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PREFERRED PHYSICAL ACTIVITY AMONG SETSWANA-SPEAKING COMMUNITY-DWELLING ADULTS IN POTCHEFSTROOM

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ABSTRACT

Promoting physical activity (PA) in a population by means of enjoyable activities may serve as motivation for long-term participation in PA and improve health outcomes. The purpose of this study was to determine the most preferred type of PA among adults in a Setswana-speaking community from a low socio-economic district of Potchefstroom for future implementation of PA interventions. A sample of 130 people (men: n=50, 38.5%; women: n=80, 61.5%) aged 35 to 65 years (45.8±9.0) agreed to participate in the study. Frequency analyses and chi-square tests were performed to determine the most preferred type and time of PA. Regression analyses were performed to determine the association between preferred type of PA and demographic variables. Most participants (87.7%) reported regular participation in PA. Walking (39.2%) was the most preferred type of PA, followed by domestic duties (13.8%). Exercising before 12am was preferred by 70% of the participants. Age and marital status were the variables most closely associated with PA participation. Weight-bearing activities, such as walking and activities of daily living, such as domestic chores, are recommended for future exercise interventions directed to reduce the burden of non-communicable diseases.

***Key words*:** Physical activity; Preference; PA intervention; Quality of life; NCDs; Setswana; Adults.

INTRODUCTION

A high level of inactivity is associated with increased prevalence of mortality globally (Lee *et al*., 2012). The selection of preferred physical activities in a PA intervention may increase the adherence to interventions aimed at improving health outcomes. PA is defined as a bodily movement through skeletal muscle activations that results in energy expenditure in kilocalories. PA is positively correlated with physical fitness (Caspersen *et al.*, 1985) and the general term for all structured exercise (aerobic exercise, resistance training; defined as planned, structured and repeatable to improve and preserve physical fitness components), and unstructured activities (walking, for transport, domestic duties, occupational PA). Further, both PA and cardiorespiratory fitness are associated with reduction in cardio-metabolic risk factors (Dickie *et al*., 2016). Regular PA participation has been demonstrated to have beneficial effects on total well-being and health status and to improve total quality of life (QOL) (Haruna *et al.*, 2013).

One of the main beneficial effects of regular PA is the improvement of physiological processes in the body, which helps to prevent and/or manage several known diseases of lifestyle (Lambert & Kolbe-Alexander, 2006). The general public health guidelines for PA are set at activity levels likely to return health benefits for most participants. The World Health Organization guidelines currently recommend 150 minutes of moderate-intensity aerobic PA, or at least 75 minutes of vigorous-intensity aerobic PA, throughout the week or an equivalent combination of PA at moderate- and vigorous-intensity activities (WHO, 2010). Despite the benefits associated with PA, many people do not achieve the public health guidelines for PA. This inactivity is a likely contributor to the economic burden of disease in both high-income countries (Short *et al.*, 2014) and low to middle-income countries (Lee *et al*., 2012). In many Western nations, people who are socio-economically disadvantaged are not sufficiently physically active, in particular, adults (Burton *et al*., 2012). In South Africa, a low to middle-income country, more than 50% of the population are insufficiently physically active (WHO, 2012). It is not surprising that the trends in non-communicable diseases (NCDs) in the Western or industrialised nations are now manifesting in low- to middle-income countries.

In South Africa, the cross-sectional data on the prevalence of health-enhancing PA in various localised risk factor surveys showed that low levels of habitual PA were most common among women (Jane *et al.*, 2007). In another sample from a peri-urban community in the Western Cape, it was found that close to fifty percent (49.7%) of the participants did not meet public health recommendations of 150 minutes (at least 30 minutes per day) of health-enhancing PA per week (Steyn, 2007). A more recent study demonstrated that regular PA participation reduces the risk of premature mortality and all the modifiable risk factors of non-communicable diseases (NCDs) (Burton *et al.*, 2012), including modifiable behaviours (use of tobacco, physical inactivity, unhealthy diet, dangerous use of alcohol), and metabolic and physiological risk factors (high blood pressure, overweight and obesity, high levels of blood glucose and blood fat) (Mayosi *et al.*, 2009). Another study among black South African women indicated that even light-intensity physical activity resulted in health benefits (Dickie *et al*., 2014).

