



BIOLOGICAL VARIABLES AND SPORTS PARTICIPATION AMONG SECONDARY SCHOOL STUDENTS IN OBUDU LOCAL GOVERNMENT AREA OF CROSS RIVER STATE, NIGERIA

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ABSTRACT

The purpose of this study was to examine biological variables and sports participation among secondary school students in Obudu Local Government Area of Cross River State, Nigeria. To achieve this purpose, two null hypotheses were formulated and tested at 0.05 level of significance. The literature review was reviewed according to the variables of the study. Survey research design was considered most appropriate for the study. Simple random sampling technique was adopted to select the seven public secondary while systematic random sampling technique was adopted to select the two hundred and fifty-nine (259) students (respondents) used for the study. A structured questionnaire was the instrument used for data collection. The instrument was duly validated by relevant authorities. To test the various hypotheses formulated for the study, Pearson product moment correlation statistical tool was used for data analysis. The result obtained revealed that there was no significant relationship between physical disability, body type and sports participation among secondary school students. Based on these findings it was recommended among other things that school administrators should continue to organize sporting activities for physically challenged students in order to incorporate them into school sports activities in the study area.

KEYWORDS: Biological variables, Sports Participation, Physical disability, Body type, Students

INTRODUCTION

Students' participation in sports has continued to enjoy support from school administrators and various stakeholders in Physical and Health Education. This is in recognition of the numerous benefits often associated with active sports participation.

In some schools, sporting activities are organized on a regular basis to encourage students to showcase their talents and develop them into functional skills. Odok, Dan & Bassey (2024) asserted that taking part in sports helps participants stay in shape, teaches them how to organize their time, boosts friendships, and builds relationships with their peers and adults.

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Through athletics, one gain skills that can best be acquired on a court, track, or field. Engaging in sports enables students to create friendships they otherwise might not have formed. Sports bring teens together from different schools, backgrounds, and communities. Many times, the friendships one creates on the field remain intact even when he is not taking part in sports.

Regular participation and involvement in physical activity (eg running) contributes to good health. Individuals who participate and involve in fitness have a lower risk of developing mental health conditions. Christian (2018) reported that for individuals from ages 5-17 years, it is recommended to participate in physical activity for at least 60 minutes a day. While other ages could be at least 35 minutes daily. Regular physical activity results to increased physical fitness, reduced body fat, enhanced bone and cardiovascular health, and reduced mental conditions such as depression and anxiety. Regular activity participation leads to improved cognitive functions and self-esteem. Children who are active through sport are usually more physically active in adulthood compared to individuals who do not participate in childhood sport. Physical activity also results to the individuals increase in interpersonal skills which can result to one's increase in self-esteem.

The understanding of these enormous benefits associated with sports participation has prompted government at the state and local government levels to provide playgrounds, facilities, equipment and other resources required to effectively participate in sports. The provision of some of these facilities and equipment was aimed at encouraging more students to participate in various sports of their choice. Whether this initiative has increased students' participation in sports or not is yet to be fully ascertained. The idea of making Physical Education a compulsory subject at the junior secondary school level is testament to the recognition of the relevance of physical activity in the overall development of an individual. Dan, Odok, Osaji and Akpong (2020) added that participation in sports and clubbing activities moved from social gathering and youth organized activities to adult organized programmes in the twentieth-first century and has

now gained ground in properly structured sports programmes which has given youths the opportunity to engage in beneficial, ascertaining, educative and mind-relaxing sports activities.

The state of one's physical ability has also been identified as a factor that could determine students' participation in sports. A student who is physically disabled and does not have support through wheelchairs, crutches, iron-shoes among others might not be able to participate in sports. There are certain sports that require physical ability to participate in them. As a result, students with physical disability will be exempted and incapacitated from taking part in several sporting activities that are usually designed for able-bodied athletes. Another biological factor responsible for sports participation among students is body type (morphology). The nature of a students' body can either encourage or discourage such a student from taking active part in sports. This might be responsible for students' low participation in sports in the study area.

Statement of hypotheses

- i. There is no significant relationship between physical disability and sports participation among secondary school students.
- ii. Body type does not significantly relationship with sports participation among secondary school students.

LITERATURE REVIEW

Physical disability and sports participation

The World Health Organization endorsed the concept that health and functional ability can be influenced through physical activity and sport as a daily component of everyday life for all individuals, including those with a disability. The adoption of the Convention on the Rights of Persons with Disabilities represented a fundamental step in ensuring the rights of people with a disability worldwide were recognized and put into practice. Adopted by the General Assembly in December 2006, the Convention was one of the fastest treaties ever negotiated at the United Nations. The convention is intended as a human rights instrument with an explicit, social development dimension. As a human rights treaty it has

obligations that are legally binding providing a legal framework to ensure people with a disability can access their fundamental human rights, one of which is the right to take part in cultural life, including participation in play, recreational, leisure and sporting activities, on an equal basis with others (Affiah, 2019).

