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PREVALENCE AND DETERMINANTS OF PARTICIPATION IN SPORTING ACTIVITIES AMONG MEDICAL STUDENTS IN ANAMBRA STATE, NIGERIA.

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ABSTRACT

Physical activity is a basic human function and an important aspect of a healthy lifestyle. It produces positive physiological, psychological, and health-enhancing consequences. The study aimed to the assess health behaviours of the medical students with regards to participation in sporting activities.A cross-sectional descriptive study among 300 medical students was carried out. Self-administered questionnaires were used for data collection and data analysis was done using Statistical Package for the Social Sciences (SPSS) version 25.0.

The mean age was 21.44±3.35, with the majority of the respondents between 20- 24 years (48.7%). The males consist of 57.7% and females 42.3% of the respondents; most were single (99%) and of Igbo ethnicity (98%), and all the respondents were Christians (100%). The study revealed a prevalence of physical activity of 75.3%, football (66.2%) was the predominant sport, and walking (69.2%) was the predominant exercise the students engaged in. The commonest barriers reported were excessive academic workload (87.7%), lack of personal time (79.7%), and cost of facilities or equipment (72.3%) while the commonest facilitators were availability of time (97.7%), availability of facilities (94.3%) and availability of equipment (92.3%).

Interventions to mitigate these identified barriers and strengthen the identified facilitators could be key in enabling the adoption and maintenance of a more active lifestyle and promote health.
Keywords: Physical Activity, Exercise, Sports, Barriers, Facilitators, Medical Students.

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INTRODUCTION

Regular physical activity is a well-established protective factor for the prevention and treatment of the leading noncommunicable diseases (NCDs), such as heart disease, stroke, diabetes and breast and colon cancer. It also contributes to the prevention of other important NCD risk factors such as hypertension, overweight and obesity, and is associated with improved mental health, delay in the onset of dementia and improved quality of life and well-being.[1] Regular physical activity helps to maintain physical, mental and social health and enables healthy ageing.[1]

Physical activity is defined as any bodily movement produced by skeletal muscle that requires energy expenditure. It can be undertaken in many ways: walking, cycling, sports and active forms of recreation (such as dance and yoga).[1]

Sedentary behaviours is defined as any waking behaviours characterized by an energy expenditure ≤ 1.5 metabolic equivalents, such as sitting, reclining or lying down. The metabolic equivalent of task, MET, or simply metabolic equivalent is a physiological measure expressing the energy cost (or calories) of physical activities. One MET is the energy equivalent expended by an individual while seated at rest.[1] Higher amounts of sedentary behaviours are associated with cardiovascular diseases and cancers and type-2 diabetes.[1] Physical activity confers benefits for the following health outcomes: improved all-cause mortality, cardiovascular disease mortality, incident hypertension, incident site-specific cancers, incident type-2 diabetes, mental health (reduced symptoms of anxiety and depression); cognitive health, and sleep; measures of adiposity may also improve. [2,3]

Despite these numerous advantages of an active lifestyle, university students still exhibit insufficient levels of physical activity. There is considerable evidence to show that physical activity levels decline from secondary school to university level.[4] University students also spend more time being sedentary due to long hours of lectures as well as time spent during reading. Backed with the rapid technological development this translates overall to more time being sedentary as a university student.[5] University students are usually encumbered with studies, their school programmes and curriculums and are easily prone to higher stress levels, obesity, smoking and substance abuse, high blood pressure and poor health status, which all contribute to the risk of cardiovascular diseases and other non-communicable diseases.[4]

