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Physical Fitness Status of Male, and Female Non-Athlete in Nigeria

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ABSTRACT

The study specifically investigated cardiorespiratory endurance, muscular strength, flexibility, and body composition of male and female non-athletes in Nigeria concerning their physical fitness status. A descriptive research design of survey type was used. The population comprised all 100 non-athletes. Purposive and simple random sampling techniques were used. We structured a questionnaire validated by three experts. A reliability coefficient of 0.70 was obtained using Pearson Product Moment Correlation. Data collection was conducted by the researcher, and two trained research assistants. The four hypotheses were tested using inferential statistics of Chi-square at 0.05 alpha level. The findings of this study showed a significant influence of cardiorespiratory endurance as well as physical fitness of male and female non-athletes. Also, there was a significant influence on muscular strength and physical fitness, flexibility and physical fitness status, as well as body composition and physical fitness status of male and female non-athletes. Non-athlete students should engage in physical activities to promote cardiorespiratory endurance during any exercise. Non-athlete students should engage in regular training with weights or using the weight of the body for resistance during calisthenics exercises to promote muscular strength in them.

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1. INTRODUCTION

Physical fitness is a set of physical activities that allow the body to respond or adapt to the needs and stress of physical effort. Physical fitness allows the individual to perform some moderate-to-vigorous levels of physical activity without being tired. Physical fitness is defined as a physiological state of well-being that provides the foundation for the tasks of daily living, a degree of protection against chronic disease, and a basis for participation in sport. Physical fitness describes a set of attributes relating to how well one performs the physical activity. Physical fitness is an important part of human functionality related to health, and wellbeing. Fitness is characterized by a person's capability to function in, and adapt to physical exercise, and can be demonstrated through the operation of body systems associated with energy supply, and energy transmission, circulation, and respiration, and the performance of muscles, and other soft tissues (Burtscher et al., 2021).

Physical fitness encompasses all, the body functions (skeletal-muscular, cardiorespiratory, thermoregulatory, psychoneurological, and endocrine-metabolic) involved in the performance of the daily physical activity and/or physical exercise. Regular physical activity is an important component of a healthy lifestyle and helps to keep the body fit. The benefits inherent in physical activity are extensive. For example, physical activity enhances physical and mental wellness. When one is physically fit, everyday chores or tasks such as lifting things become easy, in addition, physical fitness helps people to reduce cases of heart disease, cancer, high blood pressure, diabetes, and other degenerative diseases.

School is the only opportunity to access for all children, and it is therefore crucial to their physical development, and health that they receive a high-quality experience that encourages them to continue to participate in physical activity teaches them the benefits of a healthy lifestyle, and the life skills to enable them to become active, and involved citizens. Physical literacy is as important to a child's education, and development as numeracy, and literacy (Caldwell et al., 2021). Taking part in sports can foster a positive self-image, teach children how to work as part of a team, and develop healthy exercise habits.

Physical fitness is required not only by athletes for better performance but also by non-athletes for the maintenance of a healthy body, and healthy mind. Fitness is generally considered to have five components: aerobic capacity, muscle strength, muscular endurance, flexibility, and body composition. Physical fitness is tested, the functional status of all these systems is being checked. This is the reason why physical fitness is nowadays considered as one of the most important health markers, as well as a predictor of morbidity, and mortality for cardiovascular disease (CVD), and all causes (Metter et al., 2002). Within this decade, a decline in physical activity among students has been observed (Sacheck and Kuder, 2010).

Recent studies indicate that almost half of the U.S. student population do not participate in moderate or vigorous physical activity (Douglas et al., 1997). examined trends in body fat, body mass index, and physical fitness among male, and female college students. The researchers found that there was a small, and declining minority of male, and female students who are physically in shape. A high physical fitness level in childhood and adolescence is associated with more favorable health-related outcomes, concerning present, and future risk for obesity, cardiovascular disease, skeletal health, and mental health, which highlights the need to include physical fitness testing in health and/or educational monitoring systems (Ortega et al., 2011). Vigorous physical activity (aerobic fitness) is closely associated with increases in maximum oxygen consumption. Compared multiple dimensions of self-concept for elite athletes to those for a group of non-athletes. It was discovered that both male and

female athletes had significantly higher levels of self-esteem than male, and female non-athletes.

