

Understanding the barriers to and reasons for physical exercise among university students

R.L. VAN NIEKERK

University of Johannesburg, Kingsway Campus, P.O. Box 524, Auckland Park, 2006; E-mail: leonvn@uj.ac.za

Abstract

The aim of this study was to determine the barriers and reasons for exercise among university students. A sample of 370 students (135 males and 235 females) with a mean age of 20.2 ± 1.46 years participated in the study. They completed a biographical questionnaire as well as two questionnaires related to barriers and reasons to exercise. Factor analysis revealed five barriers and six reasons to exercise. The most important barriers to exercise were time constraints, motivation and a lack of environmental and social support, indicating low levels of self-determination in the motivation for students to exercise. The most important reasons to exercise were improving physical health, having confidence with their appearance and improving mental health. Significant gender differences were found between, racial groups and between students who exercise and those who don't. As most South Africans do not exercise enough to experience physical and psychological health benefits, it is important to understand the exercise behaviour of students. They are in a phase of life where they are ready for change and can make those changes that will benefit them in adult life.

Keywords: Barriers, reasons, exercise, motivation, students.

Introduction

Getting people to exercise enough so that they can gain physical and psychological health benefits from it, seems to be a difficult task. Almost 60% of the world's population fails to complete the recommended amount of physical activity required to induce health benefits (Weinberg & Gould, 2007). In the South African Youth Risk Behaviour Survey of 2002 (Reddy, 2002), it was found that 37.5% of the South African youth (between 12-18 years) seems to be insufficiently active, with 43% of the females and 30.5% of the males being insufficiently active, respectively. In the latest survey of 2008 (Reddy, James, Sewpaul, Funani, Josie, Masuka & Omardien, 2010), this number increased to 42% of young people being insufficiently active, 46.2% female and 36.7% male. Their reasons for not exercising enough ranged from reluctance (28.8%), to feeling ill (17.8%), feeling unsafe or scared (10%) and a lack of equipment (13.3%). A large group in the sample (30.1%) indicated that they don't know the reason for their insufficient exercise. Among both male and female participants, physical activity declines steadily through adolescence from about 70% at age 12 to between 30 and 40% by age 21 (Weinberg & Gould, 2007). This puts the student population at risk of becoming more sedentary from the time they left school to the time they will leave university.

This tendency of decreasing physical activity with age is reflected in the results of the South African Demographic and Health Survey (Department of Health, 2004). The results indicated that 48% of men and 63% of women in South Africa are inactive. Only 24% of men and 14% of women are sufficiently active. Such a trend of increased inactivity can contribute to the continued development of heart disease, stroke, type 2 diabetes mellitus and some cancers. These diseases include some of the major risk factors and leading causes of death among South Africans, resulting in the loss of 65 000 lives per year (Bradshaw, Groenewald, Laubscher, Nannan, Nojilana & Norman, 2003). According to the World Health Organization (2005) 60% of all deaths in 2005 were due to the top 10 chronic diseases, of which five (high blood pressure, tobacco and alcohol consumption, high cholesterol and obesity) were closely related to physical inactivity.

Many studies have found that sufficient physical exercise can have both physical and psychological health benefits (Biddle, Goreley & Stensel, 2004) such as the development and maintenance of cardiorespiratory functions, muscular fitness and flexibility (American College of Sport Medicine, 1998), as well as mental health benefits such as a decrease in depression, anxiety and stress (Buckworth & Dishman, 2002; Biddle & Mutrie, 2003). The overall health benefits derived from physical exercise have become strong arguments to motivate people worldwide to become more active (World Health Organization, 2007). Motivational theories such as the Theory of Planned Behavior (Ajzen, 1985), Social Cognitive Theory (Bandura, 1986) and the Transtheoretical Model of Behaviour Change (Prochaska, DiClemente, & Norcross, 1992) have contributed to the understanding of motivation in exercise behaviour. These theories try to explain the role of both motives and barriers to exercise. Self-Determination Theory (Deci & Ryan, 1985; Ryan & Deci, 2000) define motivation in terms of its type (Reeve, 2005), distinguishing between amotivation, external motivation and internal motivation organized along a continuum of self-determination. The theory indicates that the amount of self-determination within a motivational state influences the way people think, feel and behave substantially.

