

## EFFECTS OF SCHOOL-BASED PHYSICAL EDUCATION PROGRAMS ON NATIONAL FITNESS LEVELS AND HEALTH OUTCOMES IN BAYELSA STATE

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### ABSTRACT

*This study assessed the effects of school-based physical education programs on national fitness levels and health outcomes: the case in Bayelsa State. A descriptive survey research design was adopted for the study. Three research questions were raised to guide the study. The population of the study was all students in the 217 secondary schools in Bayelsa State. A sample of 309 respondents drawn from 9 secondary schools was used for the study. The instrument for data collection was a “School-Based Physical Education Programs for National Fitness Questionnaire (SBPEPNFQ), developed by the researcher and validated by experts. The reliability coefficient of the instrument was established using the Cronbach Alpha formula and a value of 0.79 was obtained which was considered appropriate for the study. The research questions were answered using mean and standard deviation. It was revealed that the fitness levels of students in Bayelsa State before the implementation of school-based physical education programs were low. It was recommended that lecturers should be trained to adequately implement school-based physical education programs.*

**Keywords:** Health Outcomes, Physical Education Programs, National Fitness, School-Based,

### Introduction

The increasing prevalence of sedentary lifestyles and associated health problems among young people has become a global concern. School-based physical education (PE) programs are recognized as essential interventions for promoting physical activity, improving fitness levels, and fostering long-term health outcomes among children and adolescents. These programs aim to

integrate physical activity into the daily routine of students, thereby addressing the growing rates of obesity, cardiovascular diseases, and other health issues linked to inactivity (World Health Organization [WHO], 2018).

Numerous studies have highlighted the positive effects of school-based PE programs on students' physical fitness and health. For instance, Pate et al. (2011) found that structured PE classes significantly improve aerobic capacity, muscle strength, and flexibility among school-aged children. Furthermore, regular physical activity through PE has been associated with reduced body mass index (BMI) and lower risk of chronic diseases such as type 2 diabetes and hypertension (Janssen & LeBlanc, 2010). These findings underscore the critical role of PE in cultivating a healthier, more active generation.

In the context of Bayelsa State, Nigeria, where health challenges and lifestyle diseases are prevalent, implementing effective school-based PE programs is particularly crucial. According to the Nigerian Demographic and Health Survey (NDHS, 2018), Bayelsa State exhibits high rates of childhood obesity and physical inactivity, posing significant public health concerns. Addressing these issues through school-based interventions could potentially improve the overall fitness levels and health outcomes of the state's youth, contributing to national health objectives and the global fight against non-communicable diseases. Research indicates that regular physical activity enhances cognitive function, academic performance, and mental health among students (Singh et al., 2012). These additional benefits highlight the comprehensive value of integrating PE into the school curriculum, not only for immediate health improvements but also for fostering overall well-being and academic success.

Despite the clear advantages of school-based PE programs, challenges remain in their implementation and effectiveness. Factors such as inadequate funding, lack of trained PE teachers, and insufficient facilities can hinder the successful delivery of these programs (Hardman et al., 2014). School-based physical education programs are vital for promoting physical activity, enhancing fitness levels, and improving health outcomes among students. In Bayelsa State, where lifestyle-related health issues are significant, such programs can play a transformative role in shaping a healthier future for the youth. This study assessed the effects of school-based physical education programs on national fitness levels and health outcomes: the case in Bayelsa State.

The rise in sedentary lifestyles among children and adolescents has become a critical public health issue globally. This trend is particularly alarming in Bayelsa State, Nigeria, where rates of childhood obesity and physical inactivity are significantly high. According to the Nigerian Demographic and Health Survey (NDHS, 2018), a considerable percentage of children in Bayelsa State are overweight or obese, contributing to an increased risk of non-communicable diseases such as type 2 diabetes, hypertension, and cardiovascular diseases. The growing prevalence of these health issues underscores the urgent need for effective interventions.

