

**INFLUENCE OF NUTRITION AND EXERCISE ON THE WELL-BEING OF
SECONDARY SCHOOL STUDENTS IN AKINYELE LOCAL
GOVERNMENT AREA OF OYO STATE.**

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Abstract

The purpose of the study was to investigate the influence of nutrition and exercise on the well-being of secondary school students in Akinyele Local Government Area of Oyo State, Nigeria. Three hypotheses were formulated and the survey design of descriptive research was used for the study. A sample size of two hundred and fifty (250) respondents was used from ten public secondary schools in Akinyele local government in which each school fielded twenty-five respondents. A structured questionnaire titled Nutrition and Exercise on the Well-Being of Secondary School Students in Akinyele (NEWBSSSA) was used as research instrument. The hypotheses were tested using linear regression (r^2) at 0.05 level of significance. The findings revealed that there is significant influence of nutrition on well-being, nutrition on emotional well-being and exercise on the mental well-being of secondary school students ($r = 0.936, 0.927$ and 0.955 respectively) These factors explained a standardized Beta of 0.441 for the independent variable symbolizes a positive and relatively strong predictor. It was concluded that nutrition and exercise are undeniably vital to the well-being of students and it also influences not only physical

health but also cognitive function, emotional stability, and social interactions, all of which are crucial for success in an academic environment. The researchers recommended that parents should model positive eating behaviours, that is, parents should serve as role models to their children by making healthy food choices themselves. Children are more likely to adopt healthy eating habits if they observe their parents making these choices.

Keywords: *nutrition, exercise, well-being, secondary school*

Introduction

Mental health includes our emotion, psychological and social well-being. It affects how we think, feel, and behave. It also helps determine how we handle stress, relate to others and make choices. Mental health is important at every stage of life, from childhood and adolescence through adulthood (Jaiyeoba, 2018). For education stakeholders, this highlights the necessity of promoting healthy eating and physical activity in schools to foster an environment conducive to learning and development. Nutrition is a critical factor in childhood development. Children of school age are actively undergoing a growing phase which involves both physical and mental development (Immordino-Yang et al, 2019). Nutrition is a critical component of health and well-being, especially for students who are in a formative stage of physical, cognitive, and emotional development (Centres for Disease Control and Prevention, 2022).

The relationship between nutrition and student well-being encompasses academic performance, emotional health, and social interactions. As societal awareness of healthy lifestyles increases, education systems are increasingly focusing on the nutritional needs of students, recognizing that proper nutrition is essential for effective learning and development. According to Black et al (2020), good nutrition during childhood stage of life does not only promote optimal health and wellbeing but also contributes to adequate mental and cognitive development. Research has shown that nutrition has been historically overlooked as a contributing factor in poor mental health and well-being (Kris-Etherton et al, 2021). Nevertheless, scholars have begun to study the subtle relationship existing between nutrition and well-being because not only does the entire body need adequate nutrition for healthy growth and development, but even the central nervous system need some important nutrients to function properly (Huang, Y., Hu, L., Zhang, Y., and Hu, Y.,2015). Numerous studies have established a direct link between nutrition and academic performance. According to the Centres for Disease Control and Prevention (CDC), a balanced diet rich in essential nutrients positively influences cognitive function, concentration, memory, and classroom behaviour (CDC, 2022).

Nutrients like omega-3 fatty acids, found in fish, and antioxidants, found in fruits and vegetables, are pivotal for brain health which helps to promote well-being of an individual. A study by Guelinckx, (2010) highlighted that student who consumed diets rich in fruits, vegetables, whole grains, and healthy fats exhibited better cognitive performance than those with high-intake refined carbohydrates and sugary foods. Breakfast consumption is particularly important.

It has been reported that children who eat healthy diets with vegetables, fruits and other nutritious foods have more sound mental health and better wellbeing than those who are exposed to other processed and unhealthy foods (Nekitsing et al, 2018). In children, unhealthy dietary patterns high in saturated fat, refined carbohydrates, and processed foods are associated with worse mental health outcomes (Orlando et al, 2022). The consumption of certain key nutrients during childhood is essential for proper brain development and functioning, with deficiencies in these nutrients linked to mental health problems (Muscaritoli, 2021).

