



Nutrition Education and Healthy Workforce Development Among Secondary School Students in Rivers State, Nigeria

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Abstract

The study examined the impact of nutrition education programmes in building healthy workforce for national development among secondary school students in Rivers State. Three purposes, three research questions, and three hypotheses guided the study. The study adopted a descriptive survey design. The study was carried out in Rivers State. The study population was all senior secondary school students (SS1–SS3) and teachers in selected schools within Rivers State. The study adopted a multistage sampling technique with a sample size of 400 students and 40 teachers. A structured questionnaire was the primary instrument for data collection, titled Impact of Nutrition Education Programme (INEP). The questionnaire was structured on a five (5) point response option of Strongly agree (5), agree (4), Undecided (3), Disagree (2), and Strongly Disagree (1). The questionnaire was subjected to content and face validity by experts in nutrition, education, and public health. Reliability was determined using Cronbach's Alpha, with a coefficient of 0.70, which was considered reliable enough for the study. Quantitative data from the questionnaires were analyzed using mean and standard deviation, while the t-test was used to test the null hypotheses at a 0.05 level of significance. The findings of the study revealed a high level of agreement among both teachers and students regarding the positive impact of the nutrition education programme. It was recommended that government and educational authorities should formally incorporate comprehensive nutrition education into the secondary school curriculum and make it compulsory to promote lifelong healthy habits and improve student well-being.

Keywords: Nutrition Education Programmes, Healthy Workforce, National Development, Secondary School, Students

Introduction

Good nutrition is a cornerstone of a productive and healthy workforce, which is essential for sustainable national development. Nutrition, also called nourishment, is the provision of the materials necessary in the form of food to support life (Mbah, 2018). Nutrition influences physical growth, cognitive performance, work capacity, and disease resistance. A workforce that is well-nourished is more likely to be energetic, mentally alert, and physically capable of performing efficiently, which in turn contributes significantly to economic growth and societal advancement. Malnutrition, on the other hand, impairs individual productivity and national economic potential. Undernutrition during early childhood leads to stunting, which has been linked to lower educational attainment and reduced economic productivity later in life (Hoddinott et al., 2013). From a broader development perspective, investments in nutrition have high economic returns. The World Bank estimates that every \$1 invested in nutrition generates as much as \$16 in economic returns through improved productivity, reduced healthcare costs, and increased lifetime earnings (World Bank, 2016). This highlights the critical importance of integrating nutrition into public health and workforce development policies through education. Nutrition education programmes are structured initiatives aimed at improving people's knowledge, attitudes, and behaviours related to food and nutrition (Asbridge, 2018). Nutrition education programmes can target individuals or groups across different settings such as communities, workplaces,

healthcare facilities, and schools. Thus, governments and policymakers must prioritize nutrition as a foundational pillar in building a resilient and capable workforce.

Workforce refers to the collective group of individuals engaged in work, particularly those involved in the production of goods and services within an economy (Green, 2013). It encompasses all individuals who are employed or actively seeking employment, including both skilled and unskilled workers across various sectors. The workforce plays a vital role in economic growth, innovation, and the development of industries. The link between the workforce and students is multifaceted. Students are seen as the future workforce, and their education, training, and skill development significantly influence the quality and productivity of the workforce. Additionally, students are the primary source of future employees, and how they are prepared for the job market determines their ability to contribute effectively to the workforce. Their preparation could be in a different programme, such as a school-based nutrition programme. School-based nutrition education programs play a critical role in shaping a healthy, knowledgeable, and productive future workforce, which is essential for sustained national development. Public health campaigns and nutrition education programmes reinforce choices, and their simplicity makes it especially useful for a healthy workforce. Nutrition education programmes also allow individuals to quickly assess whether a meal reflects recommended dietary guidelines (Bamson, 2025). According to Autor (2014), opined that School-based nutrition education programs are a programme aimed at instilling lifelong healthy eating habits, raising awareness of the importance of balanced nutrition, and preventing diet-related diseases that can impair academic achievement and long-term productivity. Adolescents, particularly those in secondary schools, are at a crucial developmental stage where proper nutrition supports physical growth, cognitive development, and academic performance, which are all foundational attributes for a strong workforce. Additionally, school-based nutrition programs serve as platforms for promoting public health by addressing undernutrition, micronutrient deficiencies, and unhealthy eating patterns early in life. School-based nutrition programs are cost-effective interventions. OECD (2019). emphasized that early investments in nutrition and education yield high economic returns, improved human capital, reduced healthcare costs, and increased workforce productivity through community interaction.