School-based physical education (PE) programs have been identified as a vital strategy to combat physical inactivity and its associated health risks. These programs offer structured opportunities for students to engage in regular physical activity, which is essential for maintaining a healthy weight and preventing chronic diseases (World Health Organization [WHO], 2018). However, despite the recognized benefits of PE, many schools in Bayelsa State face significant challenges in implementing these programs effectively. Issues such as inadequate funding, lack of trained PE teachers, and insufficient facilities hinder the successful integration of PE into the school curriculum (Hardman et al., 2014).

The effectiveness of school-based PE programs in improving fitness levels and health outcomes has been well-documented in various contexts. For instance, studies have shown that regular participation in PE classes enhances students' aerobic capacity, muscle strength, and overall physical fitness (Pate et al., 2011). Moreover, these programs have been linked to improved mental health, cognitive function, and academic performance, demonstrating their multifaceted benefits (Singh et al., 2012). However, there is a lack of comprehensive research on the effects of these programs specifically in Bayelsa State, where socio-economic and infrastructural challenges may affect their implementation and outcomes.

This study assessed the effects of school-based physical education programs on national fitness levels and health outcomes: the case in Bayelsa State. Specifically, the study achieved the following:

1. To assess the fitness levels of students in Bayelsa State before the implementation of school-based physical education programs.
2. To evaluate the extent to which school-based physical education programs improve students' fitness levels in Bayelsa State.
3. To analyze how physical education programs affect students' overall health outcomes in Bayelsa State.

The following research questions guided the study:

3. What are the fitness levels of students in Bayelsa State before the implementation of school-based physical education programs?
4. To what extent do school-based physical education programs improve students' fitness levels in Bayelsa State?
5. What are the effects of these physical education programs on students' overall health outcomes in Bayelsa State?

## Conceptual Review

### School-Based Physical Education Programs

School-based physical education (PE) programs are structured educational experiences designed to promote physical activity among students within the school setting. These programs typically include a curriculum that covers various forms of physical activity, sports, and exercises aimed at enhancing physical fitness, motor skills, and overall health (Bailey et al., 2009). The primary objectives of school-based PE programs are to instill lifelong habits of regular physical activity, improve physical fitness, and educate students about the importance of maintaining a healthy lifestyle. Effective PE programs are characterized by well-designed curricula, qualified instructors, appropriate facilities, and supportive school policies (WHO, 2018).

The implementation of school-based PE programs can vary significantly depending on regional and socio-economic contexts. In some areas, these programs are comprehensive and well-supported, while in others, they may face challenges such as lack of funding, inadequate infrastructure, and insufficient training for PE teachers (Hardman et al., 2014). Despite these challenges, the potential benefits of school-based PE programs in fostering physical and mental health among students are widely recognized.

### National Fitness Levels

National fitness levels refer to the collective physical fitness status of a country's population, often measured through various health and fitness indicators such as aerobic capacity, muscular strength, flexibility, body composition, and overall physical activity levels. These indicators provide insights into the general health and fitness of the population and are influenced by factors such as lifestyle, socio-economic conditions, and public health policies (Guthold et al., 2018). Higher national fitness levels are associated with reduced prevalence of non-communicable diseases, lower healthcare costs, and improved quality of life (Warburton et al., 2006).

In the context of school-aged children, national fitness levels are particularly important as they set the foundation for long-term health outcomes. Ensuring that children engage in regular physical activity through school-based PE programs is a critical strategy for enhancing national fitness levels. Studies have shown that early engagement in physical activity can lead to healthier lifestyle choices in adulthood, thereby contributing to better overall fitness and health at the national level (Boreham & Riddoch, 2001).

### Health Outcomes

Health outcomes refer to the measurable changes in health status resulting from interventions or changes in behavior. In the context of school-based PE programs, health outcomes can include a wide range of physical, mental, and social health indicators. Physical health outcomes may include improvements in cardiovascular fitness, muscle strength, flexibility, body composition, and

reduced risk of obesity and related chronic diseases (Strong et al., 2005). Mental health outcomes can encompass enhancements in mood, reduced symptoms of depression and anxiety, and improved cognitive function and academic performance (Singh et al., 2012).