Substantial evidence reveals that regular PA is useful to improve cardiorespiratory health and muscular strength, reduce fatigue and depression, improve the ability to function independently and total quality of life (QOL) (Christensen *et al.*, 2012; Trinh *et al.*, 2012; Haruna *et al.*, 2013). Regular PA participation as an intervention for chronic diseases of lifestyle may be more effective if individual interests or preferences with regard to PA are taken into consideration. Philip *et al.* (2014) argued that PA preferred by individuals could facilitate positive changes in health behaviour. Furthermore, developing a PA intervention programme that is enjoyable, acceptable and interesting to the broader population is a necessity for the promotion of mass participation (Short *et al.*, 2014). Burton *et al.* (2012) identified that if the modality of PA is consistent with an individual's preference of PA, tiredness and rate of perceived effort is lowered, while adherence to PA and QOL improves. In addition, individual preferences for PA could reduce the dropout rate in a structured aerobic exercise intervention (Burton *et al*., 2012). Available time is often cited as a barrier to participation in PA interventions (Lim *et al*., 2011). Should the preferences with regard to time of PA be considered during the planning of PA interventions, the adherence to interventions may be improved further.

The influence of demographic variables on PA has been somewhat established (Bergman *et al*., 2008). For example, being married or living with partner is understood to be inversely

associated with PA (partnered people are less active). Increased age has also been inversely correlated with PA (Riebe *et al*., 2009). Bergman *et al*. (2008) observed that people who received high income have frequently been found to report more leisure time PA per month than those who earn a lower income. Higher educational level may also be associated with increase in PA participation due to less physical demanding types of jobs undertaken compared with people with lower education who may be involved in more physically demanding work (Bergman *et al*., 2008).

In South Africa, there is little data regarding PA most preferred and enjoyed by adults in order to stage long term PA intervention programmes (Lambert & Kolbe-Alexander, 2006). While information exists for South African adolescent boys and girls (Pienaar *et al*., 2012), especially adults from low-resource communities, appear to have been overlooked. It is important to understand the PA preferences of a population in order to plan, execute and implement appropriate and effective public health policies and programmes (Dogra *et al.*, 2010).

PURPOSE OF RESEARCH

The purpose of this study was to determine the most enjoyed and preferred modality of PA and the preferred times for participation among Setswana-speaking community-dwelling adults in Potchefstroom. The association between the preferred PA and demographic variables were explored.

METHODOLOGY

Design

This was an observational study with a descriptive design.

Participants

A sample of 130 men and women, aged 35 to 65 years, of Setswana descent, living in Ikageng, a low socio-economic district in Potchefstroom, was recruited for participation in the study. Recruitment was based on availability on consecutive days at a community gathering place. All the participants completed an informed consent form before participation in the study. The study was approved by the Health Research Ethics Committee for Humans in the Faculty of Health Sciences of the North-West University (approval number NWU 00002-14-A1).

Measures

Demographic data

Demographic variables were gathered using self-reported questionnaire to document the date of birth, age, gender, marital status, employment status, level of education, type of house in which they lived and total household income of participants.

