

## Effect of age on physical activity levels among teachers in selected secondary schools, Ibadan, Nigeria

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**Abstract.** *Background.* Sedentary lifestyle is a leading cause of death and disability in the world. This study investigated association between age and physical activity levels among secondary school teachers in Ibadan, Nigeria. *Material and Method.* Six Schools were selected using purposive sampling method, while 141 teachers were selected using random sampling technique. The physical activity levels were assessed with the long version of IPAQ. Data obtained was analyzed using descriptive statistics of mean, standard deviation, range, frequencies and percentages and inferential statistics of chi-square. Alpha level was set at 0.05. *Results.* Age of participants was  $37.26 \pm 6.76$  years with range of 22-52 years. Results showed that 66.7% of the 141 participants met requirement for sufficient health enhancing physical activity, while 33.3% did not meet the requirement. The age group with the highest percentage of high physical activity level is 30-39 with 71.9% of participants in this age group meeting the requirement for sufficient health enhancing physical activity. The age group with the lowest percentage of high physical activity level was 20-29. 47.4% of the participants met the requirement for sufficient health enhancing physical activity. The population of participants with low physical activity level was 4.3%, while 29.1% had moderate physical activity levels and 66.7% had high physical activity levels. Chi-square analysis indicated that there was no significant age group difference in participants that met the requirements for sufficient health-enhancing physical activity ( $X^2=4.526$ ,  $P=0.210$ ). *Conclusion.* The results indicate that the majority of secondary school teachers in Ibadan are at least moderately physically active (95.7%). Only 4.7% of the secondary school teachers that participated in this study are physically inactive.

**Key words:** age, physical activity, health.

### Introduction

Sedentary lifestyle is a major underlying cause of death, disease and disability. Approximately 2 million deaths every year are attributable to physical inactivity and sedentary lifestyle is one of the ten leading causes of death and disability in the world (1).

However, physical activity reduces substantially the risk of developing or dying from cardiovascular diseases, prevent or retard osteoporosis, obesity, symptoms of anxiety and depression, type 2 diabetes and certain cancers(2). Physical activity is generally considered to be a broad term used to describe all forms of large muscle movements including sports, dance, game, work, lifestyle activities and exercise for fitness (3). It is also referred to as any movement of the body that is carried out by skeletal muscles that results in energy expenditure (4).

Adults 18 and older need 30min of physical activity on five or more days a week to be healthy. Physical activity does not necessary mean running a strenuous marathon or playing competitive sports.

Rather, for many people, it is about walking the children to school, or taking a brisk stroll (1).

Research has demonstrated that virtually all individuals will benefit from physical activity (5). Physical activity has been shown to play important role in the prevention and treatment of several diseases (6).

On average physically active people outlive those who are inactive (7-11). Regular physical activity also helps to maintain the functional independence of older adults and enhances the quality of life for people of all ages (12-14). Regular physical activity also increases the ability of people with certain chronic disabling conditions to perform activities of daily living (15-17).

Regular physical activity also has numerous benefits in communities and for economies in terms of reduced health care costs, increased productivity, better performance in schools, lower worker absenteeism and turnover, increased productivity and increased participation in sports and recreational activities.

According to the WHO (1), at least 60% of the global population fails to achieve the minimum recommendation of 30 minutes of moderate intensity physical activity daily. According to the findings of the World Health Organization (1) promotion of physical activities can be a highly cost effective and sustainable public health intervention in enhancing the quality of health of the general population at large.

The importance of physical activity in health is widely documented and established and the benefits are far reaching (5), however little seems to have been documented on the physical activity levels of adult Nigerians and the effect of age. This study was therefore aimed at providing information on the effect of age on physical activity levels of the adult Nigerian teachers in selected secondary schools in Ibadan, Oyo State, Nigeria.

### Material and Method

A total of 141 teachers from 6 selected secondary schools in Ibadan, under the administrative control of the Ministry of Education, Oyo State, participated in this study.

The instrument for this study was a 27-item self administered questionnaire. The long version of the International Physical Activity Questionnaire (IPAQ) was used to assess physical activity. It assesses physical activity in 5 domains as listed below.

Part 1 consists of 7 questions that assess 'Job related physical activity'. Part 2: Consists of 6 questions that assess 'Transportation physical activity'. Part 3: Consists of 6 questions that assess 'Housework, house maintenance, and caring for family. Part 4: Consists of 6 questions that assess 'Recreation, sport, and leisure-time physical activity'. Part 5: Consists of 2 questions that assess 'Time spent sitting'

The IPAQ has reasonable measurement properties for measuring population levels of physical activity among 18-65 year old adults in diverse settings (Craig et. al., 2003) (16). The reliability of the long version of the IPAQ has been obtained through a large multidisciplinary reliability and validity study by Craig et al., (2003) (16). The instrument has a reliability of 0.80. Information on socio-demographic data (age, sex, marital status and tribe) was also obtained.

The physical activity scores obtained from the long version of the IPAQ used for this study were computed according to the guidelines for data processing and analysis as prescribed by the IPAQ

research committee. The IPAQ assesses physical activity undertaken across a comprehensive set of domains including: a. leisure time physical activity; b. domestic and gardening (yard) activities; c. work-related physical activity; d. transport-related physical activity.

The questionnaire asks in detail about walking, moderate-intensity and vigorous-intensity physical activity in each of the 4 domains. The total scores obtained for each of the three activities were used to group the participants into physical activity levels. Given that measures such as IPAQ assess total physical activity in all domains, the "leisure time physical activity" based public health recommendation of 30 minutes moderate-intensity activity on most days will be achieved by most adults in a population. The high category was therefore used as the target for sufficient health enhancing physical activity in this study.

