

PHYSICAL ACTIVITY PARTICIPATION, EXERCISE SELF-EFFICACY AND SELF-MOTIVATION AMONG STUDENTS IN A NIGERIAN UNIVERSITY

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Abstract

Background of the study: Despite the well-known benefits of physical activity (PA) participation, college students rarely meet the recommended benchmarks.

Aim of the study: This study was aimed to examine the relationships among PA participation, exercise self-efficacy and motivation among college students.

Material and methods: This cross-sectional study involved a simple random sample of 244 (122 males and 132 females) university students from Nnamdi Azikiwe University, Nnewi Campus, Anambra State, Nigeria. PA, exercise self-efficacy, and exercise self-motivation were assessed using International Physical Activity Questionnaire-short form, Self-Efficacy for Exercise measure and exercise motivations inventory-version 2 respectively. Descriptive and inferential statistics of Spearman's rank order correlation and Mann

Whitney U tests were used to summarize and analyze data.

Results: The mean age of the respondents was 23.12±0.2 years. More than half of the respondents were moderately active (63.3%), had moderate exercise self-efficacy (54.9%), and moderate exercise self-motivation (59.4%). PA and exercise self-motivation were significantly correlated ($r=0.145$; $p=0.023$). Also, exercise self-efficacy and exercise self-motivation were significantly correlated ($r = 0.282$; $p=0.001$). Higher participation in strenuous exercise among the male participants ($U=6909.5$; $p=0.040$) was observed.

Conclusions: Moderate PA was predominant among Nigerian University Students. PA involvement was linked to increased exercise self-motivation.

Key words: Physical activity, exercise, self-efficacy, self-motivation, university student

Introduction

Inadequate physical activity is a major risk factor for non-communicable diseases, as well as a cause of death, poor mental health, and a reduction in quality of life^{1,2}. Physical activity includes exercise, sports, and other activities that are performed as part of daily life, employment, recreation, and active transportation³. Regular physical activity improves health, reduces the risk of chronic diseases and death and improves self-esteem, concentration, and academic performance^{1,4}. Additionally, physical activity lessens the likelihood of developing mental health issues such as sadness and anxiety^{2,5}.

The World Health Organization⁶ suggested that adults should engage in at least 150 minutes of moderate intensity physical activity or 75 minutes of vigorous intensity physical activity or a combination of moderate and vigorous intensity physical activity on a weekly basis. There is however, a reluctance to engage in physical activity, with approximately 20% of men and 27% of women aged 18 years and above reported as being inadequately active in 2010⁷. Physical activity levels fall significantly during the transition to early adulthood, with the largest decline occurring at the time of entrance to the university^{8,9,10}. Sedentary time has been observed to be high among students of healthcare professions, owing to long hours of mental labor such as sitting through lectures, completing assignments, reading, and browsing the internet for additional information¹¹.

Numerous methods have been studied for increasing physical activity and ensuring its advantages, including therapies based on a few cognitive-behavioral theories¹². Albert Bandura coined the term "self-efficacy," which he defined as "confidence in one's ability to successfully

undertake a given behaviour"¹³. Individuals with a higher sense of self-efficacy are more willing to face difficulties and persevere with their assigned task despite hurdles, especially when the advantages outweigh the drawbacks^{13,14}. Self-efficacy is required for making choices that affect the pursuit of a healthy lifestyle, such as physical activity¹⁵. Additionally, one of the primary reasons for low physical activity participation may be lack of self-motivation, which is described as the 'willingness to exert significant effort toward organizational goals in exchange for the effort and ability to meet certain individual requirements'^{16,17}.

It seems important to consider individuals' exercise-related self-efficacy and self-motivation when pursuing increased physical activity participation, especially among young people. Remarkably, college students represent a cluster of young people who are frequently predisposed to mental activities and sedentary life pursuits which rank as the tenth biggest cause of death and disability, accounting for nearly 2 million fatalities every year⁷. This study was aimed to examine the relationships among PA participation, exercise self-efficacy and motivation among college students.

Materials and Methods

This cross sectional study was carried out in Nnamdi Azikiwe University, Nnewi Campus, Anambra State, Nigeria. A random sample of 244 consenting students from the Faculty of Health Science and Technology at Nnamdi Azikiwe University, Nnewi, Anambra State, Nigeria were recruited. The ethical review committee of the Faculty of Health Science and Technology, Nnamdi Azikiwe University, Nnewi Campus gave approval for this study.