Preferred Physical Activity Questionnaire (PPA-Q)

Because there was no pre-existing survey to determine PA and exercise preferences in community-dwelling Setswana South Africans, a preferred PA questionnaire (PPA-Q) was compiled by drawing on literature regarding regular PA participation (Stevinson *et al*., 2009),

various activities (Wilcox *et al*., 1999; Stevinson *et al*., 2009; McGowan *et al*., 2013; Philip *et al*., 2014), time for activity during the day (Stevinson *et al*., 2009), frequency per week of PA/exercise (Booth *et al*., 1997; Wilcox *et al*., 1999; Philip *et al*., 2014), PA/exercise most preferred and enjoyed (Stevinson *et al*., 2009), and participants' perception of exertion during their most preferred activities (Booth *et al*., 1997; Olvera *et al*., 2009; Philip *et al*., 2014). The questionnaire comprised 6 questions. The participants were instructed to select the 1 best option that corresponded with their preferences.

Validation of the PPA-Q

The PPA-Q was reviewed by a panel of experts in the field for face validity, then tested in the field to ensure reliability and validity of the questionnaire before data collection for the main study was initiated. Apparently, healthy Setswana-speaking men and women, with no orthopaedic limitations, were included in the validation stage. People were considered healthy if they were not taking any long-term medication or reported any known diseases or diagnoses.

The PPA-Q was pilot-tested and reliability and validity determined by administering the questionnaire twice 2 weeks apart with 20 participants randomly selected from attendees at a community gathering. Participants in this stage were not included in the main study. Based on feedback from this stage, final adjustments were made to clarify questions and ensure completeness of the questionnaire. Cronbach's alpha coefficient was calculated to assess the reliability (internal consistency) of the PPA-Q questionnaire (0.86, good internal consistency).

Procedure for the administration of the questionnaire

Upon arrival, the participants, who had given informed consent, had the purpose of the survey explained in English and their mother tongue by researchers fluent in both languages. Demographic information was recorded, after which the PPA-Q was administered in privacy in a well-lit room. The researchers were available throughout the data collection to clarify any questions. Participants who could not read were presented with the questions read aloud by a Setswana-speaking researcher, and responses were documented by a researcher from the team.

Statistical analysis

The characteristics of the participants were reported as descriptive statistics (means and standard deviations). Preferred modalities of PA and time of PA for men, women and the total group, were determined by Chi-square analyses. Logistic regression analyses were performed to determine the association between preferred and enjoyed type of PA and demographic variables, reported as adjusted odds ratios (ORs) and 95% confidence intervals (CI). Categories that had a small sample size were re-categorised for the regression analyses. These re-categorised variables included some items under marital status, education and occupation. Logistic regression was used to model the likelihood of PA preference relative to the reference category as a function of demographic variables. Odds ratios and CI were reported to show the magnitude of associations. The level of significance was set at $p \leq 0.05$. All data were analysed using Statistical Package for the Social Sciences (SPSS) 22.0 (IBM SPSS Statistics, Chicago, IL, USA).

RESULTS

Demographic variables

Table 1. **DEMOGRAPHIC CHARACTERISTICS OF PARTICIPANTS**

Demographic variables	n (%)	Mean±SD
Age (yrs)		45.78±8.98
34-44	72 (55.4)	
45-65	58 (44.6)	
Gender		
Men	50 (38.5)	
Women	80 (61.5)	
Ethnicity		
Black	130 (100)	
Years of work		13.48±11.7
0-15	65 (50.0)	
16-30	40 (30.8)	
31-44	25 (19.2)	
Marital status		
Never married	55 (42.3)	
Currently married	34 (26.2)	
Living with partner	26 (20.0)	
Widowed/separated/divorced	15 (11.5)	
Education level		
Below high school	46 (35.4)	
High school	64 (49.2)	
More than high school	20 (15.4)	
Current employment		
Full time	49 (37.7)	
Shift	13 (9.9)	
Casual work	19 (14.6)	
Not working	49 (37.7)	
Occupation level		
Skilled	56 (43.1)	
Unskilled	56 (43.1)	
Professional	18 (13.8)	
Earnings per month		
<R1000	32 (24.6)	
R1001-R5000	74 (56.9)	
>R5000	24 (18.5)	
Type of house lived in		
Brick	94 (72.3)	
Informal (shack)	36 (27.7)	