Community nutrition outreach and training programs are programmes that promote public health, reducing malnutrition, and equipping populations with the knowledge and skills necessary for healthy living (Mason et al., 2012). Community nutrition contributes directly to building a strong, healthy workforce, which is a critical foundation for national development. Through outreach services such as nutrition counselling, demonstrations, maternal and child health education, and agricultural nutrition training, communities gain practical knowledge about balanced diets, food hygiene, micronutrient intake, and disease prevention. This knowledge leads to improved health outcomes, particularly among secondary school students and working-age adults, resulting in increased productivity and reduced healthcare burdens. When workers are well-nourished, they experience fewer sick days, greater stamina, and improved mental performance for a functional and efficient workforce (FAO, 2013). Moreover, community-based approaches ensure that nutrition information is context-specific and culturally relevant, increasing the likelihood of long-term behaviour change. Community-based nutrition programmes often take place in community centres, rural clinics, or through mobile units, and are delivered by trained health workers, nutritionists, or youth volunteers.

The Youth Nutrition and Entrepreneurship Initiative is a program that combines nutrition education with practical business skills to empower young people to promote healthy eating while creating economic opportunities (WHO, 2014). It encourages youth to engage in food-related enterprises that support both personal income and community health. Youth nutrition and entrepreneurship initiatives play a pivotal role in shaping the workforce of the future by equipping young people with essential skills in both nutrition and business. Youth nutrition initiatives focus on educating young people about the importance of healthy eating, balanced diets, and the prevention of diet-related diseases. Integrating entrepreneurship into youth nutrition programs creates an avenue for young people to generate income while also addressing local nutrition challenges. According to the Food and Agriculture Organization (FAO, 2013), improving nutrition enhances resilience and economic stability. In essence, these ventures not only employ youth but also contribute to the local economy by promoting food security and creating demand for locally sourced products. Furthermore, according to Otamiri et al. (2018), entrepreneurship training helps youth develop critical business skills such as financial literacy, marketing, and project management, which are valuable assets in today's economy. Youth nutrition and entrepreneurship initiatives also play a role in promoting food systems that are both nutritious and sustainable. By educating young people on the importance of sustainable agricultural practices and local food systems.

Statement of the Problem

Despite increasing recognition of the role of nutrition in human capital development, many secondary school students in Rivers State continue to experience poor dietary habits, limited awareness of balanced nutrition, and exposure to unhealthy food environments. These challenges are compounded by the absence or ineffectiveness of structured nutrition education programs within the school curriculum. As adolescence is a critical stage for physical growth and cognitive development, poor nutrition during this period can lead to long-term health issues, reduced academic performance, and impaired work capacity in adulthood. Inadequate nutrition education undermines efforts to prepare students as future contributors to the national workforce, as malnourished or poorly nourished adolescents are more likely to suffer from concentration difficulties, absenteeism, and chronic illnesses that limit productivity. Furthermore, the lack of life skills related to healthy eating and food decision-making leaves students ill-prepared to manage their well-being and contribute effectively to socio-economic development. Therefore, it is essential to assess the impact of nutrition education programs on secondary school students in Rivers State to determine how well these initiatives are preparing youths for a healthier, more productive role in the national workforce. Identifying the gaps in knowledge, delivery, and outcomes of these programs will provide evidence for strengthening policies that support nutrition as a foundational element of national development.

Aims and Objectives of the Study

The main aim of the study was to examine the impact of Nutrition education programmes in building healthy workforce for national development among secondary school students in Rivers State. In specific terms, the paper sought the following:

1. to ascertain the impact of school-based nutrition education programme in building healthy workforce among secondary school students in Rivers State.
2. to determine the impact of community Nutrition Outreach and Training Programme in building healthy workforce among secondary school students in Rivers State
3. to examine the impact of Youth Nutrition and Entrepreneurship Initiative is in building healthy workforce among secondary school students in Rivers State

Research Questions

The following research questions guided the conduct of the study for this paper:

1. What is the impact of school-based nutrition education programme in building healthy workforce among secondary school students in in Rivers State?
2. What is the impact of Community Nutrition Outreach and Training Programme in building healthy workforce among secondary school students in Rivers State?
3. What is the impact of Youth Nutrition and Entrepreneurship Initiative programme in building healthy workforce among secondary school students in Rivers State?

Hypotheses

The following null hypotheses were formulated and tested at .05 level of significance:

- H₀₁:** There is no significant difference between senior secondary school teachers and students on the impact of school-based nutrition education programme in building healthy workforce among secondary school students in Rivers State.
- H₀₂:** There is no significant difference between senior secondary school teachers and students on the impact of Community Nutrition Outreach and Training programme in building healthy workforce among secondary school students in Rivers State
- H₀₃:** There is no significant difference between senior secondary school teachers and students on the impact of Youth Nutrition and Entrepreneurship Initiative programme in building healthy workforce among secondary school students in Rivers State.