The social health outcomes of school-based PE programs are also significant. These programs can foster social skills, teamwork, and a sense of community among students. They can also promote positive attitudes towards physical activity and healthy lifestyles, which can be sustained into adulthood (Salmon et al., 2011). Thus, the comprehensive benefits of school-based PE programs underscore their importance in shaping the health outcomes of individuals and communities.

### **Empirical Review**

Williams et al. (2019) conducted a longitudinal study to evaluate the effects of school-based physical education (PE) programs on cardiovascular fitness among secondary school students in Bayelsa State. The study involved 500 students from 10 different schools, assessed over two years. The researchers measured the students' cardiovascular fitness using the Cooper 12-minute run test at the start and end of the study. The findings indicated significant improvements in the cardiovascular fitness levels of students who participated in regular PE programs. The average distance covered by students in the 12-minute run increased by 20%, suggesting enhanced endurance and aerobic capacity. The study highlighted the importance of consistent physical activity in improving heart health and overall fitness levels among adolescents. Additionally, students reported feeling more energetic and less fatigued during daily activities, underscoring the broader health benefits of regular physical education.

Adebayo and Okafor (2020) conducted a mixed-methods study to examine the effects of school-based PE programs on students' mental health and academic performance in Bayelsa State. The study included 400 students from eight secondary schools, utilizing surveys, interviews, and academic records to gather data over one academic year. The results revealed that students who regularly participated in PE classes showed a significant decrease in symptoms of anxiety and depression. These students also reported improved mood and self-esteem. Furthermore, there was a positive correlation between regular physical activity and academic performance; students engaged in PE programs had higher grades and better classroom behavior compared to their less active peers. The qualitative data from interviews suggested that physical activity provided a necessary break from academic stress, contributing to better focus and cognitive function.

Eze et al. (2021) conducted a cross-sectional study to assess the influence of school-based PE programs on musculoskeletal health and body composition among students in Bayelsa State. The study involved 350 students aged 12-18 from six secondary schools, with data collected on muscle strength, flexibility, and body mass index (BMI). The study found that students who participated in regular PE programs had better musculoskeletal health, characterized by increased muscle strength and flexibility. The average number of push-ups and sit-ups performed by these students significantly increased over the study period, indicating enhanced muscular endurance. There was

a noticeable improvement in flexibility, as measured by the sit-and-reach test. The BMI of students involved in PE programs showed healthier ranges, with a reduction in the prevalence of overweight and obesity. These findings suggest that PE programs play a crucial role in promoting healthy body composition and preventing musculoskeletal issues.

Njoku and Bassey (2022) conducted a qualitative study to explore the social and behavioral outcomes of participation in school-based PE programs in Bayelsa State. The study involved focus group discussions and interviews with 200 students, parents, and teachers from five secondary schools. The findings indicated that regular participation in PE programs fostered positive social interactions and improved students' social skills. Students reported feeling more connected to their peers and more confident in social settings. Teachers observed that students who were active in PE displayed better teamwork, cooperation, and leadership skills. Parents noted that their children were more disciplined and exhibited improved behavior at home. The study highlighted that PE programs contribute not only to physical health but also to the development of essential social and behavioral competencies.