The demographic data of participants in the main study are reported in Table 1. The mean age of the 130 participants was 45.8±8.98 years. Almost 40% of participants were healthy adult

men (n=50). More than 40% (42.3%) of the participants were single and nearly half (49.2%) of the participants had completed high school education. Nearly two-fifths of the participants were employed full time (38%) and two-fifths were not working (38%). Just as many participants (43%) reported skilled work as part of their activities as those who reported performing unskilled work. More than half of the participants earned between R1000-R5000 per month (56%), and nearly three-quarters (72.3%) of the participants lived in brick houses.

Preferred physical activity

Table 2. **PREFERRED MODALITY OF PHYSICAL ACTIVITY**

PA preference variable	Men n (%)	Women n (%)	Total n (%)	χ^2	df	p-Value
Participation in PA						
Yes	42 (84.0)	72 (90.0)	114 (87.7)	73.90	1	<0.001
No	8 (16.0)	8 (10.0)	16 (12.3)			
Preferred/most enjoyed PA						
Walking	19 (38.0)	32 (40.0)	51 (39.2)	173.10	10	<0.001
Dancing	1 (2.0)	4 (5.0)	5 (3.8)			
Dancing & choir singing	2 (4.0)	2 (2.5)	4 (3.1)			
Football	5 (10.0)	—	5 (3.8)			
Running	2 (4.0)	5 (6.3)	7 (5.4)			
Rope skipping	—	1 (1.3)	1 (0.8)			
Gardening	6 (12.0)	10 (12.5)	16 (12.3)			
Domestic work	1 (2.0)	17 (21.3)	18 (13.8)			
Cycling	5 (10.0)	—	5 (3.8)			
Other	1 (2.0)	1 (1.3)	2 (1.5)			
Do not do exercise	8 (16.0)	8 (10.0)	16 (12.3)			
Times per week						
Not applicable	8 (16.0)	8 (10.0)	16 (12.3)			
Less than 1x/week	—	5 (6.3)	5 (5.0)			
1x/week	6 (12.0)	4 (5.0)	10 (7.7)			
2-3 x/week	9 (18.0)	26 (32.5)	35 (26.9)			
4-5 x/week	13 (26.0)	12 (15.0)	25 (19.2)			
6-7x/ week	14 (28.0)	25 (31.3)	39 (30.0)	43.20	5	<0.001
Minutes per session						
<10 min.	1 (2.0)	4 (5.0)	5 (3.8)			
10-19 min.	-	3 (3.8)	3 (2.3)			
20-29 min.	1 (2.0)	7 (8.8)	8 (6.2)			
30-39 min.	7 (14.0)	14 (17.5)	21 (16.2)			
40-49 min.	6 (12.0)	2 (2.5)	8 (6.2)			
50-59 min.	4 (8.0)	7 (8.8)	11 (8.5)			
>60 min.	23 (46.0)	35 (43.8)	58 (44.6)	137.32	7	<0.001
Do not do PA	8 (16.0)	8 (10.0)	16 (12.3)			

Continued

Table 2. **PREFERRED MODALITY OF PHYSICAL ACTIVITY *(cont.)***

PA preference variable	Men n (%)	Women n (%)	Total n (%)	χ^2	df	p-Value
Rate of perceived exertion						
Nothing	-	1 (1.3)	1 (0.8)			
Very easy	11 (22.0)	27 (33.8)	38 (29.2)	126.20	8	<0.001
Easy	6 (12.0)	15 (18.8)	21 (16.2)			
Comfortable	15 (30.0)	23 (28.7)	38 (29.2)	126.20	8	<0.001
Somewhat difficult	6 (12.0)	4 (5.0)	10 (7.7)			
Difficult	-	1 (1.3)	1 (0.8)			
Hard	3 (6.0)	—	3 (2.3)			
Exhausted	1 (2.0)	1 (1.3)	2 (1.5)			
Do not do PA	8 (16.0)	8 (10.0)	16 (12.3)			
Time of day						
Morning (05:00-11:59)	33 (66.0)	58 (72.5)	91 (70.0)	143.42	3	<0.001
Afternoon (12:00-15:59)	2 (4.0)	3 (3.8)	5 (3.8)			
Evening (16:00-11:59)	7 (14.0)	11 (13.8)	18 (13.8)			
Do not do PA	8 (16.0)	8 (10.0)	16 (12.3)			