If we fail to encourage physical development, and prowess, we will undermine our capacity for thought, and work. Thus, physical fitness of our students is a vital prerequisite to a country's realization of its full potential as a nation, and the opportunity of each student to make full, and fruitful use of his/her capabilities (Galderisi *et al.*, 2015).

Physical fitness plays a special role in the life of students, not only the students alone but the general public. The role includes; improved mental focus, and concentration levels, improved attention spans, aids in the development of learning strategies, helps control weight, improved motor skills, etc. to mention a few. The role that sports facilities play in physical fitness cannot be over-emphasized. Nigeria sports education has always been a weak field; this is a result of poor supply of sports equipment (sports facilities) in the school which also result in poor physical education activities. As a result of this, most students were unable to participate in physical activities which affect their physical fitness status. In some schools, the only sports facilities that they have is the football field, whereas all other sports facilities are not available due to lack of funds or management.

Physical fitness helps people to prevent heart disease, cancer, high blood pressure, diabetes, and other terminal diseases. They also demonstrate fundamental movement skills of locomotion (e.g. walking, running, and hopping), body management (e.g. balancing, tumbling, and dodging), and object control (e.g. throwing, catching, striking, and trapping) in free, and structured play settings. A safe, and supportive environment should be provided in which students can work, act, play, and explore. Small, and large play equipment is needed to enhance skills, coordination, and enjoyment.

Most students do not participate in physical activities because they see it as a time-wasting activity, and the result is that most of them lack the benefits derived from physical activities. Students who participate in physical activities usually set goals in the context of maintaining a healthy, active lifestyle. Students demonstrate the use of self-management skills to cope with the changing and often conflicting demands of a contemporary lifestyle. They can demonstrate the use of these skills to plan, and implement a physical activity, manage stress, and maintain their self-esteem. Therefore, the researcher finds it imperative to investigate the physical fitness status of male, and female non-athletes in the University of Ilorin Secondary School, Kwara State, Nigeria.

The following research questions have been raised:

- (i) Does cardiorespiratory endurance promote the physical fitness status of male, and female non-athlete in the University of Ilorin Secondary School, Kwara State, Nigeria?
- (ii) Does muscular strength promote the physical fitness status of male, and female non-athlete in the University of Ilorin Secondary School, Kwara State, Nigeria?
- (iii) Does flexibility promote the physical fitness status of male, and female non-athlete in the University of Ilorin Secondary School, Kwara State, Nigeria?
- (iv) Does body composition promote the physical fitness status of male, and female non-athlete in the University of Ilorin Secondary School, Kwara State, Nigeria?

The following hypotheses were formulated to guide the study:

- (i) **Ho1** There is no significant influence on cardiorespiratory endurance, and physical fitness status of male, and female non-athletes in the University of Ilorin Secondary School, Kwara State, Nigeria.
- (ii) **Ho2** There is no significant influence on muscular strength, and physical fitness status of male, and female non-athletes in the University of Ilorin Secondary School, Kwara State, Nigeria.

- (iii) **Ho3** There is no significant influence on flexibility, and physical fitness status of male, and female non-athletes in the University of Ilorin Secondary School, Kwara State, Nigeria.
- (iv) **Ho4** There is no significant influence on body composition, and physical fitness status of male, and female non-athletes in the University of Ilorin Secondary School, Kwara State, Nigeria.

The study objectives are to:

- (i) Examine cardiorespiratory endurance, and physical fitness status of male, and female non-athletes in the University of Ilorin Secondary School, Kwara State, Nigeria.
- (ii) Investigate muscular strength, and physical fitness status of male, and female non-athletes in the University of Ilorin Secondary School, Kwara State, Nigeria.
- (iii) Examine flexibility, and physical fitness status of male, and female non-athletes in the University of Ilorin Secondary School, Kwara State, Nigeria.
- (iv) Ascertain body composition, and physical fitness status of male, and female non-athletes in the University of Ilorin Secondary School, Kwara State, Nigeria.

2. METHOD

The research design adopted for this research was a descriptive method of survey type. This method was appropriate in researching as it enables the researcher to describe through collecting, analyzing, and arriving at some conclusions, and recommendations based on the data that were collected from the respondents.

