Comparative Analysis of Physical Fitness Status of Female Students in Private and Secondary Schools in Akwa Ibom State, Nigeria

Joy N. Chinurum
Department of Human Kinetics and Health Education, University of Calabar, Calabar, Nigeria

ABSTRACT

This study assessed and compared the physical fitness status of female students in private and public secondary schools in Akwa Ibom State Nigeria. Purposive random technique was adopted to select 60 students from private and public secondary schools in the three education zones of the State. An ex-post facto research design was adopted, using Standardized Instruments to take measurements on physical fitness components from the subjects. The data obtained were analysed using Independent t-test statistic and all Hypotheses were tested at 0.05 level of significance. The results of analysis indicated that significant differences existed between the female students of private and public secondary schools in cardiorespiratory endurance and speed; whereas there was no significant difference between the students of private and public secondary schools in flexibility. The researcher recommended that female Private school students should be involved in proper fitness programmes to help in improving their health thereby reducing the risk of having obesity related disorders. School Games-Masters and Mistresses could also utilize students’ fitness records to screen them for competitive sports performance. The schools should organize fitness test programmes for female students on regular basis so as to be physically fit.

Keywords: Students; Schools; Cardiorespiratory endurance; flexibility; Speed
1. INTRODUCTION

Fitness is generally defined as the ability of a person to live a happy and well-balanced life. It embraces the physical, intellectual, social and spiritual aspects of a person’s life. It is a relative term, depending on individual circumstances and for what a person needs to be fit. Basel, (2007) defined fitness as a concept which implies a mental and physical state of balance which allows an individual to function to his or her best ability in all aspects of life.

Physical fitness is not just a general term like good health but a specific one. To a layman, physical fitness may be bulging muscles: to the physician it may be absence of disease. Whereas, to the physical and health educator, it means an adequate acquisition and demonstration of strength, speed, agility, endurance, co-ordination, power, balance, flexibility and body control (Olaitan, 2005). In the past, physical fitness was commonly referred to as the capacity to carry out the day’s activities without undue fatigue. These days, physical fitness is considered a measure of the body’s ability to function efficiently and effectively in work and leisure activities, to be healthy, to resist hypokinetic diseases and to meet emergency situations (Brandon, 2009).

Physical fitness, not only combines good health and physical development but it is also a set of physical attributes that allows the body to respond or adapt to the demands and stress of physical effort- that is to perform moderate – to – vigorous levels of physical activity without becoming overly tired. However, Donatelle (2005), affirmed that physical fitness is the ability to function efficiently and effectively, to enjoy leisure, to be healthy, to resist disease and to cope with emergency situations. Physical fitness has many components. Some are related to general health and others are related more specifically to particular sports or activities. Components of physical fitness most important for health are cardiorespiratory endurance, muscular strength and endurance, flexibility and body composition (proportion of fat to fat free mass), while that of Motor fitness include speed, power, coordination, reaction time and agility (Insel, Roth & Price, 2006).

One can reach a permanent or high level of good physical fitness if the frequency and the intensity of the work-out is maintained, but this becomes difficult to achieve if one reaches a high level of physical fitness, stops the programme and expects to be fit (Basel, 2007). However, an individual’s fitness can fall through poor feeding habit, diseases, sedentary life style, anxiety and fatigue. Maintaining physical fitness requires a continuous process just as good nutritional habit must be continuous to maintain wellness. Therefore maintaining physical fitness involves eating good food, engaging in regular exercise, having good rest/sleep and relaxation. To increase one’s physical fitness status, one must increase the intensity and length of work-out sessions (Rushall & Pyke, 2000). The rationale for good physical fitness includes; longevity, efficiency in carrying out day to day activities, resisting hypokinetic diseases and good health

Good physical fitness status develops the total capacity of each child, so that in adulthood, the child will be equipped with the knowledge, sound thinking processes, physical stamina and emotional maturity to live effectively in an ever changing and highly complex society (Alshami, 2010). Engaging in physical activities in schools and maintaining good physical fitness enhance the cardiorespiratory, neuromuscular, skeletal and metabolic systems of children thereby resist hypokinetic diseases in adulthood (Brandon, 2009). However, Athletes with high physical fitness status perform better and they succeed in their chosen
sporting carrier because good physical fitness status is the bed-rock of good sports performance (Alshami, 2010).