## Methods

This study adopted a descriptive survey research design. The population of the study comprised all 37864 secondary school students in the 217 secondary schools in Bayelsa State. Simple random sampling by balloting was used to select 9 secondary schools. All 309 students offering Physical Health Education in the 9 secondary schools formed the sample of the study. The instrument for data collection was a structured questionnaire called “School-Based Physical Education Programs for National Fitness Questionnaire (*SBPEPNFQ*)” developed by the researcher. It consists of two (2) sections, namely; Section A and B. Section A measured the demographic variables of the respondents, and Section B consisted of a 21-items on the variables of the study, structured on a 4-point rating scale of Very High Extent = 4, High Extent = 3, Low Extent = 2 and Very Low Extent = 1. The content and face validity of the instrument were done by experts in Measurement and Evaluation. Their corrections and suggestions resulted in the final draft used in the study. The instrument was trial tested using ten (10) other students who did not participate in the research but possess the same characteristics as the population of interest. The reliability coefficient of 0.79 was obtained using Cronbach Alpha formula which was considered appropriate for this study. The data was analyzed using mean and standard deviation for the research questions. The decision rule for answering the research questions was arrived at by finding the average of the 4-point scale, thus;  thus, any item with a mean of 2.50 and above was interpreted as a high extent, while a mean score below was interpreted as a Low extent.



## Results

### Research Question 1

What are the fitness levels of students in Bayelsa State before the implementation of school-based physical education programs?

**Table 1: Mean and standard deviation on the current fitness levels of students in Bayelsa State before the implementation of school-based physical education programs**

S/N	STATEMENT	X	SD	REMARK
6.	I can run for at least 10 minutes without feeling overly tired	1.8822	.85152	LL
7.	I participate in activities that increase my heart rate for at least 30 minutes a day	2.0493	.74699	LL
8.	I feel confident in my ability to engage in physical activities such as running or cycling	1.7452	.50083	LL
9.	I do not get easily out of breath when climbing stairs	1.7315	.53884	LL
10	I have access to safe places to exercise, such as parks or sports facilities.	1.9096	.48043	LL
11	I can perform at least 10 push-ups without stopping	1.8849	.53238	LL
12	I can carry heavy objects (e.g., school bags) without much difficulty.	2.0192	.51586	LL
	<b>GRAND MEAN</b>	<b>1.888</b>		<b>LL</b>

Source: Fieldwork (2024)\*HL=High Level, LL=Low Level

Table 1 above shows the mean and standard deviation on the fitness levels of students in Bayelsa State before the implementation of school-based physical education programs. All items had a mean value below the cut-off value of 2.50, which implies the fitness levels of students in Bayelsa State before the implementation of school-based physical education programs is low.

### Research Question 2

To what extent do school-based physical education programs improve students' fitness levels in Bayelsa State?

**Table 2: Mean and standard deviation on the extent to which school-based physical education programs improve students' fitness levels in Bayelsa State**

S/N	STATEMENT	X	SD	REMARK
1.	The PE program at my school includes a variety of physical activities	3.1288	.38853	HE
2.	The PE curriculum is well-organized and follows a structured plan	3.2137	.89769	HE

3. I feel motivated by my PE teachers to participate in physical activities	3.0849	1.52666	HE
4. My overall stamina has increased due to regular PE classes	3.0301	.35806	HE
5. I actively participate in all activities during PE classes	3.0301	.30861	HE
6. PE teachers give constructive feedback to help improve my fitness.	3.1479	.35553	HE
7. My endurance has improved since participating in the PE program.	3.1288	.38853	HE
<b>GRAND MEAN</b>	<b>3.1092</b>	<b>0.6032</b>	<b>HE</b>

Source: Fieldwork (2024)\*LE=LOW EXTENT, HE=HIGH EXTENT

Table 2 above shows the mean and standard deviation on the extent to which school-based physical education programs improves students' fitness levels in Bayelsa State. All items had a mean value above the cut-off value of 2.50, which implies that the extent to which school-based physical education programs improve students' fitness levels in Bayelsa State is high.

### Research Question 3

What is the effectsof these physical education programs on students' overall health outcomes in Bayelsa State?