Odok, Apie, Osaji, Ahueansebhor and Ogabor (2023) asserted that physical disability could also be a vital biological variable that determines students' participation in sports. Physical disability is often a very strong variable that discourages students from engaging in sporting activities. It has been observed that students have different physical disabilities and express it differently towards various activities. Having physical disability in sports is a big discouragement to students' participation in sports. Even those who participate in sports have different skills and abilities to perform various sports.

There is descriptive and comparative data on the participation rates and physical activity patterns of people with a disability but however, it shows that people with a disability by and large engage in less physical activity than their able-bodied peers. Global estimates suggest that more than 60% of adults worldwide do not engage in levels of physical activity that will benefit their health and that physical inactivity is reported as being even more prevalent among both women and people with a disability. The results of a survey carried out by the National Disability Authority show that people with a disability in Ireland are less likely to be physically active with twice as many taking no regular exercise in comparison to their able-bodied peers. Sport England, the national sports development agency, in two separate surveys on participation in children and adults with a disability show sports participation rates and frequency of participation are significantly lower than their able-bodied counterparts and this remains true for a wide range of disabilities (Bukola, 2020).

The benefits of physical activity are universal for all children, including those with disabilities. The participation of children with disabilities in sports and recreational activities promotes inclusion, minimizes deconditioning, optimizes physical

functioning, and enhances overall well-being. Despite these benefits, children with disabilities are more restricted in their participation, have lower levels of fitness, and have higher levels of obesity than their peers without disabilities. Pediatricians and parents may overestimate the risks or overlook the benefits of physical activity in children with disabilities. Well-informed decisions regarding each child's participation must consider overall health status, individual activity preferences, safety precautions, and availability of appropriate programs and equipment. Health supervision visits afford pediatricians, children with disabilities, and parent's opportunities to collaboratively generate goal-directed activity "prescriptions". Child, family, financial, and societal barriers to participation need to be directly identified and addressed in the context of local, state, and federal laws. The goal is inclusion for all children with disabilities in appropriate activities (Harry, 2018).

The current epidemic of obesity associated with inactivity is a global health care concern for all children, including those with disabilities. Children with disabilities are more likely than other children to be sedentary, placing them at higher risk of obesity and associated health conditions. In fact, children with certain developmental disorders have higher prevalence of being at risk of overweight and being overweight than do children without developmental disorders. Physical consequences of inactivity for persons with disabilities include reduced cardiovascular fitness, osteoporosis, and impaired circulation. In addition, the psychosocial implications of inactivity include decreased self-esteem, decreased social acceptance, and ultimately, greater dependence on others for daily living. Overall, the participation of children with disabilities in sports and physical activities can decrease complications of immobility (Raymond, 2018). In a study conducted by Stephens, Neil and Smith (2016) among permanent wheelchair users, the following barriers to sport participation were identified; medical barriers, emotional barriers, a lack of information and stereotype views held by others. These barriers constitute severe hindrances to the level of sports participation among individuals with disability.

Persons with disabilities often face societal barriers and disability evokes negative perceptions and discrimination in many societies. As a result of the stigma associated with disability, persons with disabilities are generally excluded from education, employment and community life which deprives them of opportunities essential to their social development, health and well-being. In some societies persons with disabilities are considered dependent and seen as incapable, thus fostering inactivity which often causes individuals with physical disabilities to experience restricted mobility beyond the cause of their disability (Edem, 2019). Sport can help reduce the stigma and discrimination associated with disability because it can transform community attitudes about persons with disabilities by highlighting their skills and reducing the tendency to see the disability instead of the person. Through sport, persons without disabilities interact with persons with disabilities in a positive context forcing them to reshape assumptions about what persons with disabilities can and cannot do (Odok, Osaji, Dan, Odey & Iso, 2024).

Body type (morphology) and sports participation

Male and females differ in respect of their body composition. Female have a lower absolute lean weight while a higher absolute fat weight in comparison to boys. Male have high levels of androgen hormones because of which they have more lean body weight. In the same way, females have high levels of estrogen hormones, because of which they have height, fat and weight. Higher amount of essential fats are found in the mature females. There are untruths and imprint distinction in the body manufacture of experienced males and females. At the point when individuals of both genders achieve development, females are observed to be less in height than males. They have less body weight in examination to males furthermore have incline body weight than males. These sorts of contrasts are for the most part found when individuals get to be developed. For the most part it is seen that amid pre-adult period, a female have if not all the more but rather square with weight and stature in correlation to man,

which comes about as a result of the early development of the females (Abel, 2017).