Although the habits of students are considered a temporary part of university life, unhealthy habits that are picked up at this stage can persist in adult life. Thus, university years represent an important opportunity for students to learn about healthy lifestyles and enhance nutritional awareness. Medical students can learn and derive the most benefit of a healthy lifestyle, by virtue of the nature of their studies. It is presumed that medical students have substantial knowledge about physical activity and its benefits and, as health care professionals-to-be, they will have an influence on their patients' attitude towards the need for regular physical activity and an ethical obligation to prescribe suitable exercises. [6] Physical inactivity is identified as the fourth leading risk factor for global mortality.[3] Worldwide, physical inactivity is the fourth leading cause of death; it is responsible for approximately 5 million deaths per year. It shortens lifespan by 3-5 years, and it is associated with 9% of premature mortality.[8] Physical inactivity is estimated to cause 6-10% of the major NCDs such as coronary heart disease, type 2 diabetes, breast cancer and colon cancer. The failure to spend 15-30 minutes a day in brisk walking increases these diseases by 20-30%.[8] In Nigeria, NCDs already account for about 24% of all deaths with the prevalence of overweight and obesity at about 33.3%.[14]

Economically, physical inactivity burdens society through the hidden and growing cost of medical care and loss of productivity. In 2013, physical inactivity cost healthcare systems 53.8 billion dollars worldwide. Physical inactivity-related deaths contribute to $13.7 billion in productivity losses. [8]The global cost of physical inactivity is estimated to be INT$ 54 billion per year in direct health care, in 2013, with an additional INT$ 14

billion attributable to lost productivity. Inactivity accounts for 1–3% of national healthcare costs, although this excludes costs associated with mental health and musculoskeletal conditions. [1] Worldwide, 1 in 4 adults, and 3 in 4 adolescents (aged 11–17 years), do not currently meet the global recommendations for physical activity set by WHO. As countries develop economically, levels of inactivity increase. In some countries, levels of inactivity can be as high as 70%, due to changing patterns of transportation, increased use of technology and urbanization.[1] With the elimination of physical inactivity, the life expectancy of the world's population might be expected to increase by 0.68 years. [8]

Africa has the challenge of dealing with a double burden of disease: infectious diseases (IDs) such as HIV/AIDS and tuberculosis are high while non-communicable diseases (NCDs) are rapidly rising in this region as well, with healthcare expenditure disproportionately favouring infectious diseases. and NCDs being neglected, it is thus imperative to reduce the risk factors of NCDs by eliminating Physical inactivity. [9,10,11]

According to the Global Action Plan for Physical Activity 2018–2030 by the World Health Organization (WHO), a joint and intersectoral approach is needed to tackle physical inactivity. Within the healthcare sector, the WHO recommends the establishment of systems for patient assessment and counselling on increasing physical activity and reducing sedentary behaviours, implemented by appropriately trained health professionals, as a priority action in this regard. [1,12]

Healthcare Professionals have also been identified as key role players in health promotion as well as in the prevention and treatment of non-communicable diseases (NCDs) and as pivotal agents in tackling physical inactivity.[12,13]

Since health care professionals have been identified as key role players of health promotion, improving the health and well-being of communities by functioning both as role models and facilitators of behaviours change consistent with public health priorities. It is thus valuable to study some of their health behaviours, these students who would become part of the future health care professionals.[13]

This study seeks to find the facilitating factors that motivate/encourage students to be more physically active as promoting these factors may help students be more physically active.

The study also tries to identify some barriers that may discourage students from being

more physically active, as addressing these barriers may help students be more physically active.

METHODOLOGY

Study Area

This study was conducted in the Faculty of Medicine at Nnamdi Azikiwe University, Awka, Anambra State.The university is in South-Eastern Nigeria, specifically in Awka South Local Government Area of Anambra State.[14]

Study Design

This study was a descriptive cross-sectional study that assessed the Prevalence and Determinants of Participation in Physical Activity

Study Population

The study was carried out among undergraduate medical students in the Faculty of Medicine, Nnamdi Azikiwe University, Anambra State.

Sample Size Determination

Sample size was determined from a prevalence rate of 78% that was obtained from a study done in Nigeria.[64]The sample size was then calculated using Cochrane's Formula; [15]

$$n = \frac{Z^2 pq}{d^2}$$

where:

n is the minimum sample size

Iintervention strategies targeted at improving current and future health habits and lifestyles in this population is very important.[27]

Z is the Standard normal deviation (1.96) at a 95% confidence level.

p is prevalence obtained in a previous study, 78%.

q is the proportion of persons in the population without factors under study. An Attrition rate of 10%, to account for non-response was applied. The sample size for the study was 300.