In the view of Anderson et al, (2018), breakfast and lunch, as well as the quality of the child's diet, can have a significant effect on the child's mental wellbeing and academic performance. It has been found that poorer mental health is associated with skipping breakfast and consuming energy drinks (Pengpid and Peltzer, 2020; Smiths and Richards, 2018). In extension, research in prenatal health indicates that there has been an association between a mother's diet during pregnancy and the child's diet in early childhood (up to age 7) and the child's personality traits and symptoms of depression and anxiety later in childhood (Pina-Camacho et al, 2015; Liu et al, 2017). According to Bella-Awusah and Omigbodun (2020), indicates that about 10-20% of children in Nigeria have a mental health condition. It is imperative to note that there is a strong link between nutrition and children's mental health and wellbeing

Exercise is a critical component of a healthy lifestyle and has significant implications for the well-being of students (Nieman, 2013). Physical activity is linked to an array of physical, mental, and emotional health benefits, which are especially crucial during the formative years of adolescence and early adulthood. Exercise contributes to maintaining healthy body weight and improving physical fitness. According to the World Health Organization (WHO), physical inactivity is one of the leading risk factors for global mortality. Engaging in regular exercise and physical activity can help students manage their weight, develop lean muscle mass, and enhance cardiovascular health (WHO, 2020). Regular physical activity is known to improve immune function, making students less susceptible to various illnesses. A study published in the *Journal of Sport and Health Science* highlights how moderate exercise enhances immune response by promoting circulation and helping to flush out bacteria from the lungs (Nieman, 2013).

Apparently, engaging in physical activity helps students build resilience and develop coping skills in the face of academic and personal challenges. Young athletes face a lot of difficulties when undergoing talent identification and development programme (Jaiyeoba, 2023), and this helps build rigour in students which is needed during exercise and sporting activities. Many young athletes experience difficulties such as burnout, lack of motivation, tiredness as a result of overtraining, and injury. Research indicates that regular exercise provides students with a sense of control and mastery, which can contribute to improved emotional regulation (Fuchs et al., 2002). Exercise has been linked to improved cognitive function, which is crucial for academic success, exercise improves executive functions like attention, memory, and problem-solving skills (Ratey and Loehr, 2011).

Exercise promotes neurogenesis, the formation of new neurons, which can enhance learning and memory among students. Participating in group sports or exercise classes can foster social connections among students in school. Social interaction during physical activity can enhance feelings of inclusion, belonging, and friendship, which are essential for emotional well-being of the students (Eime et al., 2013). Educational institutions should promote a well-rounded lifestyle that encourages exercise alongside academic responsibilities. Schools can facilitate this by providing opportunities for physical education, after-school sports, and access to fitness facilities. So, creating a supportive environment at school and home can enhance participation in exercises. Parents and educators should encourage students to try different forms of exercise, emphasizing fun and social engagement rather than competition among the students.

Studies show that physically active individuals tend to prioritize nutrient-dense foods over high-calorie, low-nutrition options (Blaak, 2005). This change in dietary patterns can further enhance performance and overall health. Moreover, regular exercise improves the body's ability to utilize nutrients effectively. For instance, exercise enhances insulin sensitivity, which allows for better glucose uptake by muscles, thus promoting energy efficiency and storage (Hansen et al., 2004). Additionally, physical activity increases metabolic rate and energy expenditure, which can impact dietary requirements. Combining optimal nutrition with structured exercise programs leads to better performance outcomes.

Carbohydrate loading before endurance events, for example, can enhance performance by maximizing glycogen stores, while adequate protein and caloric intake help support strength training outcomes (Burke and Hawley, 2018). The combination of exercise and proper nutrition is crucial for the prevention and management of chronic diseases such as obesity, type 2 diabetes, and heart disease. Regular physical activity coupled with a balanced diet can control body weight, improve metabolic health, and reduce markers of inflammation (Farrell et al., 2020). Furthermore, nutrition plays a vital role in supplying the energy needed for physical activities. Carbohydrates are the primary fuel source for high-intensity exercises. During exercise, muscles use stored glycogen, which is derived from carbohydrates, to produce energy (Burke, 2007). Adequate carbohydrate intake is crucial for maintaining glycogen stores, especially for athletes or individuals engaged in regular intense training.