After accomplishment of development, different sorts of changes happen in males and also in females. Presently male's shoulders get to be more extensive and their hips get to be tight. Their mid-section additionally gets to be more extensive. This sort of changes additionally happens in females. In correlation to male, female's body bones stay less wide. At the belly, hips and thigh, both the genders have square with bigness in estimation. Body Build Generally it is seen that during adolescent period, a female have if not more but equal weight and height in comparison to male, which results because of the early maturation of the females. After attainment of maturity, various kinds of changes take place in males as well females. Now male's shoulders become broader and their hips become narrow. Their chest also becomes broader. This kind of changes also takes place in females. In comparison to male, female's body bones remain less wide. At the abdomen, hips and thigh, both the sexes have equal girth in measurement (Shamma, 2020).

Females who take an interest in games regularly encounter deferred menarche and this could have both positive and negative outcomes (Greydanus, 2016). Menarche prompts an expansion in coursing elevated amounts of estrogen in a female body. Estrogen is an essential hormonal trigger for expanding bone thickness in youth and keeping up bone thickness in the full grown female. There is inadequate proof analyzing the relationship between deferred menarche in athletic females and bone thickness. Deferred menarche can have beneficial outcomes in that the early onset of menarche has been connected with expanded danger of bosom tumor. Early studies argued that females should not be involved in sport, due to the deleterious effects of physical exertion on the frequency of menstruation and the fact that the reproductive organs of female can be affected. These beliefs prevailed for years and later evidence began to prove these early beliefs wrong. Recounted proof demonstrates that pregnancy does not hamper execution of ladies who take an interest in game for the duration of their lives (Harry, 2018).

Female players can make use of less phosphagen during exercise because they have smaller total skeletal muscles in comparison to male (Kirkendall & Garrett, 2018). Between male and females, functional capacities of Adenosine Triphosphate and Phosphate Creatine (ATP-PC) can be compared with the help of performance ratios. It is found from the studies that female sprinters perform well in 100 meter and 200 meter races in comparison to male sprinters. Thus, this proves that there does not exist much difference in the manners of concentration of ATP and PC in males and females. Because female have small total muscle mass, because of which their lies total stores of ATP and PC in them. Aerobic System there lies a shortage of maximal aerobic power in the females which can range from 15 to 25 percent. This maximal aerobic power is generally termed as VO_2 Max. With increase in age, differences in the amount of aerobic power affect the performance of players. This happens because of the fact that there exists very minimal difference in males and females when expressed in relation to body weight (Martin, 2019). Barry (2017) conducted a study on biological variables and sports participation among athletes in Oyo State, Nigeria. The finding of the study showed that various biological variables have potential effects on the performance of female athletes. After examining the literature review, the data revealed that there exists a considerable difference between male and females whether it is body composition, body shape and body building. These changes influence sports participation of female players. Body composition creates hindrance in the way of sports participation among female elite players. The author further found in his study that size of the body affects sports activities like jumping, smashing in volleyball and shooting in basketball. Similarly, Kumar (2017) stated that size of the body of player affects his/her performance in certain specific activities, like various kinds of jumps. He further stated that females have wider pelvis and because of this females are required to shift their pelvis more in order to keep the center of gravity over weight bearing foot.

METHODOLOGY

Survey research design was adopted for this study. This research design deals with the present and is oriented towards the determination of status of a given phenomenon. The population of the study consisted of all Senior Secondary School two (SS 2) students in public secondary schools in Obudu Local Government Area of Cross River State, giving a total of 2,398 in the six public secondary schools. The sample for this study comprised of 259 respondents randomly selected from seven (7) public secondary schools in the study area.

Instrumentation

The instrument used for data collection in the study was a questionnaire titled Biological variables and Sports Participation Questionnaire (BFSPQ) and it was divided into two sections. Section A contained personal data of respondents. Section B was developed using modified four point Likert scale of Strongly Agree (SA), Agree (A), Disagree (D) and Strongly Disagree (SD). It contained twenty items measuring the variables of the study. Items 1-5 measured physical disability. Items 6-10 measured body type (morphology) while items 11-20 measured the dependent variable; sports participation.

Validity and reliability of the instrument

Validity of the instrument was ascertained by two experts. One from the Department of Human Kinetics and Health Education while the other one from measurement and evaluation. Both from the University of Calabar, Nigeria. The items were found to be valid, especially as the items comprehensively reflected the variables in the hypotheses.

To establish the reliability of the instrument, a trial test was carried out using fifty (50) students who were not involved in the actual study. The data generated were analyzed to establish its internal consistency using the Cronbach Alpha Coefficient Method. The result shows that the reliability estimates of the sub-scales ranges from 0.65 to 0.91. This was considered high enough to justify the instrument for use.