The population of this study comprised all non-athletes in the University of Ilorin Secondary School. A total of one hundred (100) respondents (non-athletes) participated in the study. The selection of non-athlete students for the study is with the help of the school game master. The procedure that was used in selecting samples for the study was purposive sampling and simple random sampling techniques. The purposive sampling method was used to select JSS 1, and JSS 2 students, and also SSS 1, and SSS2 students. These enable the study to cut through the school. Simple random sampling was used to select the sample of 50 students from the Junior and Senior classes. Thus, making a total of one hundred respondents for the study.

A researcher-designed Structured Questionnaire was used to collect data for the study. The instrument was divided into two sections (A, and B). Section A was used to elicit information on demographic data of the respondents while section B consists of items concerning the variables under study. The four-point modified Likert scale was adopted to indicate the respondent's level of agreement or disagreement with all items in the Questionnaire. The instrument was scored as follows:

- (i) SA - Strongly Agree = 4
- (ii) A - Agree = 3
- (iii) D - Disagree = 2
- (iv) SD - Strongly Disagree = 1

The draft of the Questionnaire was given to three experts in the field of Human Kinetics Education from the Department of Human Kinetics Education, University of Ilorin. Their comments and suggestions were used to make the final version of the questionnaire.

The reliability of the instrument was ascertained. The instrument was administered to a group of twenty (20) respondents in Unilorin secondary school who are not part of the study on two different occasions after four weeks. The two sets of data obtained were correlated using Pearson Product Moment Correlation (PPMC) to determine the reliability of the instrument. A coefficient of 0.70 was obtained for the study.

The copies of the instrument will be administered to both male, and female non-athlete students in the University of Ilorin Secondary School with the help of three (3) trained research assistants. The retrieval was done on the spot where possible with the help of the research assistants. Where the on-the-spot collection is not possible, a re-visit was done. The demographic data of the respondents were analyzed with the use of frequency counts, and percentage while inferential statistic of chi-square (χ^2) was used to test the hypotheses set for the study at 0.05 alpha level.

3. RESULTS

This section dealt with the collection, analysis, and interpretation of data collected on the Physical Fitness Status of Male, and Female Non-athletes in the University of Ilorin Secondary School. The output reveals the personal information of the respondents. Thus, this section describes the personal characteristics of the respondents (non-athletes) using frequency and percentage.

Table 1 shows that the highest number of respondents were 52 males (52.0%). While the respondents, for the Junior class, and the Senior class had the same number. the table shows that the highest number of respondents were 52 males (52.0%). The respondents for the junior and the senior classes have the same number of respondents 50 (50.0%). Also, the mean age range of respondents was 15 years.

Table 1. The COD and BOD values for the last week of the month (final clarification output).

Variable gender	Frequency	Percentage (%)
Male	48	48.0
Female	52	52.0
Total class	100	100.0
JSS	50	50.0
SSS	50	50.0
Total age range	100	100.0
10-15 years	47	47.0
15 years, and above	53	53.0
Total religion	100	100.0
African traditional religion	1	1.0
Christianity	48	48.0
Islam	51	51.0
Total	100	100.0

3.1. Hypothesis One

There is no significant influence on cardiorespiratory endurance, and physical fitness status of male, and female non-athletes in the University of Ilorin Secondary School, Kwara State, Nigeria.

Table 2 revealed that the calculated chi-square (χ^2) value of 58.2, and degree of freedom (df) of 12, and critical value of 21.0. Since the Cal² value of 58.2 is greater than the table value of 21.0, therefore the hypothesis is hereby rejected. It means that there is a significant influence on cardiorespiratory endurance, and physical fitness status of male, and female non-athletes in the University of Ilorin secondary school, Kwara State, Nigeria.

Table 2. Chi-square analysis of cardiorespiratory endurance, and physical fitness status of male, and female non-athletes.