Wellbeing could be considered to be a state of complete health of a person. It has to do with all round wellness. Wellbeing according to David (2014) is the experience of good feelings in both body and mind. Wellbeing is also the state of being physically, emotionally, socially and mentally balanced. An insight into the concept of wellbeing reveals that physical, emotional, social and mental fitness are elements that determine wellbeing. Physical fitness according to *Tremblay, Colley, Saunders, Healy and Owen (2010)* is a state of health and wellbeing and more specifically, the ability to perform aspects of sports, occupation and daily activities. Physical fitness is generally achieved through proper nutrition, moderate vigorous physical exercise and sufficient rest. Emotional health according to the American Academy of Family Physicians (AAFP) (2019) is an important part of overall health.

People who are emotionally healthy are in control of their thoughts, feelings and behaviours. They are able to cope with life's challenges. They can keep problems in perspective and bounce back from setbacks. They feel good about themselves and have good relationships. Mental health according to World Health Organization (WHO) and Calouste Gulbenkian Foundation, (2014) as cited by Harris (2018) is defined as a state of wellbeing in which every individual realizes his or her own potential, and can cope with the normal stresses of life, can work productively and fruitfully, and is able to make contribution to his community.

Most secondary school students in Akinyele local government of Oyo state are from average families and you hardly see anyone of them having obesity if not malnourishment or malnutrition, another factor is that most students schooling in Akinyele local government, school within their community which is a trekkable distance that could also serve as a form of exercise to and fro the school, and they are at their prime and active. Their wellbeing is of utmost importance if actually they will live up to their potentials and contribute their quota to nation building. It is on this note the researcher seek to find out the influence of nutrition and exercise on the well-being of secondary school students in Akinyele Local Government Area of Oyo State.

Research Objectives

The main objective of the study is to find out the influence of nutrition and exercise on the well-being of secondary school students in Akinyele Local Government Area of Oyo State.

Research Hypotheses

The following hypotheses was tested at 0.05 level of significance.

1. There is no significant influence of nutrition on well-being of secondary school students in Akinyele Local Government Area of Oyo State.
2. There is no significant influence of nutrition on emotional well-being of students of secondary school students in Akinyele Local Government Area of Oyo State.
3. There is no significant influence of exercise on mental well-being of secondary school students in Akinyele Local Government Area of Oyo.

Methodology

The study used survey design of the descriptive research. The research design enables information to be obtained from a representative sample of the population so as to describe situations as they exist. The population for this study consisted of all the Secondary Schools in Akinyele local government. Purposive sampling technique was used to select ten public secondary schools from the thirty-five public secondary schools in Akinyele Local Government Area of Oyo state. Simple random sampling technique was used for selecting twenty-five students each from the ten schools selected for the study making a total number of two hundred and fifty respondents. The researchers used a structured questionnaire "Nutrition and Exercise on the Well-Being of Secondary School Students in Akinyele Questionnaire" (NEWBSSSAQ) as instrument for the study. The questionnaire was made of two parts (section A and B). Section A was used to elicit information on the demographic information of the respondents while section B was used to elicit information on the variables of wellbeing and it was a twenty-two item questionnaire (section A =5 items, section

B=17 items). It was given to experts from the Department of human kinetics, University of Ibadan for face and content validity.

The instrument was pilot tested to determine the reliability. In the pilot test, copies of the questionnaire were administered to twenty (20) students (male =8, female =12) randomly selected outside the study area. The split half method of determining reliability was used. The questionnaire items in section B were divided into two (2) splits of odd and even numbers. Pearson`s Product Moment Correlation (PPMC) formula was first used before Spearman Brown`s formula was later used to analyse the data gathered in order to determine the value of coefficient at 0.05 level of significance. The reliability index obtained was 0.98. This shows that the instrument is appropriate to be used for data collection for the study.

Copies of the questionnaire were administered by the researcher with the help of trained research assistants. The researcher sought the consent of the respondents before the administration of the instrument. The respondents were given sufficient time to complete the items in the instrument. Instructions and explanation were given to the respondents where necessary. Copies of the questionnaire were completed independently to decrease the possibilities of comparing notes and discussing the questionnaire items. The data collected for the study were analysed using descriptive and inferential statistics. The inferential statistics used was linear regression and all the hypotheses were tested at 0.05 level of significance.