Most participants (87.7%) reported that they participated in some form of PA, while the rest of the participants, currently not participating in PA (12.3%), indicated their willingness to take part in PA intervention programmes. Chi-square (χ^2) analysis showed that the number of participants who did take part in PA was highly significant with (χ^2=73.90; p<0.0001) compared to those who did not participate in PA. Almost 40% (39.2%) of participants expressed that walking was their preferred and most enjoyed type of PA (χ^2=173.10; p<0.0001) from the list of 11 options (see Table 2). A significant majority of participants (30%) preferred PA 6 to 7 times per week (χ^2=43.20; p<0.0001) compared with fewer times per week. Similarly, a significant number of participants (44.6 %) reported that they would spend more than 60 minutes per week on enjoyed PA (χ^2=137.32; p<0.0001) compared with shorter durations. When questioned on the preferred rate of perceived exertion, a significant number of participants indicated "very easy" and "comfortable" (29.2%) as the intensities for most enjoyable PA (χ^2=126.20; p<0.0001). Morning was indicated by 70% of the participants as the most preferred time of the day to perform PA, significantly more than any of the other times of the day (χ^2=143.42; p<0.0001).

Demographic factors associated with PA preference

The results for logistic regression model are presented in Table 3. This modelling revealed that being within the range of 34 to 44 years of age was significantly associated with a greater odds of PA participation (OR=8.75; 95% CI=1.33, 57.7), preference toward walking (OR=6.18; 95% CI=1.47, 25.9), and morning participation in PA (OR=3.67; 95% CI=1.07, 12.5), but reduced odds of preferred number of times per week compared to people within 45-65 age group. People who are single (OR=0.08; 95% CI=0.01, 0.65), currently married (OR=0.025; 95% CI=0.002, 0.37) or living with partner (OR=0.015; 95% CI=0.001, 0.23) showed significantly lower odds of participation in PA, but were at significantly higher odds of preferred number of days per week of participation (single: OR=12.2; 95% CI=1.52, 98.6; married: OR=40.3; 95% CI=2.66, 611.0; living with partner: OR=67.4; 95% CI=4.28, 1062.8). Only participants who were living with partners were at significantly reduced odds of preferring morning PA (OR=0.11; 95% CI=0.016, 0.80). Current employment status data indicated that people who engaged in casual

(OR=0.071; 95% CI=0.009, 0.52) or shift (OR=0.06; 95% CI=0.006. 0.64) work were at significantly lower odds of walking compared to those who are not working. Furthermore, participants who received less than a thousand rand per month income were at significantly lower odds of walking (OR=0.03; 95% CI=0.002. 0.57).