Methodology

Research Design

The study adopted a descriptive survey research design. This design is suitable for gathering information on current practices, perceptions, and the impact of nutrition education programmes on secondary school students, to understand their contribution to building a healthy future workforce.

Study Area

The study was conducted in Rivers State, Nigeria, focusing on selected public and private secondary schools across urban and rural areas to ensure a balanced representation of students from diverse socio-economic and environmental backgrounds.

Population

The population consists of all senior secondary school students (SS1–SS3) and teachers in selected schools within Rivers State. , The total population of senior secondary school teachers and students in Rivers State was reported as teachers, approximately 6,893, and students 66,164 as of the 2022/2023 academic session (rsujoe.com.ng+1rsujoe.com.ng+1)

Sample Size and Sampling Technique

The study adopted a multistage sampling technique, which involved the following stages:

- **Stage 1:** Stratified sampling to divide the state into urban and rural zones.
- **Stage 2:** Random selection of local government areas (LGAs) from each zone.
- **Stage 3:** Purposive sampling of two schools from each selected LGA.
- **Stage 4:** Simple random sampling of students and staff from the selected schools. Hence, the study sample size of 400 students and 40 teachers was selected.

Instrument for Data Collection

A **structured questionnaire** was the primary instrument for data collection, titled Impact of Nutrition Education Programme (INEP). The questionnaire was structured on a five (5) point response option of Strongly agree, agree, Undecided, Disagree and Strongly Disagree. With values of 5, 4, 3, 2, and 1, respectively, for each item.

Validity and Reliability of the Instrument

The questionnaire was subjected to content and face validity by experts in nutrition, education, and public health. A pilot study was conducted in a non-selected school to test the instrument. Reliability was determined using Cronbach’s Alpha, with a coefficient of 0.70, which was considered reliable enough for the study.

Method of Data Collection

Approval was obtained from the participating school authorities. Questionnaires were administered physically by the researcher and trained research assistants during school hours. The questionnaire was filled out and collected in two days interval through head teachers.

Method of Data Analysis

Quantitative data from the questionnaires were analyzed using mean and standard deviation, while the t-test was used to test the null hypotheses at a 0.05 level of significance.

Result

Research question 1: What is the impact school-based nutrition education programme in building healthy workforce for national development among secondary school students in Rivers State?

Table 1: mean and Standard Deviation on the impact school-based nutrition education programme in building healthy workforce for national development among secondary school students

S/N	Impact of school-based nutrition education programme	Teachers			Students		
		X	SD	RM	X	SD	RM
1	instil lifelong healthy eating habits	4.6	0.5	Strongly Agreed	4.5	0.6	Strongly Agreed
2	raise awareness of the importance of balanced nutrition	4.7	0.4	Strongly Agreed	4.6	0.5	Strongly Agreed
3	prevent diet-related diseases that can impair academic achievement	4.4	0.5	Agreed	4.2	0.6	Agreed
4	It enhances long-term productivity.	4.3	0.6	Agreed	4.0	0.7	Agreed
5	demonstrate better understanding of food choices	4.6	0.5	Strongly Agreed	4.3	0.6	Agreed
6	Promote public health at scale	4.4	0.5	Agreed	4.1	0.6	Agreed
7	It reduces the long-term burden of non-communicable diseases	4.5	0.4	Strongly Agreed	4.2	0.5	Agreed

8	It reduced healthcare costs.	4.3	0.6	Agreed	4.0	0.7	Agreed
9	It increased workforce productivity	4.2	0.5	Agreed	4.1	0.6	Agreed

Table 1: indicates a high level of agreement among both teachers and students regarding the positive impacts of the programme: Teachers’ mean scores range from 4.2 to 4.7, suggesting a strong belief in the programme’s effectiveness. Students’ mean scores range from 4.0 to 4.6, also reflecting favourable opinions, though slightly more conservative than teachers, with their SD values ranging from 0.4 to 0.7, with most clustering around 0.5–0.6, indicating moderate agreement within each group. This shows that both groups strongly support the value of school-based nutrition education.

Research Question 2: what are the impact Community Nutrition Outreach and Training Programme in building healthy workforce among secondary school students in Rivers State?

Table 2: mean and Standard Deviation on the impact Community Nutrition Outreach and Training programme in building healthy workforce for national development among secondary school students.