School Sports in Akwa Ibom state is for both boys and girls in both private and public schools, therefore they are given equal opportunities. It has been generally observed that in spite of the attention given to students in the private schools like provision of good facilities and equipment, yet the female students from the public secondary Schools perform better than their counterparts in the private schools at the state championships (Iyoho, 2010). A case in point is the Akwa Ibom State/NNPC/Mobil Schools Athletics Championship.

Some private schools have qualified Physical and Health education teachers, adequate facilities and equipment and provision for evening games (Chinurum, 2014). Given equal opportunity, female students from the private schools should perform better than those in the Public Schools, but this is not so.

Is it a factor of physical fitness as exposed in the general attributes of female students in private schools that is the cause? It is at this point that the researcher became interested and more concerned about this trend of event and decided to carry out this study by comparing the physical fitness status of students in private and public secondary schools in Akwa Ibom state Nigeria.

Table 1. The performance of female athletes in public and private Secondary Schools from 2010 - 2014 in the Akwa Ibom State NNPC/MOBIL Schools Athletics Championships.

<table>
<thead>
<tr>
<th>Year</th>
<th>PUBLIC SCHOOL</th>
<th></th>
<th></th>
<th></th>
<th></th>
<th>PRIVATE SCHOOL</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Gold</td>
<td>Silver</td>
<td>Bronze</td>
<td>Total</td>
<td>Gold</td>
<td>Silver</td>
<td>Bronze</td>
<td>Total</td>
</tr>
<tr>
<td>2010</td>
<td>9</td>
<td>10</td>
<td>11</td>
<td>30</td>
<td>3</td>
<td>2</td>
<td>1</td>
<td>6</td>
</tr>
<tr>
<td>2011</td>
<td>10</td>
<td>9</td>
<td>8</td>
<td>27</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>9</td>
</tr>
<tr>
<td>2012</td>
<td>9</td>
<td>10</td>
<td>9</td>
<td>28</td>
<td>3</td>
<td>2</td>
<td>3</td>
<td>8</td>
</tr>
<tr>
<td>2013</td>
<td>10</td>
<td>10</td>
<td>10</td>
<td>30</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>6</td>
</tr>
<tr>
<td>2014</td>
<td>8</td>
<td>10</td>
<td>7</td>
<td>25</td>
<td>4</td>
<td>2</td>
<td>5</td>
<td>11</td>
</tr>
</tbody>
</table>


In Table 1 above, the statistics show the performances of the female students of private and public secondary schools in Akwa Ibom State in the last five years spanning from 2010 to 2014. The Akwa Ibom State/NNPC/Mobil Schools Athletics Championships is an annual event, and since the last five years, only few female student from the private schools have emerged tops (Iyoho, 2010). Some private schools are known to have good facilities and equipment such as hostel, play courts, field, spike shoes, provision for evening games etc, and qualified Physical and Health Education teachers. They ideally should perform better than those in the public schools but this is not so.

Statement of the problem

Perusal into the performances of female students in the Akwa Ibom State/NNPC/Mobil Schools Athletics Championships in Table 1 above shows that female athletes from private schools have not shown any significant improvement.
Many questions have been asked on the abysmal performance of female students from the private schools in the State’s Sports Meet. These questions need to be given serious and urgent attention. It is in the light of the above that the researcher delved into this study. This study was on a comparative analysis of physical fitness status, so as to find out whether physical fitness status predisposes the female students of private schools to low performances at sports meet.

**Purpose of the study**

The main purpose of the study is to compare the physical fitness status of female students in private and public Secondary Schools in Akwa Ibom State of Nigeria. Specifically, the study was designed to:

1. determine the extent of the difference in the cardiorespiratory endurance of female students in private and public secondary schools in Akwa Ibom State, Nigeria.
2. ascertain the extent of the difference in the speed of female students in private and public secondary schools in Akwa Ibom State, Nigeria.
3. investigate the extent of the difference in the flexibility of female students in private and public secondary schools in Akwa Ibom State, Nigeria.