Barriers to exercise among student populations include factors that would discourage (demotivate) them to participate in physical exercise. In a study among American students (N=471), Silliman, Rodas-Fortier and Neyman (2004) found that the most common barriers were 'lack of time', 'lack of motivation' and 'lack of willpower'. Ebben and Brudzynski (2008) found that 'no time', 'laziness', 'other priorities', 'no motivation' and 'no energy/tiredness' were among the most important barriers to exercise among American college students (N=1 044). In a study among Turkish students (N=303), Daskapan, Tuzen and Eker (2006) found that external barriers played a stronger role than internal barriers to exercise. These included 'lack of time due to busy lesson schedule', 'my parents give academic success priority over exercise' and 'lack of time due to responsibilities related to the family and social environment'. In a South

African study among black students (N=289), Peltzer and Pengpid (2006) found that a lack of motivation and facilities, as well as other factors such as time and body image were the most important barriers to exercise. Although a lack of time seems to be the biggest perceived barrier to exercise in most studies, a recent study among female students in the United Kingdom by Lovelle, El Ansari and Parker (2010) found that physical exertion was a greater barrier than time, exercise milieu and family discouragement.

Various studies reported on the reasons for exercise among students. General health and maintaining fitness levels were found to be the most important motives along with appearance/weight management (Ebben & Brudzynski, 2008). They found that these results correspond with those of other studies. Among black South African students, Peltzer and Pengpid (2006) found similar results, indicating that health and social benefits, as well as psychological benefits were reported by students as important reasons to exercise. Improved physical performance, psychological outlook, contributing to health, life enhancement and social interaction were found to be the strongest motives for exercise in the study by Lovelle et al. (2010). As students are in a transition phase from adolescence to adulthood, and thus amenable to change (Silliman, Rodas-Fortier & Neyman, 2004) it is an opportune time which should be utilised to overcome barriers to exercise and promote reasons to exercise as part of lifestyle change (Wallace, Buckworth, Kirby & Sherman, 2000). This study, therefore aims to understand the perceived barriers and reasons for exercise among South African students and its implications for change.

Materials and Methods

Sample

A sample of 370 students on an inner city university campus was randomly approached by fieldworkers to participate in the study. The sample consisted of 235 (63.5%) females and 135 (36.5%) males with a mean age of 20.2 years (Range: 18-22 years, S.D.: 1.456 years). Most of the participants were whites (50.0%), followed by blacks (31.9%), Indians (8.6%), Coloureds (6.8%) and Asians (2.7%).

Measuring instruments

Two questionnaires i.e, the You and Exercise Barriers Questionnaire (YEBQ) (Biddle, Kirjonen, Mutrie & Sorensen, 2007) and the Reasons to be Active Questionnaire (RAQ) (Biddle et al., 2007) were used for data collection. Both the YEBQ and the RAQ were developed based on the studies by Steinhart and Dishman (1989), who examined self-report scales for assessing outcome-expectancy values and perceived barriers for participating in regular physical activity. Doganis and Theodorakis (1995) argued that particular attention should

be paid to the role of environmental, cultural barriers and significant others in exercise participation. Various barriers for exercise and reasons to exercise were identified and presented as items in the questionnaires.

In addition to providing biographical information, both the YEBQ and the RAQ participants to indicate if any of the suggested barriers prevent them from exercising as much as they would like (YEBQ) and to what extent any of the presented factors play a role in making them feel like they want to start exercising (RAQ). The participants were asked to complete the questionnaires on campus under the supervision of the fieldworkers. The YEBQ consists of 15 questions on a 4-point Likert scale, with 1 = Never, 2 = Hardly at all, 3 = Sometimes and 4 = Always. The questions are presented in Table 1. The RAQ consists of 25 Questions on a 3-point Likert scale, with 1 = No influence, 2 = Some influence and 3 = Major influence. The questions are presented in Table 2. The internal consistency was calculated for the questionnaires and found to be high for both the YEBQ (Cronbach's Alpha = .778) and the RAQ (Cronbach's Alpha = .827). As there are no sub-themes identified in these questionnaires factor analysis was done to cluster items together in themes (sub-scales).

