicated a preference for distance (36.1%) and calories (36.1%). Global tests revealed significant differences among racial groups (p=0.02), however, after adjusting for multiple comparisons, group differences were no longer significant (all pairwise p>0.05).

Table 3. Psychometrics of preference components

	Phase One			
	Number of Items	**Mean**	**SD**	**Internal Consistency KR-20**
Preference Components				
Distance (Range 0-100%)	11	60.2	23.0	0.69
Steps (Range 0-100%)	11	36.2	26.0	0.75
Calories (Range 0-100%)	10	29.7	24.0	0.75
Minutes (Range 0-100%)	12	70.8	21.0	0.70
	Phase Two			
	Number of Items	**Mean**	**SD**	**Internal Consistency KR-20**
Preference Components				
Distance (Range 0-12)	12	7.0	3.2	0.78
Steps (Range 0-12)	12	4.5	3.2	0.79
Calories (Range 0-12)	12	5.2	4.0	0.89
Minutes (Range 0-12)	12	7.3	2.7	0.69
	Phase Two: Test-Retest Reliability			
	Number of Items	**Mean**	**SD**	**ICC**
Preference Components				
Distance (Range 0-12)	12	7.3	2.9	0.71
Steps (Range 0-12)	12	4.7	3.0	0.65
Calories (Range 0-12)	12	4.9	3.5	0.73
Minutes (Range 0-12)	12	7.0	2.7	0.75

Note: SD= standard deviation. ICC = Intraclass Correlation

Table 4. Group comparisons for Phase Two sample (N=337)

	Distance (n=104)		Steps (n=47)		Calories (n=94)		Minutes (n=92)			
	Mean	**SD**	**Mean**	**SD**	**Mean**	**SD**	**Mean**	**SD**	**F**	**p**
Age (yrs.)	38.5	12.4	35.1	13.1	36.7	14.3	38.2	13.9	0.68	0.57
BMI (kg/m^2)	27.5	7.0	28.2	7.1	27.7	7.2	28.9	7.5	1.33	0.26
Godin Physical Activity Score [a]	43.3	25.7	39.6	23.8	36.0	25.7	32.8	22.5	3.29	0.02
Obligatory Exercise Score [a]	40.8	9.8	41.1	10.8	38.3	10.0	36.8	9.5	3.53	0.02
Rating of Overall Health [d,g]	2.5	1.1	2.5	1.0	2.2	1.0	1.9	1.0	4.77	<0.01
	N	**%**	**N**	**%**	**N**	**%**	**N**	**%**	**X^2**	**p**
Gender (%) [b,f,g]									19.68	<0.001
Male	54	43.2	21	16.8	24	19.2	26	20.8		
Female	50	24.2	23	11.1	69	33.3	65	31.4		
Race/Ethnicity (%)									20.19	0.02
White	71	29.5	31	12.9	73	30.3	66	27.4		
African American	9	29.0	4	12.9	3	9.7	15	48.4		
Hispanic/Latino	13	36.1	3	8.3	13	36.1	7	19.4		
Other	11	39.3	8	28.6	5	17.9	4	14.3		
Education Level (%)									7.89	0.55
High school/GED or less	6	17.1	6	17.1	12	34.3	11	31.4		
Some college/technical school	30	27.5	13	11.9	33	30.3	33	30.3		
College graduate	48	33.8	21	14.8	39	27.5	34	23.9		
Graduate degree	20	39.2	7	13.7	10	19.6	14	27.5		
Currently dieting (%)	29	24	21	17.4	38	31.4	33	27.3	5.31	0.15
Previously participated in run/walk events (%) [a,c]	50	42	16	13.5	28	23.5	25	21.0	11.38	0.01
Weight perception (%)									11.72	0.07
Underweight	10	43.5	1	4.4	6	26.1	6	26.1		
Appropriate weight	49	37.1	22	16.7	34	25.8	27	20.5		
Overweight	45	24.9	24	13.3	53	29.3	59	32.6		
Preferred Type of Exercise (%) [e]									18.19	0.03
Aerobic	60	28.7	29	13.9	53	25.4	67	32.1		
Resistance	23	33.3	12	17.4	27	39.1	7	10.1		
No preference										
Weight change past 12 months (%)									7.01	0.32
Gained 10 pounds or more	18	22.5	10	12.5	29	36.3	23	28.8		
Lost 10 pounds or more	27	32.9	11	13.4	25	30.5	19	23.2		
Stayed within 10 pounds	59	33.9	26	14.9	40	23.0	49	28.2		
Use activity tracking device (%) [b,h,i]	30	23.4	30	23.4	38	29.7	30	23.4	18.38	<0.001