Table 3. **ASSOCIATION BETWEEN PA PREFERENCE AND DEMOGRAPHIC VARIABLES OF PARTICIPANTS**

	PA preferences			
	Participate in PA		**Walking activity**	
Demographic variables	Adjusted OR (95% CI)	p-Value	Adjusted OR (95% CI)	p-Value
Age				
34-44	8.75 (1.33; 57.7)	0.024	6.18 (1.47; 25.9)	0.013
45-65	1		1	
Gender - Male	0.27 (0.06; 1.26)	0.098	0.96 (0.28; 3.30)	0.959
Years of work				
0-15	1.31 (0.20; 8.34)	0.774	0.23 (0.05; 1.006)	0.051
16-30	6.44 (0.88; 47.1)	0.066	0.19 (0.036; 1.03)	0.055
31-44	1		1	
Marital status				
Never married	0.08 (0.01; 0.65)	0.018	1.03 (0.09; 10.7)	0.978
Currently married	0.03 (0.002; 0.37)	0.008	0.44 (0.039; 5.05)	0.514
Living with partner	0.02 (0.001; 0.23)	0.003	0.81 (0.06; 10.8)	0.876
Widow/separate/divorce	1		1	
Education level				
Below high school	4.11 (0.02; 760.7)	0.596	2.51 (0.06; 98.2)	0.623
High school	1.57 (0.02; 150.0)	0.845	3.97 (0.19; 82.29)	0.372
More than high school	1		1	
Current employment				
Full-time	1.16 (0.20; 6.55)	0.866	0.26 (0.05; 1.31)	0.103
Shift	0.35 (0.03; 4.38)	0.419	0.06 (0.006; 0.64)	0.020
Casual work	0.28 (0.03; 2.95)	0.293	0.07 (0.009; 0.52)	0.010
Not working	1		1	
Occupation level				
Skilled	0.10 (0.001; 8.91)	0.315	5.86 (0.25; 135.7)	0.270
Unskilled	0.29 (0.006; 14.8)	0.543	0.69 (0.045; 10.5)	0.789
Professional	1		1	
Earnings				
<R1000	5.55 (0.148; 208.9)	0.354	0.03 (0.002; 0.57)	0.019
R1001-R5000	3.00 (0.12; 74.5)	0.502	0.32 (0.037; 2.83)	0.308
>R5000	1		1	
House type - Brick	1.59 (0.31; 8.05)	0.575	1.67 (0.41; 6.68)	0.469

OR=Odds Ratio Adj. OR=Adjusted OR CI= Confidence Intervals 1= Reference group in statistical analyses $p \leq 0.05$

Continued

Table 3. **ASSOCIATION BETWEEN PA PREFERENCE AND DEMOGRAPHIC VARIABLES OF PARTICIPANTS *(cont.)***

	PA preferences					
	Domestic duties		**Times/week**		**Time of day**	
Demographic variables	Adj. OR (95% CI)	p-Value	Adj. OR (95% CI)	p-Value	Adj. OR (95% CI)	p-Value
Age						
34-44	0.41 (0.05; 3.04)	0.390	0.11 (0.017; 0.75)	0.024	3.67 (1.07; 12.5)	0.038
45-65	1		1		1	
Gender - Male	0.08 (0.005; 1.48)	0.091	3.63 (0.78; 16.7)	0.098	0.68 (0.23; 1.95)	0.476
Years of work						
0-15	0.56 (0.09; 3.47)	0.538	0.76 (0.12; 4.84)	0.774	1.54 (0.39; 6.00)	0.529
16-30	0.36 (0.05; 2.59)	0.311	0.15 (0.02; 1.13)	0.066	3.28 (0.74; 14.4)	0.116
31-44	1		1		1	
Marital status						
Never married	0.55 (0.05; 5.27)	0.602	12.2 (1.52; 98.6)	0.018	0.20 (0.04; 1.01)	0.053
Currently married	1.23 (0.07; 20.5)	0.881	40.3 (2.66; 611.0)	0.008	0.30 (0.05; 1.73)	0.182
Living with partner	0.31 (0.01; 9.48)	0.505	67.4 (4.28; 1062.8)	0.003	0.11 (0.02; 0.80)	0.029
Widow/separate/divorce	1		1		1	
Education level						
Below high school	—	—	0.24 (0.001; 45.0)	0.596	0.06 (0.003; 1.35)	0.078
High school	—	—	0.63 (0.007; 60.5)	0.845	0.08 (0.005; 1.46)	0.089
More than high school	1		1		1	
Current employment						
Full-time	1.96 (0.15; 24.4)	0.599	0.86 (0.15; 4.87)	0.866	2.57 (0.65; 10.1)	0.178
Shift	8.99 (0.38; 210.3)	0.172	2.82 (.022; 35.0)	0.419	0.67 (0.10; 4.39)	0.684
Casual work	3.68 (0.25; 54.1)	0.341	3.50 (0.33; 36.1)	0.293	0.42 (0.07; 2.47)	0.343
Not working	1		1		1	
Occupation level						
Skilled	—	—	9.96 (0.11; 885.7)	0.315	1.27 (0.07; 21.9)	0.866
Unskilled	—	—	3.36 (0.06; 168.1)	0.543	0.84 (0.05; 12.5)	0.903
Professional	1		1		1	
Earnings						
<R1000	2.56 (0.04; 185.0)	0.666	0.18 (0.005; 6.77)	0.354	2.69 (0.26; 27.9)	0.406
R1001-R5000	0.47 (0.01; 21.3)	0.698	0.33 (0.013; 8.25)	0.502	1.44 (0.19; 10.5)	0.717
>R5000	1		1		1	
House type - Brick	1.05 (0.12; 8.94)	0.961	0.62 (0.12; 3.18)	0.575	1.08 (0.33; 3.46)	0.892