Data Analysis

Descriptive statistics were calculated with frequencies, means and standard deviations. An exploratory factor analysis using Principal Component Analysis and a varimax rotation was done on both questionnaires. Prior to factor analysis the suitability of the data for factor analysis was assessed. The Kaiser-Meyer-Olkin measure (KMO) of sampling adequacy = .774) was larger than 0.6 and the Bartlett's Test of Sphericity was significant ($p < 0.001$) for the YEBQ, supporting the factorability of the correlation matrix. It was also true for the RAQ, with the Kaiser-Meyer-Olkin Measure of Sampling Adequacy (KMO = .801), and the Bartlett's Test of Sphericity was significant ($p < 0.001$). Only items with a factor loading of more than 0.40 and factors with an Eigen value of more than 1.0 were considered.

Five factors emerged from the YEBQ (see Table 1) explaining a total variance of 62.1%, while the RAQ yielded six factors (see Table 2) explaining 58% of the variance. Cronbach's alpha coefficients were calculated for each factor to establish their reliability. Statistical analysis, using ANOVA and Independent-sample t-test procedures were used to assess differences between the groups of students.

Results

Participant's exercise habits

Only 13.3% of the participants reported that they do not participate in any exercise, while the rest indicated that they most often exercise at home (26.8%),

in the gym (26.5%), outdoors (19.7%) and by participating in sport (13.8%). Most of the participants exercise between five and seven hours per week (37.6%), while 34% exercise less than five hours and 15.1% more than seven hours per week.

On item level (see Table 1), the most important barriers to exercise reported (as means $\pm$ SD) by the participants were 'There's just too much to do everyday' (BE15) ($2.66 \pm \text{S.D. } .968$), 'Lack of time' (BE2) ($2.64 \pm \text{S.D. } = .967$), 'Too lazy' (BE7) (Mean = 2.42, S.D. = .906) and 'Lack of energy' (BE6) ($2.41, \text{S.D. } = .915$). A factor analysis of all the items revealed five factors. One item 'Other hobbies come first' (BE9) was excluded from factor analysis, as it had a factor loading of less than 0.4. The factors, factor loadings, Eigen values, factor means and factor standard deviations as well as the reliability of the scales are presented in Table 1. Factor 1 was named 'Lack of social and environmental support', Factor 2 was named 'Subjective excuses', Factor 3 'Amotivation', Factor 4 'Lack of time' and Factor 5 'Physical injury'. Moderate to high reliability ($\alpha = .578 - .728$) was found for the scales. The greatest barriers for exercise seems to be a lack of time (Mean = 2.65), followed by a lack of intrinsic motivation (Mean = 2.33) and a lack of social and environmental support (Mean

Significant differences were found between the genders for lack of time ($p < 0.001$), amotivation ($p < 0.001$), lack of social and environmental support ($p < 0.016$) and subjective excuses ($p < 0.016$). All these barriers are perceived to be stronger for female participants than their male counterparts. Significant differences were found between culture groups for a lack of social and environmental support ($p < 0.001$) and physical injury ($p < 0.001$). Black participants perceive the lack of social and environmental support to be stronger than that of the white participants, while white students perceived physical injury to be a greater barrier for exercise than black participants. Significant differences were found between those who exercise and those who don't. A lack of time ($p < 0.001$), amotivation ($p < 0.001$), environmental and social support ($p < 0.003$) as well as subjective excuses ($p < 0.001$) were perceived to be stronger barriers to exercise for those who do not exercise, than for those who do.

Reasons to be active

On an item level (see Table 2), the most important reasons to exercise reported by the participants were 'To feel in good shape physically' (Mean = 2.57, SD = .618), 'To feel in good shape mentally' (Mean = 2.54, SD = .621), 'To improve/maintain health' (Mean = 2.54, SD = .644), and 'To look good physically' (Mean = 2.42, SD = .701). A factor analysis of all the items revealed six factors. The factors, factor loadings, Eigen values, factor means and standard deviations, as well as the reliability of the scales are presented in Table 2.

Table 1: Barriers for Exercise among students: Results from the Factor Analysis.