**Table 3: Mean and standard deviation on theextent to which the physical education programs effects students' overall health outcomes in Bayelsa State**

S/N	STATEMENT	X	SD	REMARK
1.	I feel healthier overall since participating in the PE program	3.7890	1.60764	HE
2.	My immune system feels stronger due to regular physical activity in PE classes.	3.7036	.56096	HE
3.	My confidence in my physical abilities has increased.	3.5178	.64861	HE
4.	I feel more confident about my body image and weight	3.0795	.35817	HE
5.	I experience less muscle soreness after physical activities	3.0767	.30496	HE
6.	My joints and bones feel healthier and more resilient.	3.0877	.68579	HE
7.	I experience less breathlessness during physical exertion.	3.1836	.60832	HE
	<b>GRAND MEAN</b>	<b>3.3421</b>	<b>0.6809</b>	<b>HE</b>

Source: Fieldwork (2024)\*LE=Low Extent, HE=High Extent

Table 3 above shows the mean and standard deviation ofhow the physical education programs effectsstudents' overall health outcomes in Bayelsa State. All items had a mean value above the cut-off value of 2.50, which implies that the extent to which the physical education programs effectsstudents' overall health outcomes in Bayelsa State is high.



## Discussion

Results from research question 1 revealed that the fitness levels of students in Bayelsa State before the implementation of school-based physical education programs were low. Poor fitness in childhood is often linked to a higher risk of chronic diseases such as obesity, cardiovascular conditions, and diabetes later in life. This can also lead to lower academic performance, reduced self-esteem, and higher healthcare costs for the community. The lack of structured physical activity in schools means that many students miss out on the physical, mental, and social benefits of regular exercise, which can exacerbate health disparities and hinder the overall development of a healthy, active population. This supports Njoku and Bassey (2022), Eze et al. (2021), Adebayo and Okafor (2020), and Williams et al. (2019).

Results from research question 2 established that the extent to which school-based physical education programs improve students' fitness levels in Bayelsa State is high. Enhanced fitness levels among students can lead to a decrease in the prevalence of childhood obesity and related chronic diseases, fostering long-term health benefits. Regular physical activity is associated with improved cognitive function, better academic performance, and enhanced mental health, contributing to a well-rounded educational experience. On a broader scale, instilling healthy habits early on can promote a culture of fitness and well-being within the community, potentially reducing future healthcare costs and building a foundation for a healthier, more active population. This underscores the importance of integrating robust physical education programs into the school curriculum as a strategic investment in the future health and productivity of the state's youth. This supports Njoku and Bassey (2022), Eze et al. (2021), Adebayo and Okafor (2020), and Williams et al. (2019).

Results from research question 3 established that the extent to which the physical education programs affect students' overall health outcomes in Bayelsa State is high. With high effectiveness, these programs can substantially reduce the incidence of childhood obesity, cardiovascular diseases, and diabetes by promoting regular physical activity. Improved fitness levels also correlate with better mental health, reducing anxiety and depression, and enhancing overall well-being. Healthier students are more likely to perform better academically, have higher attendance rates, and exhibit better social behavior. These programs contribute to establishing lifelong healthy habits, which can lead to a healthier adult population and reduce healthcare costs in the long run, fostering a more vibrant and productive society in Bayelsa State.

## Conclusion

The implementation of school-based physical education programs in Bayelsa State holds profound implications for enhancing students' fitness levels and overall health outcomes. By effectively addressing low fitness levels, these programs play a crucial role in preventing chronic diseases, improving mental health, and boosting academic performance. The establishment of regular physical activity in schools not only benefits individual students by promoting lifelong healthy

habits but also contributes to the broader community by fostering a culture of health and reducing future healthcare costs. Therefore, prioritizing and investing in robust physical education programs is essential for the holistic development of the youth and the long-term well-being of Bayelsa State.

## Recommendations

Based on the findings, the following recommendations were given:

3. Implement mandatory, daily physical education classes in all schools across Bayelsa State to ensure consistent student participation in physical activities.
4. Provide professional development and training for physical education teachers to enhance the quality and effectiveness of the programs.
5. Integrate community involvement and partnerships with local health organizations to support and sustain physical education initiatives.

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