Results

Table 1: Characteristics of the sample

Variables	Categories	Frequency	Percentage (%)
Name of school	Abadina College Sch 1, UI	25	10
	Community Grammar Sch 1,UI	25	10
	Ajibode Grammar School, Ajibode	25	10
	Orogun Grammar School, Orogun	25	10
	Ojo High School 1, Ojo	25	10
	Ojo High School 2, Ojo	25	10
	Abadina College Sch 2, UI	25	10
	Community Grammar Sch 2, UI	25	10
	Aponmode High Sch 1, Moniya	25	10
	Aponmode High Sch 2, Moniya	25	10
Total		250	100
Gender	Male	104	41.6
	Female	146	58.4
Total		250	100
Age	10-13 years	145	58.0
	14-17 years	105	42.0
Total		250	100
Religion	Christianity	88	35.2
	Islam	162	64.8
Total		250	100

The analysis of the demographic variables revealed that 25 (10%) of the respondents were sampled from each of the ten secondary schools of study. Also, 104 (41.6%) of the respondents were male and 134 (58.4%) of the respondents were female. Also,

145 (58.0%) of the respondents were between the age range of 10 – 13 years and 105 (42.0%) were between the age range of 14 – 17 years. It was observed that 88 (35.2%) of the respondents were Christian while 162 (64.8%) of the respondents were from Islam.

Hypotheses testing

Hypothesis 1: There is no significant influence of nutrition on the well-being of secondary school students in Akinyele Local Government Area of Oyo State.

Table 2: Regression analysis on influence of nutrition on the well-being.

S/N	Items	Yes	No	Total	R	R ²	Beta Unstd.	Beta Standardize	Result
5	Eating good food or balanced diet do not make me to falling sick always?	211	39	250					
6	I always take my breakfast before going to lecture in the morning	188	62	250	0.936	0.876	9.488	0.936	S
7	My parents prioritize eating balanced diet always	193	57	250					
8	I eat minimum of two meals each day	220	30	250					
9	I feel normal, balanced and healthier as a result of eating good meals daily	194	56	250					
	Total	1006	244	1250					

Table two reveals the result of the analysis on the first hypothesis which shows a strong positive relationship between nutrition and wellbeing R= 0.936. With an R² = 0.876 it is deduced that about 87.6% of the variance in wellbeing is explained by nutrition which is very large. With a p-value of < 0.001, it is proven that the regression model significantly predicts the dependent variable, which means nutrition significantly influence the wellbeing of secondary school students. Therefore, the null hypothesis is rejected. Unstandardized Beta value (B unstd.) 0.043 + 0.955 predicts that a 1 unit increase in nutrition will lead to 0.955 – unit increase in student wellbeing, which is statistically significant at p<0.001. A standardized Beta value of 0.936 means that this is a strong predictor.

Hypothesis 2: There is no significant influence of nutrition on emotional well-being of secondary school students in Akinyele Local Government Area of Oyo State.

Table 3: Regression analysis on influence of nutrition on emotional wellbeing

S/N	Items	Yes	No	Total	R	R ²	Beta Unstd.	Beta Standardized	Result
10	Do eating food at any time make you to be emotionally balanced?	211	39	250					
11	Do eating food help to improve your mood?	200	50	250					
12	Do eating food promote your emotional state?	206	44	250					
13	Can you say that eating food help to control anxiety in you?	197	53	250	0.927	0.859	1.033	0.927	S
14	Can you say that eating food help you to get out of depression?	188	62	250					
15	Is it true that you feel better any time you eat food?	217	33	250					
16	Can you say that eating food improve your sleeping habit?	208	42	250					
Total		1427	323	1750					

The result of the analysis in table 3 shows a strong positive correlation between nutrition and emotional wellbeing $R = 0.927$. With an $R^2 = 0.859$ it is deduced that about 85.9% of the variance in emotional wellbeing is explained by nutrition which is very large. With a p-value of < 0.001 , it is proven that the regression model significantly predicts the dependent variable, which means nutrition significantly influence the emotional wellbeing of students. Therefore, the null hypothesis is rejected. Unstandardized Beta value (B unstd.) $0.015 + 1.033$ predicts that a 1 unit increase in nutrition will lead to 1.033 – unit increase in student emotional wellbeing, which is statistically significant at $p < 0.001$. A standardized Beta of 0.927 symbolizes a strong predictor.

Hypothesis 3: There is no significant influence of exercise on mental well-being of secondary school students in Akinyele Local Government Area of Oyo State.