	Item means and Standard Deviations	Factors with factor loadings				
		1	2	3	4	5
Lack of nearby facilities (BE5)	Mean = 2.13 (S.D.: 1.015)	.795				
Lack of money (BE3)	Mean = 2.30 (S.D.: 1.039)	.755				
Not a sporty-type (BE10)	Mean = 2.17 (S.D.: 1.045)	.629				
No team/group to join (BE11)	Mean = 2.03 (S.D.: 1.014)	.526				
Family/partner doesn't like exercise (BE8)	Mean = 1.96 (S.D.: 1.013)	.441				
No one with whom to exercise (BE12)	Mean = 2.09 (S.D.: 1.037)		.700			
The weather is too bad (BE14)	Mean = 1.99 (S.D.: 0.911)		.684			
Feeling too poorly (BE13)	Mean = 2.10 (S.D.: 0.899)		.655			
Too lazy (BE7)	Mean = 2.42 (S.D.: 0.906)			.832		
Lack of energy (BE6)	Mean = 2.41 (S.D.: 0.915)			.692		
Lack of interest (BE4)	Mean = 2.15 (S.D.: 0.947)			.653		
Lack of time (BE2)	Mean = 2.64 (S.D.: 0.967)				.832	
There's just too much to do everyday (BE15)	Mean = 2.66 (S.D.: 0.968)				.658	
Physical injury or disability (BE1)	Mean = 1.95 (S.D.: .980)					.855
Eigen Value		3.96	1.81	1.25	1.19	1.12
Factor Mean		2.12	2.06	2.33	2.65	1.95
Standard Deviation		.708	.700	.716	.820	.980
Cronbach's Alpha		.728	.578	.666	.612	-

Extraction Method: Principal Component Analysis. Rotation Method: Varimax with Kaiser Normalization.

The factors were categorized as follows:

Factor 1 'Intrinsic motivation', Factor 2 'Media and encouragement', Factor 3 'Social and environmental appeal', Factor 4 'Confident appearance', Factor 5 'Mental health' and Factor 6 'Physical health'. Moderate to high reliability coefficients ($\alpha = .588 - .770$) were found for the scales. The strongest reason to exercise seems to be physical health (Mean = 2.37), followed by wanting a confident appearance (Mean = 2.32) and mental health (Mean = 2.31).

Table 2: Results of factor analysis on participant' reasons to be physically active

Factor clusters	Item means and Standard Deviations		Factors with factor loadings					
			1	2	3	4	5	6
To set myself a personal challenge (RA9)	Mean = 2.01 (.745)	(S.D.: .727						
To improve/learn new skills (RA11)	Mean = 1.94 (.783)	(S.D.: .717						
Fun and enjoyment (RA20)	Mean = 2.02 (.739)	(S.D.: .717						
For excitement (RA10)	Mean = 1.99 (.718)	(S.D.: .671						
To achieve something important to me (RA23)	Mean = 2.10 (.755)	(S.D.: .477						
Other publicity - posters, leaflets, etc. (RA13)	Mean = 1.41 (.612)	(S.D.: .786						
Advice from media-health programmes on TV, magazines & newspaper articles (RA25)	Mean = 1.51 (.685)	(S.D.: .724						
New exercise class started (RA14)	Mean = 1.47 (.648)	(S.D.: .687						
Doctor told me to (RA24)	Mean = 1.57 (.730)	(S.D.: .572						
Family/friends told me to (RA12)	Mean = 1.54 (.687)	(S.D.: .504						
To get out of the house (RA7)	Mean = 1.94 (.812)	(S.D.: .812						
A lot of my friends/family exercise (RA19)	Mean = 1.72 (.745)	(S.D.: .568						
Attracted by the music, instructors, type of exercise (RA8)	Mean = 1.70 (.753)	(S.D.: .527						
To get together and meet people (RA21)	Mean = 1.81 (.794)	(S.D.: .515						
To look good physically (RA17)	Mean = 2.42 (.701)	(S.D.: .695						
To increase your self-confidence (RA3)	Mean = 2.39 (.729)	(S.D.: .618						
To improve/maintain health (RA18)	Mean = 2.54 (.644)	(S.D.: .537						
Used to exercise and want to be as fit now as I was then (RA22)	Mean = 1.95 (.794)	(S.D.: .467						
To get rid of tension, stress (RA16)	Mean = 2.35 (.676)	(S.D.: .763						
To help clear your head (RA15)	Mean = 2.14 (.743)	(S.D.: .731						
To relax, forget about your cares (RA1)	Mean = 2.19 (.745)	(S.D.: .637						
To feel in good shape, mentally (RA2)	Mean = 2.54 (.621)	(S.D.: .459						
To become fitter (RA5)	Mean = 2.36 (.763)	(S.D.: .699						
To lose/control weight (RA4)	Mean = 2.18 (.794)	(S.D.: .673						
To feel in good shape, physically (RA6)	Mean = 2.75 (.618)	(S.D.: .615						
Eigen Value			5.10	3.26	2.03	1.61	1.38	1.13
Factor Mean			2.01	1.50	1.80	2.32	2.31	2.37
Standard Deviation			.541	.475	.545	.476	.488	.539
Cronbach's Alpha			.770	.746	.664	.588	.658	.587