OR=Odds Ratio Adj. OR=Adjusted OR CI= Confidence Intervals 1= Reference group in statistical analyses $p \leq 0.05$

DISCUSSION

The main finding of the current study was that the majority of participants reported that they were physically active. Walking was indicated as the most preferred and enjoyed type of activity by the majority of the participants. This finding supports several previous reports of walking as the most common form of PA (Ussher *et al*., 2007; Stevinson *et al*., 2009; Christensen *et al*., 2012; Trinh *et al*., 2012; Philip *et al*., 2014;). This finding is not surprising among participants from a low socio-economic area where active commuting by walking is a

large part of daily life (Ford *et al*., 1990). Walking is a low-cost activity that is easy for the majority of adults whom do not experience health limitations with regards to walking. The majority of participants also reported willingness to participate in walking activities six to seven times per week. These findings are most probably based on the fact that the participants are already performing this activity on most days of the week. These participants, therefore, adhere to WHO recommendations for time given to PA across the week. PA can be undertaken in short (10 minutes) or long (30 to 60 minutes) bouts to meet energy expenditure goals (McGowan *et al*., 2013) for general health maintenance. The findings from this study indicate that participants are willing, and indeed prefer, to partake in 60 minutes of PA per day. This finding can also be interpreted against the background of the participants walking as a means of commuting to and from work, as well as in work-related activities.

One of the most widely used psycho-physical tools for assessing the subjective intensity of exercise is the rating of perceived exertion scale (RPE; McGowan *et al*., 2013). Community dwellers indicated that they preferred "very easy" and "comfortable" exertion during PA. We echo the concerns of previous authors that the preferred intensities of PA might not be sufficient to elicit a health improvement in this population (Lambert & Kolbe-Alexander, 2006).

The majority (70%) of the participants in the current study preferred to perform exercise in the morning. This finding was consistent with the findings of Atkinson and Reilly (1995) who examined the effects of age and time of the day on preferred work rates during prolonged, self-paced, exercise at two time points during the day. Participants (eight young athletes between the age of 19 to 25 years and eight older athletes between the age of 48 to 62 years) were instructed to pedal on a Monark cycle ergometer at 07h00 (morning) and 17h00 (evening) at their self-preferred intensity that could be sustained for 80 minutes. Participants' average rate of work remained constant throughout the time of exercise in the morning session compared to the evening session. Stevinson *et al*. (2009), in their population-based postal survey to determine the PA preferences of 359 ovarian cancer survivors in Canada, identified that mornings (48.9%) were the most preferred time of the day to exercise. Motivations for PA preferences were not explored in the current study, but it is suggested that in the South African context the good climate and low likelihood of detrimental weather conditions in the morning may contribute to a preference for that time of day.