S/N	Items	SA	A	D	SD	Row total	Cal. ²	DF	Critical value	Decision
1	Ability of the muscle's to generate power	56 (56.0%)	35 (35.0%)	7 (7.0%)	2 (2.0%)	100				
2	The capacity of the body to use oxygen to the fullest	28 (28.0%)	63 (63.0%)	9 (9.0%)	0 (0%)	100				
3	Physical fitness of the heart helps to pump blood	32 (32.0%)	55 (55.0%)	13 (13.0%)	0 (0%)	100	58.2	12	21.0	Ho rejected
4	Ability of the lung to deliver oxygen to the blood stream	22 (22.0%)	56 (56.0%)	20 (20.0%)	2 (2.0%)	100				
5	Difficulty in breathing	14 (14.0%)	37 (37.0%)	35 (35.0%)	14 (14.0%)	100				
Column total		152	246	84	18	500				

3.2. Hypothesis Two

There is no significant influence on muscular strength, and physical fitness status of male, and female non-athletes in the University of Ilorin Secondary School, Kwara State, Nigeria

Table 3 revealed that the calculated chi-square (χ^2) value of 66.0, the value of 21.0, and degree of freedom (df) of 12. Since the χ^2 value of 66.0 is greater than the table value of 21.0, therefore the hypothesis is hereby rejected. It means that there is a significant influence on muscular strength, and physical fitness status of male, and female non-athletes in the University of Ilorin secondary school, Kwara State, Nigeria.

3.3. Hypothesis Three

There is no significant influence on flexibility, and physical fitness status of male, and female non-athletes in the University of Ilorin Secondary School, Kwara State, Nigeria

Table 4 revealed that the calculated chi-square (χ^2) value of 36.3, the table value of 21.0, and degree of freedom (df) of 12. Since the χ^2 value of 36.3 is greater than the table value of 21.0, therefore the hypothesis is hereby rejected. It means that there is a significant influence on the flexibility as well as physical fitness status of male and female non-athletes in the University of Ilorin Secondary School, Kwara State, Nigeria.

Table 3. Showing chi-square analysis of muscular strength, and physical fitness status of male, and female non-athletes.

S/N	Items	SA	A	D	SD	Row total	Cal. ²	D F	Critical value	Decision
1	It gives necessary support for good posture	60 (60.0%)	33 (33.0%)	7 (7.0%)	0 (0.0%)	100				
2	Prevention back, and leg pain	31 (31.0%)	60 (60.0%)	9 (9.0%)	0 (0%)	100				
3	Ability of the body to facilitate recreational activities	31 (31.0%)	44 (44.0%)	23 (23.0%)	2 (2.0%)	100	66.0	12	21.0	Ho rejected
4	The body needs powerful muscles in order to produce smooth, and easy performance of everyday activities	29 (29.0%)	57 (57.0%)	10 (10.0%)	4 (4.0%)	100				
5	Healthy muscles help to keep the skeleton in proper alignment	31 (31.0%)	52 (52.0%)	8 (8.0%)	9 (9.0%)	100				
Column total		182	246	57	15	500				

Table 4. Showing chi-square analysis of flexibility, and physical fitness status of male, and female non-athletes.

S/N	Items	SA	A	D	SD	Row total	Cal. ²	DF	Critical value	Decision
1	Inactivity can cause the joints to become stiffer	57 (57.0%)	34 (34.0%)	8 (8.0%)	1 (1.0%)	100				
2	Allows freedom of movement to the body	38 (38.0%)	57 (57.0%)	5 (5.0%)	0 (0%)	100				
3	Ability of the body facilitate recreational activities	32 (32.0%)	58 (58.0%)	10 (10.0%)	0 (0%)	100	36.3	12	21.0	Ho rejected
4	Releases muscle tension, and soreness and reduces risk of injury	33 (33.0%)	58 (58.0%)	9 (9.0%)	0 (0%)	100				
5	Improve body posture	48 (48.0%)	37 (37.0%)	8 (8.0%)	7 (7.0%)	100				
Column total		208	244	40	8	500				

3.4. Hypothesis Four

There is no significant influence on body composition, and physical fitness status of male, and female non-athletes in the University of Ilorin Secondary School, Kwara State, Nigeria

Table 5 revealed that the calculated chi-square (χ^2) value of 58.5, the table value of 21.0, and degree of freedom (df) of 12. Since the χ^2 value of 58.5 is greater than the table value of 21.0, therefore the hypothesis is hereby rejected. It means that there is a significant influence on body composition, and physical fitness status of male, and female non-athletes in the University of Ilorin Secondary School, Kwara State, Nigeria.