The criteria for classification as 'moderate' are: three or more days of vigorous-intensity activity of at least 20 minutes per day; five or more days of moderate-intensity activity and/or walking of at least 30 minutes per day; five or more days of any combination of walking, moderate-intensity or vigorous-intensity activities achieving a minimum total physical activity of at least 600 MET-minutes/week.

The two criteria for classification as 'high' are: vigorous-intensity activity on at least 3 days achieving a minimum total physical activity of at least 1500 MET-minutes/week.; seven or more days of any combination of walking, moderate-intensity or vigorous-intensity activities, achieving a minimum total physical activity of at least 1500 MET-minutes/week.

Those individuals that did not meet the criteria for the moderate and high categories are considered as low.

The research design for this study was descriptive survey. Participants were recruited from all the selected secondary schools with purposive sampling method.

Ethical approval for the study was sought and obtained from the joint University of Ibadan, University College Hospital Institutional Review Board before commencement of the study.

An informed consent was obtained from each respondent and the local education authority for the purpose of data collection. A letter was distributed with all copies of the questionnaire. This letter contained information about the purpose of the study and a consent form.

Also, assurance that the information obtained through the questionnaires would be confidential and for research purpose only was explicitly stated in the letter. Copies of the questionnaires were distributed to the respondents by hand and careful explanation given when necessary. The researcher waited to collect completed questionnaire when possible but returned to collect questionnaires that were not completed when the respondents were too busy at the time of distribution of the questionnaire. Descriptive statistics of frequency, percentages, mean, standard deviation were used to summarize the scores obtained from the participants. Tables were used for illustration of physical activity levels of participants. Chi-square test was used to determine the association between age levels of physical activity.

**Results**

A total of 200 copies of the questionnaire were distributed while 141 copies were completed and returned. Ninety-one (64.5%) males and 50(35.5%) females completed the questionnaires. The age range of the participants is 22-52 years (37.26±6.76). The distribution of participants across the physical activity levels within the age groups is as shown in Table I.

The majority of teachers that met the requirement for sufficient health enhancing physical activity fell within the age range of 30-39 (71.9%) while the lowest fell within the age range of 50-59(0%), though the 4 teachers within the latter age range were at least moderately physically active.

Chi-square analysis indicated that there was no significant difference in sufficient health-enhancing physical activity levels of participants across the age groups as shown in Table II.

**Table I.** Distribution of physical activity levels across the age groups

PAL	20-29 n (%)	30-39 n (%)	40-49 n (%)	50-59 n (%)	TOTAL
LPAL	1(5.3%)	3(5.3%)	2(3.3%)	0(0%)	6
MPAL	9(47.4%)	13(22.8%)	17(27.9%)	2(50.0%)	41
HPAL	9(47.4%)	41(71.9%)	42(68.9%)	2(50.0%)	94
TOTAL	19(100%)	57(100.0%)	61(100.0%)	0(100.0%)	141

Key: PAL - Physical activity levels; LPAL- Low Physical activity level  
 MPAL - Moderate physical activity level; HPAL- High Physical activity level.

**Table II.** Chi – Square analysis of association between physical activity levels that meets the requirements for sufficient health enhancing physical activity and age

Characteristics	SMR	No SMR	X <sup>2</sup>	P
20-29	9	10	4.526	0.210
30-39	41	16		
40-49	42	19		
50-59	2	2		

Key: SMR- Number of participants that met the requirements for sufficient health enhancing physical activity; No SMR- Number of participants that did not meet the requirements for sufficient health enhancing physical activity.

## Discussion

The results showed that 66.7% of the 141 participants met the requirements for sufficient health enhancing physical activity while the other 33.3% did not meet the requirements. This finding is consistent with the findings of previous studies on the adult population. In China, Muntner et al. (17) found 78.1% of the rural and 21.8% of the urban population to be physically active, while in Australia, about 58% of the population were reported to be physically active (18). Even though the reference point for sufficient health enhancing physical activity was higher in this study, majority of the adults in this study were physically active. The age range of the participants in this study was 22-52 years. This result may only be valid for adults between the ages of 22-52 years only. The age group with the highest "sufficient physical activity" level was 30-39. Approximately 72% of participants in this age group met the requirements for sufficient health enhancing physical activity. The age group with the lowest "sufficient" physical activity level was 20-29. Only 47.4% of the participants in the 20-29 age group met the requirements for sufficient health enhancing physical activity unlike in the 50-59 and 40-49 where 50.0% and 68.9% met the requirements for sufficient health enhancing physical activity respectively. This result is in total disagreement with the report of Haskell et al. (19), that younger people are likely to be more physically active than older adults. In the opinion of Bongard et al. (20) age has a significant effect on physical activity in that with increase in age a decline is observed in physical activity. There was an increase in physical activity from ages 20-29 to 30-39 years but a decline from 40-49 years to 50-59 years of age but these changes were not significant.

Although other surveys done in other countries showed low physical activity levels of adults, the results of this study indicate that the majority of secondary school teachers in Ibadan are at least moderately physically active (95.7%). This results show that only 4.7% of the secondary school teachers that participated in this study are physically inactive.

## Conclusion

The majority of secondary school teachers in Ibadan reported physical activity levels higher than the low physical activity category (95.7%), 29.1% have moderate physical activity levels, which means that they met the requirement for the basal levels of activity adult individuals would

accumulate in a day and 66.7% of the participants met the requirement for sufficient health enhancing physical activity. The age of the participants did not significantly affect their physical activity levels.

There is a need for a national database on physical activity levels across various demographic populations, such as gender, level of education and age groups, in order to facilitate the formulation of appropriate policies that promote participation in health enhancing physical activity. There is a need to carry out studies on the barriers to participation and access to facilities for health enhancing physical activity of the general population in Nigeria.

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