Significant differences were found between the genders for physical health ($p < 0.001$), wanting a confident appearance ($p < 0.042$) and mental health ($p < 0.032$). All these reasons are perceived to be more important to the female participants than to the males. Significant differences were found between racial groups for physical health ($p < 0.001$), mental health ($p < 0.001$), as well as media and encouragement ($p < 0.005$). White participants perceive both physical and mental health to be stronger reasons to exercise than for the black participants, while black students perceived the media and other encouragement as a stronger reason to exercise than white participants. Significant differences between exercisers and non-exercisers were found. Students who did not exercise perceived physical health ($p < 0.001$), need for a confident appearance ($p < 0.001$), intrinsic motivation ($p < 0.001$) and social and environmental appeal ($p < 0.001$) less of a reason to exercise than the students who do exercise.

Discussion

The barriers to exercise among the student sample in this study are mainly a lack of time, amotivation and a lack of environmental and social support. This finding is consistent with those of other studies (Silliman et al., 2004; Peltzer & Pengpid, 2006; Daskapan et al., 2006; Ebben & Brudzynski 2008; Lovelle et al., 2010). These factors reflect less self-determination among the student population when considering barriers for exercise from the perspective of self-determination theory (Deci & Ryan, 1985; Ryan & Deci, 2000). Amotivation implies no self-determination in exercise motivation, while a lack of time, lack of environmental and social support implies that students are externally motivated to participate in exercise (low self-determination). These barriers to exercise are perceived to be stronger for students who do not exercise and for female students. As they are in a phase of their lives where they can still make changes, it is important that promotional and intervention programmes in this regard be implemented to help to find ways to overcome these barriers.

The most important reasons to exercise among this our sample are their physical health, wish for a confident appearance and mental health. These findings are similar to those of other studies (Peltzer & Pengpid, 2006; Ebben & Brudzynski, 2008; Lovelle et al., 2010). These reasons seem to be appropriate for the life stage of students who still have to find a partner, as physical health, a confident appearance and mental health might be important in attracting a partner. The reasons to exercise seem to be stronger motivation among female students than for males, and stronger for white students than for black students. This might be due to cultural difference about exercise settings. Schinke and Hanrahan (2009)

reported that the typical exerciser in the fitness class tends to be a young, white, fit, middle-class male and that physical exercise is limited by gender, race, class and physical attributes. The study found that most of the students did exercise and that more than two thirds of those who exercise got more than enough exercise (five hours per week and more). Although the lack of time, amotivation as well as environmental and social support is identified as barriers for exercise, they found ways to overcome them. It seems that the reasons to exercise. Physical health, desire for a confident appearance and mental health) are stronger motivators than the militating factors.