Instrument

i. The International Physical Activity Questionnaire-short form was used to assess Physical Activity. This condensed version included seven items focusing on three distinct facets of physical activity: walking, moderate intensity activity, and vigorous intensity activity. Participants were required to pay close attention and recall their physical activity behaviors and experiences within the seven days preceding the questionnaire administration. The total amount of physical activity measured in MET (metabolic equivalent of task) was used to categorize activity levels as low, moderate, or high. The instrument's validity was established, with the most widely used being the 12-country reliability and validity test¹⁸. Correlation coefficients for criterion validity varied between 0.15 and 0.26¹⁹.

ii. The Self-Efficacy for Exercise measure (SEES) was used to assess Exercise Self-Efficacy. The SEES has been shown to be valid and to have a good level of internal consistency (Cronbach's alpha = 0.92). It is a nine-item self-administered psychometric scale intended to assess confidence in relation to physical activity and exercise on a regular basis. Each item refers to successful coping and suggests a consistent internal assessment of success. The replies were graded on a 0-10 point scale, and their accumulation resulted in a total composite score ranging from 0-90. Higher scores showed a greater sense of self-efficacy for exercise.

iii. The exercise motivations inventory-version 2 (EMI-2) was used to assess exercise self-motivation. The EMI-2 is a 51-item self-report questionnaire that assesses a variety of various exercise motivations. It has demonstrated satisfactory psychometric properties with an internal consistency of 0.68 to 0.95²⁰. EMI-2 is divided into 14 subscales, including stress

management, revitalization, enjoyment, challenge, social recognition, affiliation, competition, health pressures, ill health, avoidance, good health, weight management, appearance, strength and endurance, and nimbleness²⁰. The subscales were rated by adding the numerical equivalents of each item associated with the subscales and then dividing by the total number of items in each subscale.

Assessed socio-demographic information included participants' age, gender, course of study, and year of study.

Data analysis

Descriptive statistics of frequency counts, percentages, mean, and standard deviation were used to summarize data. Spearman's rank order correlation test was used to assess the interrelationship between each pair of physical activity, exercise self-efficacy and self-motivation, while Mann Whitney U test was used to compare scores between sexes. The level of significance was set at 0.05. Statistical Package for Social Sciences (SPSS) version 24 was used for data analysis.

Results

Of the 224 respondents, majority (78.8%) were between the ages of 19 and 24 and a little more than half (54.1%) were females. (Table 1). Moderate PA was reported among majority (63.3%) of the participants, while a small percentage (13.7%) reported physical inactivity. Slightly more than half reported moderate level of self-efficacy, while as much as 33.98% reported a low self-efficacy for exercise. However, most of the participants showed moderate to high levels of self-motivation. (Table 2).

There was a weak positive correlation between physical activity participation and exercise self-

motivation ($r=0.145$; $p=0.023$), but no correlation between physical activity participation and exercise self-efficacy ($r=0.101$; $p=0.117$). A weak positive correlation between exercise self-efficacy and self-motivation to exercise was also observed ($r=0.282$; $p=0.001$) (Table 3).

While there was no significant influence of gender on total PA scores ($p=0.174$, $U=6645.000$), males engaged in more strenuous activity ($p=0.040$, $U=6909.5$). Likewise, females engaged in considerably more sitting activities than males ($p=0.042$, $U=6285$). Furthermore, no significant gender-difference was observed in self-efficacy ($p=0.760$; $U=7220$) or self-motivation scores of participants ($p=0.587$, $U=7093.5$) in exercise (Table 4).

Table 1: Sociodemographic characteristics of the participants (N=244)

Variables	Categories	Frequency (n)	Percent (%)
Age	19-24	192	78.8
	25-30	52	21.2
Gender	Male	112	45.9
	Female	132	54.1
Department	Physiotherapy	96	39.3
	Medical laboratory	48	19.7
	Radiography	35	14.3
	Nursing	28	11.5
	Environmental health	37	15.2
Level of study	200 level	57	23.4
	300 level	45	18.4
	400 level	89	36.5
	500 level	53	21.7

Table 2: Participants distribution based on physical activity level, exercise self -efficacy and self-motivation (N 244)

Categories	Frequency	Percent (%)
Physical activity		
Low	31	12.7
Moderate	169	69.3
High	44	18.0
Self-efficacy		
Low	97	39.8
Moderate	134	54.9
High	13	5.3
Self-motivation		
Low	31	12.7
Moderate	145	59.4
High	68	27.9

Table 3: Correlation between physical activity, exercise self-efficacy and self-motivation