Participation in PA, preferred modality, duration, time of the day, and intensity of PA were associated with age, gender, year of work, marital status, current employment, occupation levels, earnings and education levels. These findings supported those of Stevinson *et al*. (2009) and McGowan *et al*. (2013), who both identified that marital status, age, education, employment and earnings were associated with PA preference. Our study revealed that those who had never married, or were currently married, or living with partner, were at significantly lower odds of PA participation than married persons, but are at significantly greater odds of preferring participation in PA at 6 to 7 times in a week. Married men and women in our study were less active than their single counterparts, which corroborated with the findings of Dowda *et al*. (2003). However, for those who are married, Hull *et al.* (2010) observed that marriage per se did not influence PA, but child bearing significantly lowered PA by almost three hours per week compared to those who did not have children.

Our findings indicate that adults aged between 34 to 44 years are six times more likely to be involved in PA, preferably walking, when compared with older persons. These findings are consistent with the findings of other researchers, and show the agility and dynamism of adults, as well as a preference to walk from one location to the other in the morning, preferably 6 to 7 times per week (Phillip *et al*., 2014, Short *et al*., 2014). Observationally, the work force of a nation may be clustered within this 34- to 44-year age group, so it is encouraging to identify that these people are the most likely to be physically active. A limitation of the current study, of course, is that the researchers did not recruit participants younger than 35 years of age, with the result that the PA engagement of this group could not be compared with younger adults. Further, it may be reasonable to assume that levels of productivity may be high within the 34- to 44-year age group, but assessing productivity might prove a challenge.

In our study we identified that those who received less than a thousand rand ($70) per month were significantly less likely to prefer walking than people on higher incomes. Shelton *et al*. (2011) examined the influence of communal factors on PA in a large sample of low-income earners in the United States, and reported a low likelihood of PA when level of income was low. One of the reasons found was that the people who received low income may have limited communal links, a smaller world that might result in living an inactive lifestyle. Conversely, having many social connections might bring about a preference towards walking activity. Lack of sufficient income may lead to lack of social engagements and detrimental lifestyle choices, which may negatively impact health and quality of life (Shelton *et al*., 2011). On the other hand, the results of the current study were contrary to those of Stevinson *et al*. (2009) and McGowan *et al*. (2013), who found that the preference for walking might be stronger for participants with lower incomes who could not afford to pay for gym or club memberships to facilitate PA.

Furthermore, people who do casual types of work and shift jobs might not prefer walking activity. Shift and casual work may involve hours outside the traditional day-time working hours and may be irregular. Inability to find a regular or full time job has been found to be associated with low levels of PA (Bushnell *et al*., 2010). Sleep deficiency among people who work night shift, or PA happening at unusual times of the day could limit their PA participation, including walking activity (Atkinson *et al*., 2008). People with lower education levels might not consider walking important due to a lack of understanding the advantages of regular PA. There is a need to strongly advocate for physically active lifestyles among people with low qualifications and knowledge level (Hong *et al*., 2007), especially among people who are not skilled (Short *et al*., 2014).

Findings from this study should be interpreted against the background of the some limitations. The study was conducted on small group (N=130) of people from Tswana decent only. The researchers are not confident that findings can be generalised. A strength of this study is that it is a first study to investigate the preferred types of PA on which future PA interventions can be based to improve health outcomes.

If the current researchers accept that the best exercise is the exercise people will do, then PA interventions tailored according to individual preferences for duration, intensity and mode of activity are likely to lead to improvements in health outcomes (Wilcox *et al*., 1999).

CONCLUSION

In conclusion the findings from this study indicate that adults Setswana-speaking community-dwelling persons prefer walking in the morning as a form of PA. Walking on most days of the weeks is preferred, but at a low intensity. The findings from this study will direct future PA interventions on the type, duration and intensity of PA interventions in communities to improve health outcomes and QOL.

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