References

- Ajzen, I. (1985). From intentions to actions: A theory of planned behavior. In J. Kuhl & J. Beckmann (Eds.). *Action Control: From Cognition to Behavior*. New York; Springer-Verlag.
- American College of Sport Medicine. (1998). Position stand: The recommended quantity and quality of exercise for developing and maintaining cardiorespiratory and muscle fitness, and flexibility in healthy adults. *Medicine and Science in Sport and Exercise*, 30, 975-991.
- Bandura, A. (1986). *Social Foundations of Thought and Action: A Social Cognitive Theory*. Englewood Cliffs, New Jersey: Prentice-Hall.
- Biddle, S.J.H., Gorely, T. & Stensel, D.J. (2004). Health-enhancing physical activity and sedentary behaviour in children and adolescents. *Journal of Sport Science*, 22, 679-701.
- Biddle, S.J.H., Kirjonen, J., Mutrie, N. & Sorensen, M. (2007). Foundations of Exercise Psychology: Distance learning module of the European Masters of Exercise and Sport Psychology.
- Biddle, S.J.H. & Mutrie, N. (2003). *Psychology of Physical Activity: Determinants, Well-being and Interventions*. London: Routledge.
- Bradshaw, D., Groenewald, P., Laubscher, R., Nannan, N., Nojilana, B. & Norman, R. (2003). *Initial Burden of Disease Estimates for South Africa 2000*. Cape Town: South African Medical Research Council.
- Buckworth, J. & Dishman, R.K. (2002). *Exercise Psychology*. Champaign, IL: Human Kinetics
- Daskapan, A., Tuzen, E.H. & Eker, L. (2006). Perceived barriers to physical activity in university students. *Journal of Sport Science and Medicine* 5, 615-620.
- Deci, E.L. & Ryan, R.M. (1985). *Intrinsic Motivation and Self-determination in Human Behaviour*. New York: Plenum.
- Department of Health. (2004). *South African Demographic and Health Survey*. Pretoria: Department of Health.
- Ebben, W. & Brudzynski, L. (2008). Motivation and barriers to exercise among college students. *Journal of Exercise Physiology*, 11(5), 1-11.
- Lovelle, G.P., El Ansari, W. & Parker, J.K. (2010). Perceived exercise benefits and barriers of non-exercising female university students in the United Kingdom. *International Journal of Environmental Research and Public Health*, 7, 784-798.

- Peltzer, K. & Pengpid, S. (2006). Perceived benefits of and barriers to exercise among black university students. *African Journal of Physical, Health Education, Recreation and Dance*, 12(1), 60-69.
- Prochaska, J.O., DiClemente, C.C. & Norcross, J.C. (1992). In search of how people change: applications to addictive behaviors. *American Psychologist*, 47, 1102-1114.
- Reddy, S.P. (2002). *Umthente Uhlabe Usamila – The South African youth Risk Behaviour Survey 2002*. Cape Town: South African Medical Research Council.
- Reddy, S.P., James, S., Sewpaul, R., Funani, N.I., Josie, J., Masuka, P. & Omandien, R.G. (2010). *Umthente Uhlabe Usamila – The South African Youth Risk Behaviour Survey 2008*. Cape Town: South African Medical Research Council.
- Reeve, J. (2005). *Understanding Motivation and Emotion* (4th ed.). New Jersey: John Wiley & Sons, Inc.
- Ryan, R.M. & Deci, E.L. (2000). Self-determination theory and the facilitation of intrinsic motivation, social development, and well-being. *American Psychologist*, 55, 67-78.
- Schinke, R. & Hanrahan, S.J. (2009). *Cultural Sport Psychology*. Champaign, IL: Human Kinetics.
- Silliman, K., Rodas-Fortier, K. & Neyman, M. (2004). A survey of dietary and exercise habits and perceived barriers to following a healthy lifestyle in a college population. *Californian Journal of Health Promotion*, 2(4), 82-91.
- Steinhardt, M. A., & Dishman, R. K. (1989). Reliability and validity of expected outcomes and barriers for habitual physical activity. *Journal of Occupational Medicine*, 31, 536-546.
- Wallace, L., Buckworth, J., Kirby, T. & Sherman, M. (2000). Characteristics of exercise behaviour among college students: Applications of social cognitive theory to predicting stage of change. *Preventive Medicine*, 31, 494-505.
- Weinberg, R.S. & Gould, D. (2007). *Foundations of Sport and Exercise Psychology* (4th ed.). Champaign, IL: Human Kinetics.
- World Health Organization (2005). *Preventing Chronic Disease: A Vital Investment*. Geneva: World Health Organization.
- World Health Organization (2007). *A Guide for Population-Based Approaches to Increasing Levels of Physical Activity: Implementation of the WHO Global Strategy on Diet, Physical Activity and Health*. Geneva: World Health Organization.

Copyright of African Journal for Physical, Health Education, Recreation & Dance is the property of African Journal for Physical, Health Education, Recreation & Dance and its content may not be copied or emailed to multiple sites or posted to a listserv without the copyright holder's express written permission. However, users may print, download, or email articles for individual use.