Sampling Method and Study Instrument

A multi-stage sampling technique was used. A semi-structured, self-administered, validated questionnaire was used for data collection.

Data Analysis

Data were cleaned, coded and analyzed using statistical package for social sciences (SPSS) version 25.

Ethical Consideration

The study was done with approval from the Ethical Committee of the Nnamdi Azikiwe University Teaching Hospital (NAUTH), Nnewi through the Head of Department of Community Medicine with reference number NAUTH/CS/66/Vol.17/VER. 3144/2024/71. The participants were assured of the confidentiality of their responses and assured

that any information given would be used primarily for academic research purposes.

RESULTS

The mean age of respondents was 21.44±3.35 years and most of the participants were between 20-24 years (48.7%). There were more males (57.7%) than females (42.3%), mostly Christians (100%) and of Igbo ethnicity (96.11%). The study group represented medical students across the various years of study (100 Level to 600 Level) at the various campuses

A prevalence of 75% participation in physical activity (sports & exercise) was determined among medical students at Nnamdi Azikiwe University. The prevalence was noted to be high in the age group ≥ 30 years (85.7%), in males (79.2%), in the 500 level students (87.8%), in the singles (75.4%) and at the Nnewi campus (80.1%) (See table 1).

Table 1: Distribution of prevalence of participation in physical activity across the various campuses

Sociodemographic	Prevalence of physical activity	
	Participating in physical activity	Do not participate in physical activity
Age (years)		
15-19	67(67.7%)	32(32.3%)
20-24	114(78.1%)	32(21.9%)
25-29	39(81.3%)	9(18.8%)
≥30	6(85.7%)	1(14.3%)
Sex		
Male	137(79.2%)	36(20.8%)
Female	89(70.1%)	38(29.9%)
Academic level		
100	35(68.6%)	16(31.4%)
200	32(76.2%)	10(23.8%)
300	42(68.9%)	19(31.1%)
400	32(78%)	9(22%)
500	43(87.8%)	6(12.2%)
600	42(75%)	14(25%)
Marital status		
Single	224(75.4%)	73(24.6%)
Married	2(66.7%)	1(33.3%)
Location of campus		
Awka (Main) campus	35(68.6%)	16(31.4%)
Okofia (CHS) campus	74(71.8%)	29(28.2%)
Nnewi (NAUTH) campus	117(80.1%)	29(19.9%)

The most common predominant sports noted were football (66.2%) and Volleyball (31.4%) while the least common sports identified were Badminton (7.6%) and Lawn-Tennis (4.8%). See figure 1