Table 4: Regression analysis on influence of exercise on mental well-being

S/N	Items	Yes	No	Total	R	R ²	Beta Unstd.	Beta Standardize	Result
17	Are you more mentally active as a result of participation in physical activities?	217	33	250					
18	Have you improved academically as a result of participation in physical activities?	211	39	250	0.955	0.911	0.492	0.441	S
19	Does participation in physical exercises improve your memory?	211	39	250					
20	Does participation in physical exercises improve your thinking?	220	30	250					
21	Can your sport carrier be achieved through participation in physical activities?	226	24	250					
Total		1085	165	1250					

Table 4 represents the result of the analysis on hypothesis 3. The result shows that there is a strong positive relationship between the independent variables (exercise) and mental wellbeing $R = 0.955$. With an $R^2 = 0.911$ it symbolizes that about 91.1% of the variance in mental wellbeing is explained by the independent variables which is very large. With F- statistics = 1269.973 and p-value of < 0.001 , it is proven that the regression model significantly predicts the dependent variable, which means a statistically significant influence of the independent variables on the mental wellbeing of students. Therefore, the null hypothesis is rejected. Unstandardized Beta value (B unstd.) for the independent variable (Exercise) $0.027 + 0.492$ predicts that a 1 unit increase in exercise will lead to 0.492 – unit increase in student wellbeing. A standardized Beta of 0.441 for the independent variable symbolizes a positive and relatively strong predictor.

Discussion

The result of hypothesis 1 shows that there is a positive relationship between nutrition and the well-being of secondary school students in Akinyele Local Government Area of Oyo State. This concurs with the Centres for Disease Control and Prevention (CDC, 2022), nutrition is a critical component of health and well-being, especially for students who are in a formative stage of physical, cognitive, and emotional development. Also, this goes with assertion from Black et al (2020), good nutrition during childhood stage of life does not only promote optimal health and wellbeing but also contributes to adequate mental and cognitive development.

The result of hypothesis 2 shows that there is significant influence of nutrition on emotional well-being of secondary school students in Akinyele local government area. This is in line with the assertion of Landers (2019) who stated that regular exercise reduces both anxiety and depression in students. This also agrees with the findings of Di Bartolomeo and Papa (2017) that subjects exposed to physical activity exhibit more trust and pro-social behaviors than those who are not exposed. Kulas (2019) also explained that when one feels better physically, one is likely to feel better

emotionally as well. Regular exercise can help to sleep better, may give more energy and can help to tighten and tone various areas of the body, causing individual to look better. All of these can make one feel more alert and may raise self-esteem.

The result of hypothesis 3 shows that there is significant influence of involving in exercise on mental well-being of secondary school students in Akinyele Local Government Area of Oyo State. This is in line with the view of Christy (2019) who opined that people in general population understand that regular exercise is beneficial to physical health. Now, new research suggests that it has equally important mental health benefits. Miura (2017) stated that exercise increases blood flow, which benefits the brain. Brain cells will function at a higher level as a result of exercise, which will make one to be focused and alert. Miura (2017) further explained that with exercise, heart pumps more oxygen to the brain, which in turn, supports the creation of new brain cells.

Conclusion

Nutrition and exercise are undeniably vital to the well-being of students. It influences not only physical health but also cognitive function, emotional stability, and social interactions, all of which are crucial for success in an academic environment. To promote a healthy and conducive learning atmosphere, comprehensive strategies focusing on nutrition must be implemented in educational settings. Policymakers, educators, and parents must work collaboratively to foster environments that support healthy dietary practices, enabling students to reach their fullest potential.

Also, as educational institutions and parents prioritize holistic student development, it is imperative to recognize the significant role that exercise plays in shaping healthier, happier, and more resilient individuals.

Recommendation

Based on the findings of this study, the following recommendations are made;

1. Parents should serve as role models to their children by making healthy food choices themselves. This would enable children imitate and adopt healthy eating habits.
2. Parents should promote regular family meals, which are linked to better dietary quality and mental health outcomes in children. Shared meal-time in the family can provide opportunities for genuine discussions and reinforce healthy habits in the children.
3. Students should also know that eating breakfast before going to class help boost their mental prowess and resist fatigue.
4. Students should be enlightened on the importance of physical activities participation on physical fitness, mental and social well-being.
5. Governments at all levels should encourage primary, secondary and tertiary education students to participate in exercises by providing basic amenities for physical activities in all institutions

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