**Research Questions**

1.. Is there any difference in the cardiorespiratory endurance status of female students in private and public secondary schools in Akwa Ibom State?
2. To what extent do female students in private and public secondary schools differ with regards to Speed in Akwa Ibom State?
3. To what extent does flexibility of students in private and Public Secondary Schools differ in Akwa Ibom State?

**Statement of hypotheses**

The following null hypotheses were formulated to guide the study

1. Cardiorespiratory endurance of female students does not differ significantly in private and public secondary schools in Akwa Ibom State.
2. There is no significant difference in the Speed of female students in private and public secondary schools in Akwa Ibom State.
3. Flexibility of female students in private and public secondary schools does not differ significantly in Akwa Ibom State.

2. METHODS AND PROCEDURE

An ex-post facto research design was adopted in the study. The population of the study consisted of all the female students in private and public secondary schools in 2014/2015 session in akwa Ibom state totaling 21,964 females. The sample consisted of sixty (60) female students purposively selected from both private and public secondary schools in Akwa Ibom State. Twenty (20) female students were selected from each of the three (3) education zones,
namely; Uyo, Ikot Ekpene and Eket education zones. The reason for the sample size of sixty (60) students was that series of fitness test were administered on each of the subjects.

**Research Procedure**

The study used a combination of two standardized instruments of American Alliance for health, Physical education, Recreation and Dance (AAHPERD) (2010) and the FITNESSGRAM. Therefore there was no need testing for Validity and Reliability. However, prior to the commencement of the test, informed consent were sought from the subjects. The principals of the selected schools also gave their permission.

**Protocol/Test Description**

Cardiorespiratory endurance – 20m (multistage) Progressive Aerobic Cardio-respiratory Endurance Run (PACER) was used to test cardiorespiratory endurance. The subjects performed this as described by AAHPERD (2010) and the performance was measured with the aid of CASIO Stopwatch and number of laps recorded.

Speed – 50m dash was used to test for running-speed. The participants were instructed to run the 50m at the fastest pace possible. The time taken to cover the distance was measured and recorded in seconds using CASIO Stop-watch and the better time of three trials were recorded to the nearest tenth of seconds.

Flexibility - This was tested using sit and reach apparatus, the subject sat and stretched arms forward on the apparatus without flexing the knees and the point where the finger tips touched was recorded, the best of the three trials was taken.

**Data Analysis**

The data collected was analysed using SPSS version 11 (Chicago). The results were represented using descriptive statistics of mean and standard deviation. Inferential statistics of independent t-test was used to determine significant difference between variables. The level of significance was set at p < 0.05.

**3. RESULTS AND INTERPRETATIONS**

<table>
<thead>
<tr>
<th>Variable</th>
<th>School Type</th>
<th>Number of participants</th>
<th>Mean Score (X)</th>
<th>Standard Deviation</th>
<th>Calc. t Value</th>
<th>Table Value</th>
<th>Decision</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cardiorespiratory</td>
<td>Private</td>
<td>30</td>
<td>62.90</td>
<td>29.158</td>
<td>-6.17*</td>
<td>2.004</td>
<td>Sig.</td>
</tr>
<tr>
<td>endurance</td>
<td>Public</td>
<td>30</td>
<td>109.90</td>
<td>29.876</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

P < 0.05 *Significant, df = 58.
Data in Table 2 above showed the mean standard deviation and t-value of the test for cardiorespiratory endurance of female students in private and public secondary schools in Akwa Ibom State.

From the table, it can be observed that mean and standard deviation for public schools (109.90 ± 29.976) is higher than that of private schools (62.90 ± 29.158). A further probe of the data using independent t-test showed that calculated t-value (-6.17) is greater than the critical t-value of (2.004) when tested at 0.05 level of significance with 58 degree of freedom.

This result implies that the mean difference of the two groups is statistically significant. This implies further that there is significant difference between private and public secondary school female students in Akwa Ibom State. Thus the null hypothesis was rejected. This therefore answered the research question one which seeks to know how female students in private and public secondary schools differ in cardiorespiratory endurance in Akwa Ibom State, Nigeria.