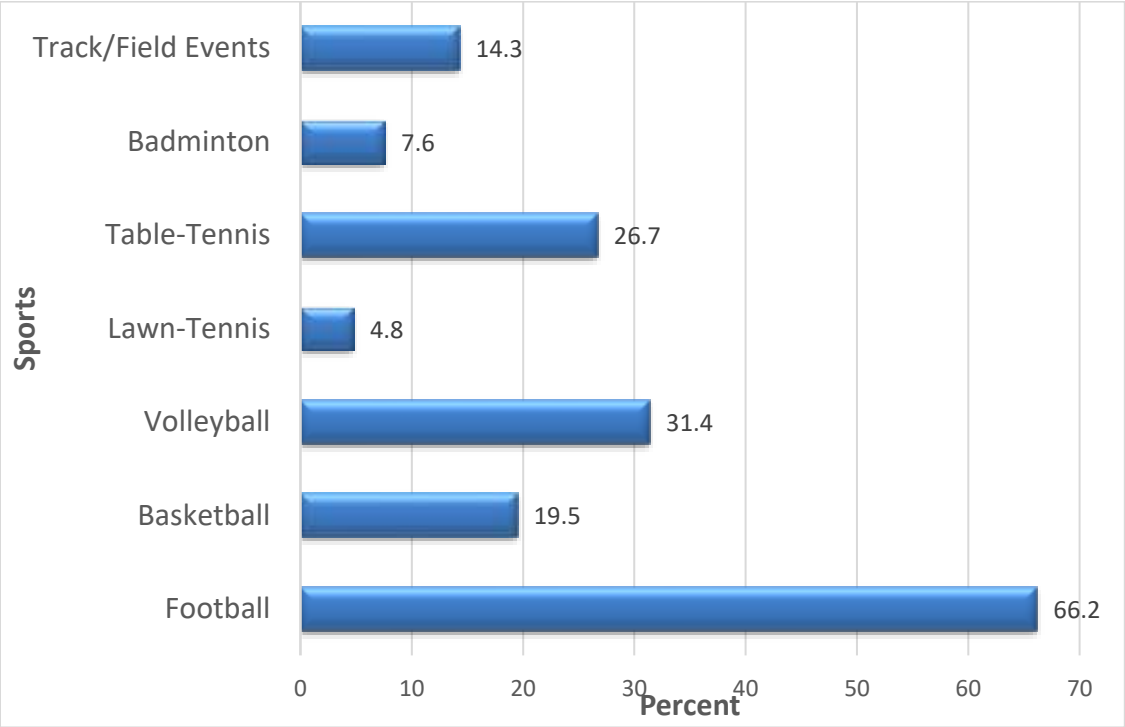

Fig 1 Bar chart showing the predominant sports among medical students at Nnamdi Azikiwe University

The most common exercises performed were walking (69.2%) and jogging (61,6%) while the least common sports identified were cycling (3.1%), yoga (3.6%) and the use of resistance bands (3.6%). See figure 2