Table 5. Showing chi-square analysis of body composition, and physical fitness status of male, and female non-athletes.

S/N	Items	SA	A	D	SD	Row total	Cal. ²	DF	Critical value	Decision
1	Maintenance of body fat	48 (48.0%)	30 (30.0%)	12 (12.0%)	10 (10.0%)	100				
2	Reduce the ability of heart disease	22 (22.0%)	63 (63.0%)	15 (15.0%)	0 (0%)	100				
3	Physical fitness reduces the rate of having high blood pressure	42 (42.0%)	49 (49.0%)	7 (7.0%)	2 (2.0%)	100	58.2	12	21.0	Ho rejected
4	Body composition reduces joint problems	25 (25.0%)	46 (46.0%)	20 (20.0%)	9 (9.0%)	100				
5	Body composition help the body to be lean	17 (17.0%)	24 (25.0%)	25 (25.0%)	34 (34.0%)	100				
Column total		154	212	79	55	500				

4. DISCUSSION

The findings in hypothesis one show that there is a significant influence on cardiorespiratory endurance, and physical fitness status of male, and female non-athletes in the University of Ilorin Secondary School, Kwara State, Nigeria. The calculated chi-square (χ^2) value of 58.2 is greater than the table value of 21.0 at 0.05 alpha level, and degree of freedom (df) of 12. Cardiorespiratory endurance is a critical component of health-related fitness because the functioning of the heart, and lungs is essential to overall wellness. However, cardiorespiratory endurance is developed by rhythmic movements such as walking, jogging, cycling, and aerobic dance.

The findings of hypothesis two show that there is a significant influence on muscular strength, and physical fitness status of male, and female non-athletes in the University of Ilorin Secondary School, Kwara State, Nigeria. The calculated chi-square (χ^2) value of 66.0 is greater than the table value of 21.0 at 0.05 alpha level of significance, and degree of freedom (df) of 12. Healthy muscles help keep the skeleton in proper alignment, preventing back, and leg pain, and giving the necessary support for good posture. Recreational-based activities are facilitated due to muscular strength.

The findings of hypothesis three show that there is a significant influence on flexibility, and physical fitness status of male, and female non-athletes in the University of Ilorin Secondary School, Kwara State, Nigeria. The calculated chi-square (χ^2) value of 36.3 is greater than the table value of 21.0 at 0.05 alpha level of significance, and degree of freedom (df) of 12. Physical exercises can help to ensure the normal range of motion. Inactivity can cause the joints to become stiffer with age, and stiffness can make elderly people assume unnatural body postures, and it can lead to neck, shoulder, and back pain. Benefits of flexibility include:

allows greater freedom of movement, and improved posture, increasing physical, and mental relaxation, releasing muscle tension, and soreness, and reducing the risk of injury to mention a few.

The findings of hypothesis four show that there is a significant influence on body composition, and physical fitness status of male, and female non-athletes in the University of Ilorin secondary school, Kwara State, Nigeria. The calculated chi-square (χ^2) value of 48.5 is greater than the table value of 21.0 at 0.05 alpha level of significance, and degree of freedom (df) of 12. Healthy body composition involves a high density or proportion of fat-free mass and an acceptably low level of body fat. Body composition is the percentage of body fat a person possesses. An obsessed person is more vulnerable to health problems such as heart disease, high blood pressure, stroke, joint problems, diabetes, cancer, back pain, and gallbladder.

5. CONCLUSION

The study specifically investigated cardiorespiratory endurance, muscular strength, flexibility, and body composition of male and female non-athletes in Nigeria concerning their physical fitness status. The findings of this study showed a significant influence of cardiorespiratory endurance as well as physical fitness of male and female non-athletes. Also, there was a significant influence on muscular strength and physical fitness, flexibility and physical fitness status, as well as body composition and physical fitness status of male and female non-athletes. Non-athlete students should engage in physical activities to promote cardiorespiratory endurance during any exercise. Non-athlete students should engage in regular training with weights or using the weight of the body for resistance during calisthenics exercises to promote muscular strength in them.

6. AUTHORS' NOTE

The authors declare that there is no conflict of interest regarding the publication of this article. The authors confirmed that the paper was free of plagiarism.

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