Variable	r	p
Exercise self- efficacy and PA	0.1 01	0.117
Exercise self- motivation and PA	0.145	0.023*
Exercise self- efficacy and self-motivation	0.282	0.001*

*r= correlation coefficient; p= level of significance; *: significant at $\alpha=0.05$; PA-Physical activity.*

Table 4: Mann -Whitney U test showing the influence of gender on exercise self -efficacy, exercise self-motivation and physical activity

Variable	p value	Z value	U-value
Exercise self- efficacy	0.760	-0.360	7224.000
Exercise self- motivation	0.587	- 0.543	7093.500
Total PA and gender	0.174	-1.360	6645.000
Vigorous PA and gender	0.040	-2.054	6909.500
Sitting and gender	0.042	-2.038	6282.500

PA - Physical activity.

Discussion

Most of the respondents in this study reported moderate level of physical activity, this aligns with the findings of Odunaiya, Ayodele, and Oguntibeju²¹, who reported that the majority of college students engaged in moderate physical activity. This finding could be due to community arrangement setting of the college under study where the students have to walk to and from lecture halls, religious gatherings, and other events. Notably, the majority of campus lodges were multi-storey structures, requiring students to use the staircase to participate in various events. Male respondents reported higher mean vigorous activity scores, while female individuals scored higher on the mean for sitting. This is congruent with the findings of Nelson, Kocos, Lythe, and Perry²² and the University of Exeter²³, who reported that men have a higher proclivity for strenuous physical activity than females. Females spend a greater amount of time engaged in sedentary activities, implying that female gender is a risk factor for inactivity²⁴. Contrary to the findings of this study, the University of Exeter²³ discovered that males spend a greater amount of time sitting than females. This was ascribed to conventional family roles, in which women, despite their low levels of exercise, stroll around attempting to complete everyday duties, in contrast to their male counterparts. It however also could be that the male respondents of the present study engaged less in indoor recreational activities such as video games, compared to their University of Exeter²³ counterparts due to the constant power outage and therefore leaned more towards outdoor activities for recreation.

As more than half of the respondents showed a moderate level of exercise self-efficacy, this implies that they were somewhat inclined to confronting

themselves with specific exercise behavior as necessary²⁵. The moderate exercise self-efficacy recorded among these respondents also corresponds with the PA level which ranged from moderate to high among the study respondents. However, Self-efficacy showed no significant correlation with PA level, which means that the PA level of the respondents was not necessarily influenced by their exercise self-efficacy; it is more likely that most of the moderate physical activities and walking the respondents engaged in were as a matter of necessity as they needed to walk to and from classes, places of worship or leisure and to also perform their chores. One can assume from these findings that the respondents engaged more in necessary day to day physical activities (activities of daily living) and less of planned and/or prescribed exercise participation.

Furthermore, the high level of self-motivation observed among the respondents could also explain the PA level among this group as motivation plays an important role in one's state of mind, as well as in one's willingness to engage in normal or healthy activities. Lindberg²⁶ defines motivation as "what propels an individual to pursue or maintain goals." Hence, the reported levels of exercise self-motivation among the participants of the current study is encouraging and indicates a greater possibility of achieving physical activity goals once initiated²⁶. The positive correlation between physical activity and exercise self-motivation indicates that college students with a stronger sense of self-motivation were more likely to engage in physical activity, and that successful physical activity experiences contribute to the development of a more potent sense of exercise self-motivation. This finding is consistent with Lauderdale et al.²⁷, who discovered a robust relationship between self-determined motivation and increased physical

activity participation. Exercise self-motivation and exercise self-efficacy also demonstrated significant positive correlation, showing that people with a strong sense of self-motivation believed in their ability to overcome obstacles and maintain established physical activity levels. A high level of exercise self-efficacy might affect one's motivation to begin an exercise regimen, stick with it for an extended period of time, and complete it²⁸. The observation that gender had no significant influence on exercise self-motivation contrasts the findings of Egli et al.²⁹, as well as Lauderdale et al.²⁷, who discovered gender differences in exercise self-motivation. This may reveal the behavioral/psychological aspects that influence physical activity participation and so serve as a point of reference when strategizing for enhanced physical activity participation.

Conclusions

In college students with a modest degree of PA, increased PA involvement was connected with exercise self-motivation but not with exercise self-efficacy and while gender had no significant influence on the constructs under study, a significant positive correlation exists between exercise self-efficacy and exercise self-motivation,

Recommendation

Hence to improve PA participation, addressing self-motivation could prove useful, and building or boosting an individual's exercise self-efficacy may be a way to also improve individual's motivation, which would in turn translates to increased PA participation.

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