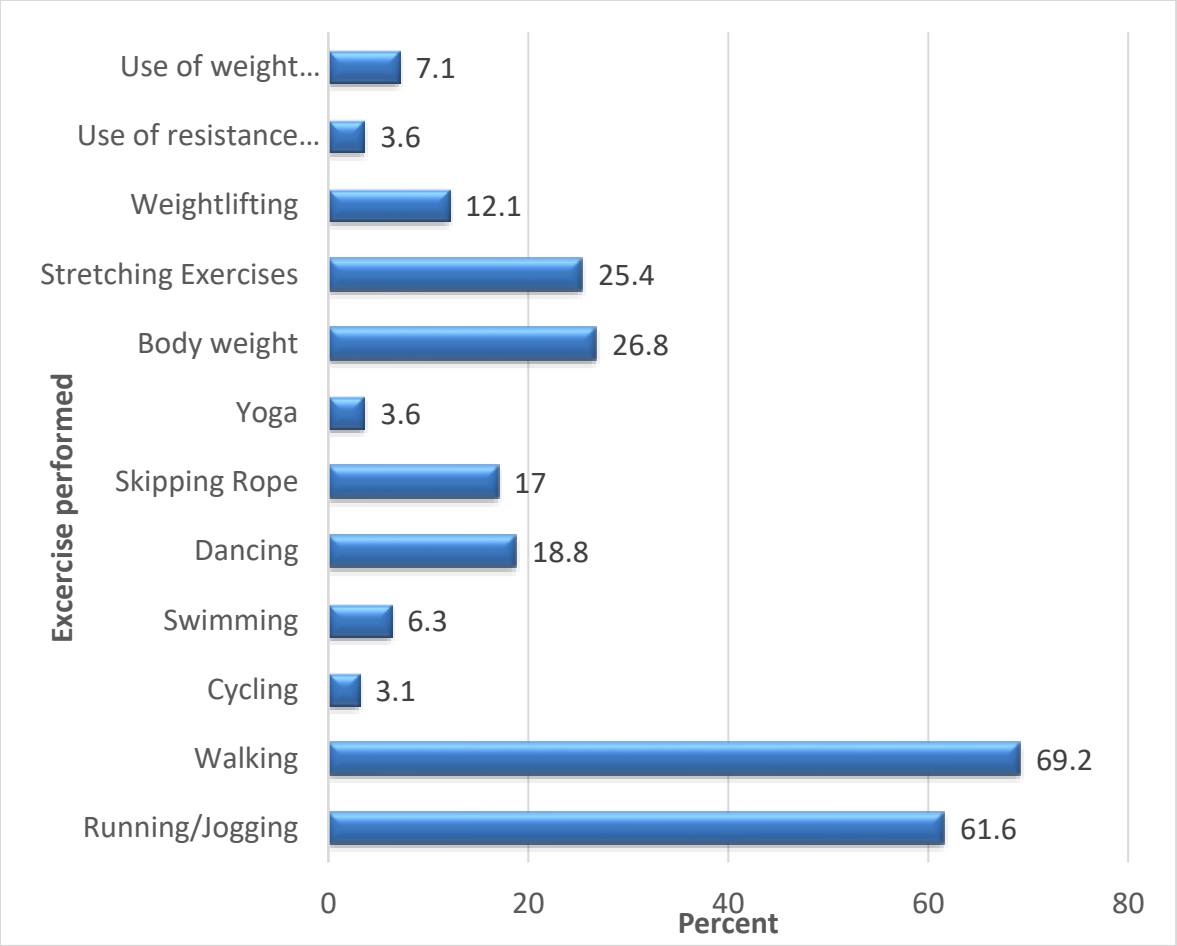

Fig 2 Bar chart showing the predominant exercise among medical students at Nnamdi Azikiwe University

The commonest barriers were Excessive academic workload (87.7%) and lack of personal time (79.7%). The least barriers identified were Lack of skill (40.7%) and Cultural/Religious reasons (7.3%). The commonest Facilitators were Availability of time (97.7%) and Availability of facilities (94.3%). The least Facilitators identified were Availability of Coaches/Trainers (88%) and social support (84.7%). There was no statistically significant association between sociodemographic characteristics and prevalence of participation in physical activity ($p>0.05$).

DISCUSSION

This study showed a prevalence of physical activity of 75.3%. This report was similar to the prevalence in another study done in Nigeria that reported a prevalence of 78%, in Nigerian.[64] The slight difference in these studies could be due to differences in

sampling methods; while our study employed a descriptive cross-sectional study, the other study employed a secondary data analysis method. A study done in Malysia[6], among first-year to third-year preclinical medical students, reported a similar prevalence of 76%. The prevalence of physical activity was highest among the students in the Nnewi campus (80.1%) than in the Okofia campus (71.8%) and in the Awka campus (68.6%). This may be because as students move higher in academic levels, they become better in achieving a balance between their curricular and extracurricular activities. It was higher amongst those who were single (75.4%) compared to those who were married (66.7%). This may be attributed to the lesser responsibility of being single.

It was seen to be higher amongst the males (79.2%) compared to females (70.1%). The gender difference is consistent with some studies done in India[6], Phillipines[11] and South Africa.[12]

The prevalence of PA may differ across researches due to influences by factors like study design, demographics of the respondents, cultural characteristics, socio-economic or environmental differences.

This study showed that the predominant sport the students engaged in was football (66.2%). The other sports reported were volleyball (31.4%) and table tennis (26.7%). Basketball (19.5%), Track/field events (14.3%), Badminton (7.6%) and Lawn tennis (4.8%). Some findings are similar to the study done by Hulteen RM, *et al*. [16] which reported Soccer/Football as the most popular physical activity in Europe and globally. A study by Fischer M. *et al* in New York, Unites States, basketball, volleyball, baseball, and weightlifting were the most common sports found.[18] The differences in the results may be due to differences in geographical location or cultures influencing the choices of sports. Football is a seemingly popular sport globally enjoyed by all, either by active participation or by watching professional football, irrespective of region.