Note: SD = standard deviation. GED = General Equivalency Diploma. BMI = Body Mass Index (weight(kg)/height(m^2)). a Distance vs. Minutes significant $p<0.05$; b Steps vs Calories significant $p<0.05$; c Distance vs Calories significant $p<0.05$; d Steps vs Minutes significant $p<0.05$; e Calories vs Minutes significant $p<0.05$; f Distance vs Calories significant $p<0.01$; g Distance vs Minutes significant $p<0.01$; h Steps vs Minutes significant $p<0.01$, i Distance vs Steps $p<0.001$

DISCUSSION

The primary aim of this study was to develop and assess the reliability of a self-report questionnaire to identify personal exercise tracking preferences and examine trends among subgroups defined by demographics, exercise experience, and weight-related variables. Review of the Phase One results revealed three main areas in need of improvement:

1. The Phase One sample was not representative of the larger U.S. population with regard to education (79% with a college degree), BMI, and race/ethnicity, and therefore limited in terms of generalizability.
2. Participant unit preference appeared to have been influenced by the corresponding exercise mode rather than by the units of measurement. Thus, a substantially greater number of physical activity items were generated in Phase Two to identify optimal items via psychometric analysis.
3. Phase One's cross-sectional design did not include test-retest reliability analysis.

To address the limitations of Phase One, Phase Two increased the question pool to identify the optimal 24 items, solely utilized MTurk with restriction of US participants to increase the likelihood of a more representative sample, and performed a re-test to further assess questionnaire reliability. Results from Phase Two suggest that the PATPQ is a reliable measure and that differences in exercise tracking preferences exist on the individual and subgroup levels. This questionnaire has the potential to be valuable in aligning physical activity measurement preferences with individual autonomy to exercise programs.

Analysis of preferences among the Phase Two sample shows differences in preferred units among groups. Generally, more participants preferred distance and minutes. Women preferred calories and minutes compared to men, who preferred distance, suggesting different perceptions of exercise between genders. It is possible that women are more likely to utilize physical activity to burn calories for weight loss or weight maintenance. Respondents who preferred distance appeared to engage in more overall physical activity compared to individuals preferring minutes and individuals who preferred minutes rated their health significantly lower than individuals preferring distance. Differences also existed among racial groups where a higher proportion of Hispanic participants preferred calories compared to other ethnic groups, and more African American participants preferred minutes compared to the other groups. Cultural differences could affect perceptions of physical activity, especially since these groups have a disproportionately high prevalence of obesity, where approximately 42.5% of Hispanics, and 47.8% of African Americans were obese in 2011-2012 (22). Further research is necessary to assess the effect of subgroup-specific physical activity tracking preferences and the potential mismatch between preferences and health messaging on achieving optimal physical activity levels.

Results showed that preferring minutes, the unit used in the majority of clinical and professional recommendations (25), was associated with the lowest levels of exercise and lowest perceived health level. It is possible that individuals with poor health engage in less physical activity, leading to increased conversations with health professionals in which exercise is recommended in minutes, and study respondents were drawn to these unit selections based on familiarity with these common tracking terms. Conversely, it could be that individuals who engage in distance-training activities prefer to achieve exercise goals with respect to distance. This explanation is supported by the finding that those preferring distance also reported the highest involvement with walk/run events. These findings suggest that there may be a gap in translating recommendations into actual health behaviors and highlights the importance of having a valid tool to identify personal preferences and increase exercise levels and improve overall health.

While results show the PATPQ is a reliable and effective tool, study limitations exist. Generalizability of the sample could have been limited due to the convenience sampling methods used, although MTurk typically recruits a representative sample (1). Unaddressed factors, such as socioeconomic status, neighborhood safety, housing situation, physical limitations, and health insurance status could have influenced participant opinions and responses. While the PATPQ may have reliability in identifying preferences in tracking, it is unclear if exercise recommendations in the preferred unit directly translate into increased physical activity engagement. Furthermore, no counterbalance methods were used, and no changes were made to the ordering of items during re-test reliability assessment. It is also possible that the length of the questionnaire may have been burdensome on the participants and fatigue or previous knowledge of the tool maybe have elicited false responses. Further assessment of the questionnaire is warranted.

In summary, the PATPQ is a reliable tool for assessing individuals' preferences for tracking physical activity. This tool could be used in clinical and health education settings, especially among populations with high prevalence of obesity and low engagement in physical activity. Future longitudinal research should examine the relationship between tracking exercise with one's preferred unit of measurement and level of engagement in physical activity.

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