Result

Hypothesis one

There is no significant relationship between physical disability and sports participation among

secondary school students. The independent variable in this hypothesis is physical disability while sports participation among secondary schools is the dependent variable. Pearson product moment correlation statistical tool was utilized for data analysis. The result obtained is presented in table 1.

TABLE 1: Pearson product moment correlation analysis of the relationship between physical disability and sports participation among secondary school students in Obudu Local Government Area of Cross River State (N = 254)

Variables	$\sum x$	$\sum x^2$	$\sum xy$	Cal.r	P.value
Physical disability	3137	4638			
Sports participation among students	6778	7914	8462	0.121	0.013

Not significant at 0.05; df = 252

The result of data analysis presented in table 1 shows that the calculated r-value of 0.121 is less than the p.value of 0.013 at 0.05 level of significance with 252 degree of freedom. This indicated that the null hypothesis is retained. Therefore, there is no significant relationship between physical disability and sports participation among secondary school students in Obudu Local Government Area of Cross River State.

Hypothesis two

Body type does not significantly relate to sports participation among secondary school students. The independent variable in this hypothesis is body type while the dependent variable is sports participation among secondary school students. Pearson product moment correlation statistical tool was employed for data analysis. The result obtained is presented in table 2.

TABLE 2: Pearson product moment correlation analysis of the relationship between body type and sports participation among secondary school students in Obudu Local Government Area of Cross River State (N = 254)

Variables	$\sum x$	$\sum x^2$	$\sum xy$	Cal.r	P.value
Body type	3117	4517			
Sports participation among students	6778	7914	8394	0.118	0.011

Not significant at 0.05; df = 252

The result of data analysis presented in table 2 shows that the calculated r-value of 0.118 is less than the p-value of 0.011 at 0.05 level of significance with 252 degree of freedom. This indicated that the null hypothesis is retained. Therefore, there is no significant relationship between body type and sports participation among secondary school students in Obudu Local Government Area of Cross River State.

DISCUSSION OF FINDINGS

The finding obtained from analysis of data and testing of the first hypothesis in the study revealed that there was no significant relationship between physical disability and sports participation among secondary school students in Obudu Local Government Area of Cross River State. The reason for this finding could be that the level of physical disability among secondary school in the study is very minimal. This showed that physical disability is a not a factor that determines sports participation among students in the study area. This finding disagrees with that of Harry (2018) who reported that the benefits of physical activity are universal for all children, including those with disabilities. The participation of children with disabilities in sports and recreational activities promotes inclusion, minimizes deconditioning, optimizes physical functioning, and enhances overall well-being. Despite these benefits, children with disabilities are more restricted in their participation, have lower levels of fitness, and have higher levels of obesity than their peers without disabilities. Pediatricians and parents may overestimate the risks or overlook the benefits of physical activity in children with disabilities. Well-informed decisions regarding each child's participation must consider overall health status, individual activity preferences, safety precautions, and availability of appropriate programs and equipment.

Health supervision visits afford pediatricians, children with disabilities, and parents' opportunities to collaboratively generate goal-directed activity "prescriptions." Child, family, financial, and societal barriers to participation need to be directly identified and addressed in the context of local, state, and federal laws. The goal is inclusion for all children with disabilities in appropriate activities.

The finding obtained from analysis of data and testing of the second hypothesis in the study revealed that there was no significant relationship between body type and sports participation among secondary school students in Obudu Local Government Area of Cross River State. The reason for this finding could be that the body type of students in the study area did not pose a challenge or barrier to their participation in sports. The nature of students' body allowed them to engage in sports except for other reasons outside the nature or type of their body physiology. As a result, there was no significant relationship between body type and sports participation among secondary school students in the study area.

The finding of this study is in agreement with that of Harry (2018) who reported that females who take an interest in games regularly encounter deferred menarche and this could have both positive and negative outcomes. Deferred menarche can have beneficial outcomes in that the early onset of menarche has been connected with expanded danger of bosom tumor. Early studies argued that females should not be involved in sport, due to the deleterious effects of physical exertion on the frequency of menstruation and the fact that the reproductive organs of female can be affected. These beliefs prevailed for years and later evidence began to prove these early beliefs wrong. Recounted proof demonstrates that pregnancy does not hamper execution of ladies who take an interest in game for the duration of their lives.

CONCLUSION

The essence of this study was to investigate and present findings on biological variables and sports participation among secondary school students in Obudu Local Government Area of Cross River State, Nigeria. The findings revealed that there was no significant relationship between physical disability, body type and sports participation among secondary school students.

RECOMMENDATIONS

Based on the finding obtained from analysis of data and testing of hypothesis in the study, the following recommendations are made:

- i. School administrators should continue to organize sporting activities for physically challenged students in order to also incorporate them into school sports activities in the study area.
- ii. Younger students should be encouraged to develop more positive interest in sports, irrespective of their body morphology within their abilities in order to promote active sports participation in schools.

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