This study revealed the predominant exercises the students engaged in were walking (69.2%) and running or jogging (61.6%) The other exercises engaged in were bodyweight exercises (26.8%). stretching exercises (25.4%), dancing (18.8%), skipping rope (17%), weightlifting (12.1%), use of weight machines (7.1%), swimming (6.3%), yoga (3.6%), use of resistance band (3.6%), cycling (3.1%). This finding is similar to the study done by Hulteen RM, *et al*. [16] which reported walking as the most common PA in the Americas and running as the most common PA in Africa. It also

reported consistent patterns of participation in walking and running globally. In a study done in Malaysia, Jogging was preferred to walking, these differences could be because of differences in geographical location or cultural factors influencing the preferred exercises.[6]

The study done in Saudi- Arabia[19] reported walking (51.7%), running (24.4%) and Gym/Bodybuilding (25%) as the commonest form of exercise amongst the healthcare students and swimming (6.8%) as the least common exercise. This is also similar to a study done in Riyadh, Saudi Arabia.[20] This commonest exercise found, walking and running/jogging is unsurprising as this form of exercise requires no form of training/coaching, facilities or equipment. The least common sports like yoga, use of resistance bands and cycling could be due to cultural characteristics or demographic differences or lack of facilities and equipment making them unpopular in our region. The results showed that excessive academic workload (87.7%), Lack of personal time (79.7%), and cost of facilities or equipment (72.3%) as the commonest barriers to participation in PA. Others were Lack of equipment on campus (70%), Lack of facilities on campus (67%) lack of social support (52.3%), lack of skill (40.7%), Poor Weather (41.7%), Lack of interest (26.7%), Cultural/Religious reasons (7.3%). The results obtained is similar with other studies[19] done in; Ibadan, Nigeria[20]; Malaysia[6,20], Saudi Arabia[18,19] and United States.[20,21]

Our result is similar to a study in Anambra, Nigeria[75], which found that lack of time was the predominant barrier to PA among middle-aged adults. The difference could be because of the populations under study; our study was done among students while this study was done among middle-aged adults. The results showed that availability of time, availability of facilities, and availability of equipment are the commonest facilitators to PA. Others were the availability of Coaches or trainers, and social support. The results obtained is similar with other studies done in; Ibadan, Nigeria[20]; Malaysia[6,21] and United States.[22,23]

The study showed that the socio-demographic parameters; Age, Sex, Academic level, Marital status and Location of campus had no association with the prevalence of physical activity.

CONCLUSION

Regular engagement in physical activity can lower the odds of experiencing clinical depression and sub-clinical depressed moods, can significantly lessen anxiety in those with

or without anxiety disorders, and improves sleep outcomes and overall quality of life. Therefore, the school management could enhance time management practices by developing programs or workshops on effective time management to help students allocate time for physical activity amidst their academic responsibilities. School administrators should foster a supportive environment that encourages physical activity including promoting the benefits of exercise and creating a culture that values physical wellness such as the establishment of sports or exercise clubs. The school management should provide facilities and equipment for the students to further encourage their participation in physical activity. The school management should also place professionals, coaches/ trainers in charge of the built facilities.

Strengths

This study contributes to the existing literature on physical activity. This contribution is crucial as it adds to the limited body of knowledge on this topic, potentially guiding future research and interventions aimed at improving physical activity among this demographic.

It is also relevant in public health, as understanding the patterns and factors affecting physical activity in medical students is imperative, as these individuals are future healthcare professionals who can promote and serve as role- models to their patients and the public on healthy behaviours and lifestyles.

Weaknesses

The study design was a cross-sectional, which may limit the ability to interpret associations and causal relationships between variables.

Limitations

The study was conducted only among medicine students in a single faculty in one university, also the respondents were majorly of one ethnic group, Igbos and one religion, Christianity which may limit generalization to other students and to the general population. Due to the time and resources constraints, the study was done only amongst a group of students in a single university, this could potentially limit the depth of its findings. Different academic levels in the Faculty of Medicine are on different campuses situated in different Local Government Areas of The State. This made the respondents difficult to access and data collection burdensome, however, this was overcome by involving and training their Class Representatives as research assistants who could easily access the students at any point in time for data collection.

Future directions

We recommend conducting similar studies across the same and different faculties within the university and extending the research to other institutions to gain a comprehensive understanding of the prevalence, barriers, and facilitators of physical activity among students. Further studies should be done in this area of study focusing on; Exploring variations: investigating how physical activity patterns barriers and facilitators differ across various academic disciplines and institutions using more comprehensive methodology such as comparative and longitudinal studies

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