**Table 3.** Independent t-test analysis of the test for running-speed performance of female students in private and public secondary schools in Akwa Ibom State, Nigeria. N = 60

<table>
<thead>
<tr>
<th>Variable</th>
<th>School Type</th>
<th>Number of participants</th>
<th>Mean Score ((X))</th>
<th>Standard Deviation</th>
<th>Calc. (t) Value</th>
<th>Table Value</th>
<th>Decision</th>
</tr>
</thead>
<tbody>
<tr>
<td>Running Speed</td>
<td>Private</td>
<td>30</td>
<td>10.981</td>
<td>1.637</td>
<td>8.67*</td>
<td>2.004</td>
<td>Sig.</td>
</tr>
<tr>
<td></td>
<td>Public</td>
<td>30</td>
<td>7.902</td>
<td>1.051</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

P < 0.05 *Significant, df = 58.

Data in table 3 showed that the calculated t-value: 8.67 is greater than the critical t-value: 2.004 when tested at 0.05 level of significance with 58 degree of freedom. This indicated a significant difference between the two variables of running-speed and school type. Thus the null hypothesis was rejected.

From the analysis, one can deduce that private schools (10.981±1.637) have no better time than public schools (7.902 ±1.051). This is because in measuring running-speed lesser time is considered adequate. Though the mean score and standard deviation for private school is higher than public school.

This analysis showed that female students from public schools had faster running-speed and by implication they are more physically fit in running-speed than those from the private schools in Akwa Ibom State.

This result therefore has answered the second research question which seeks to know what extent does female students in public and private secondary schools differ with regards to Speed in Akwa-Ibom State, Nigeria.
Table 4. Independent t-test analysis of the test for flexibility performance of female students in private and public secondary schools in Akwa Ibom State, Nigeria. N = 60

<table>
<thead>
<tr>
<th>Variable</th>
<th>School Type</th>
<th>Number of participants</th>
<th>Mean Score (X)</th>
<th>Standard Deviation</th>
<th>Calc. t Value</th>
<th>Table Value</th>
<th>Decision</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flexibility.</td>
<td>Private</td>
<td>30</td>
<td>8.333</td>
<td>5.142</td>
<td>.559**</td>
<td>2.004</td>
<td>N.S.</td>
</tr>
<tr>
<td></td>
<td>Public</td>
<td>30</td>
<td>7.633</td>
<td>4.537</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

P > 0.05 ** Not Significant, df = 58.

The Data in Table 4 above showed that the calculated t-value .559 is less than the critical t-value: 2.004 when tested at 0.05 level of significance with 58 degree of freedom. The result was not significant; indicating no significant difference between the two variables. This implied that there was no significant difference in Flexibility of female students in private and public secondary schools in Akwa Ibom State. Thus the null hypothesis was upheld. The mean and standard deviation for private schools (8.333 ±5.142) indicated that they were better than public schools (7.633 ±4.537) though, this when further subjected statistically using a t-test to test for significant difference, yielded a non-significant difference. This therefore implies that female students in private schools do not significantly differ from those in public schools in flexibility in Akwa Ibom State. This result has therefore answered the last research question which seeks to know what extent does Flexibility of students in private and public secondary schools differ in Akwa-Ibom State, Nigeria.

4. CONCLUSION

Based on the results of the findings, it was concluded that:

There were significant differences between female students of private and public secondary schools in Akwa Ibom State in some of the physical fitness parameters such as cardiorespiratory endurance, and speed; whereas there was no significant difference between the female students of private and public secondary schools in Akwa Ibom State in flexibility. Moreover, female students in public schools performed better in the skill-related component of physical fitness which is Speed more than their private school peers. This could be one of the attributes that has been making them perform better and be dominating the medal table in sporting competitions in Akwa Ibom State such as the Akwa Ibom State Mobil/NNPC Track and Field Championship. Furthermore, the female students in public schools have better physical fitness status than those in the private schools in Akwa Ibom State, Nigeria. The researcher recommended that female Private school students should be involved in proper fitness programmes to help in improving their health thereby reducing the risk of having obesity related disorders. School Games-Masters and Mistresses could also utilize students’ fitness records to screen them for competitive sports performance. The schools should
organize fitness test programmes for female students on regular basis so as to be physically fit.

References


( Received 08 October 2015; accepted 26 October 2015 )