S/N	impact Community Nutrition Outreach and Training Programme in building healthy workforce	Teachers			Students		
		X	SD	RM	X	SD	RM
1	It empowers individuals with skills in food processing and meal planning.	4.5	0.5	Strongly Agreed	4.3	0.6	Agreed
2	underserved students can make informed nutritional choices	4.6	0.4	Strongly Agreed	4.4	0.5	Agreed
3	Vulnerable students can make health choices	4.4	0.5	Agreed	4.3	0.6	Agreed
4	It promoting public health	4.5	0.4	Strongly Agreed	4.2	0.6	Agreed
5	It reducing malnutrition,	4.3	0.6	Agreed	4.1	0.6	Agreed
6	equipping populations with skills necessary for healthy living	4.6	0.5	Strongly Agreed	4.3	0.5	Agreed
7	communities gain practical knowledge about balanced diets and food hygiene,	4.5	0.4	Strongly Agreed	4.2	0.6	Agreed

Table 2 shows that both teachers and students reported positive impacts of the programme, as reflected in the high mean scores (X) across all items. Most mean values fall between 4.1 and 4.6, which indicates that respondents generally agreed or strongly agreed with the statements. Again, their SD values range from 0.4 to 0.6, indicating a moderate level of agreement among respondents. Teachers consistently rated the impact slightly higher than students across all items. With the highest rating among teachers: 4.6 mean score and highest among students: 4.4. The gap in perception between teachers and students is minor, showing general agreement between both groups, though teachers are slightly more convinced about the program.

Research question 3: What are the impact Youth Nutrition and Entrepreneurship Initiative in building healthy workforce among secondary school students in Rivers State?

Table 3: Mean and Standard Deviation on the impact Youth Nutrition and Entrepreneurship Initiative programme in building healthy workforce for national development among secondary school students

S/N	impact Youth Nutrition and Entrepreneurship Initiative in building healthy workforce	Teachers			Students		
		X	SD	RM	X	SD	RM
1	equipping young people with essential skills in both nutrition and business.	4.6	0.4	Strongly Agreed	4.4	0.5	Agreed
2	It Promote Healthy Youth for a Strong Workforce:	4.5	0.5	Strongly Agreed	4.3	0.6	Agreed
3	It helps young people to generate income while also addressing local nutrition challenges.	4.4	0.5	Agreed	4.2	0.6	Agreed
4	help them create nutrition-related ventures such as small-scale food processing	4.3	0.6	Agreed	4.1	0.6	Agreed

5	It fosters an entrepreneurial mindset among youth	4.5	0.5	Strongly Agreed	4.3	0.6	Agreed
6	address the challenges of food insecurity and environmental degradation	4.4	0.5	Agreed	4.2	0.6	Agreed

Table 4:3 revealed that both teachers and students gave consistently positive ratings, indicating they agree or strongly agree that the initiative is impactful in promoting youth health and entrepreneurship, with Teachers' mean (X) values ranging from 4.3 to 4.6 and Students' mean (X) values ranging from 4.1 to 4.4. All standard deviations (SD) are within 0.4 to 0.6, showing moderate consensus in responses. This reflects broad support and consistent perceptions of the programme's effectiveness.

Hypotheses

Ho1: There is no significant difference between senior secondary school teachers and students on the impact of school-based nutrition education programme in building healthy workforce among secondary school students in Rivers State.

Table 4: t-test analysis of senior secondary school teachers and students on the impact school-based nutrition education programme in building healthy workforce for national development among secondary school students

Respondents	N	X	SD	@	DF	t-Cal	t-Crit	RMK
Teachers	40	4.44	0.5					
				0.5	438	2.60	1.96	Sig.
Students	400	4.22	0.6					

Result in table 4 revealed that t-Cal (2.60) is greater than t-crit (1.96), which indicates that the hypothesis stated is not accepted. Therefore, there is a significant difference between teachers and students on the impact of the school-based nutrition education programme in building a healthy workforce among secondary school students.

Ho2: There is no significant difference between senior secondary school teachers and students on the impact of Community Nutrition Outreach and Training programme in building healthy workforce among secondary school students in Rivers State.

Table 5: t-test analysis of senior secondary school teachers and students on the impact Community Nutrition Outreach and Training programme in building healthy workforce for national development among secondary school students.

Respondents	N	X	SD	@	DF	t-Cal	t-Crit	RMK
Teachers	40	4.49	0.47					
				0.05	438	2.89	1.96	Sig.
Students	400	4.26	0.57					

The result in Table 4 revealed that t-Cal (2.89) is greater than t-crit (1.96), which indicates that the hypothesis stated is not accepted. Therefore, there is a significant difference between teachers and students on the impact of the Community Nutrition Outreach and Training programme in building a healthy workforce among secondary school students.

H₀₃: There is no significant difference between senior secondary school teachers and students on the impact of Youth Nutrition and Entrepreneurship Initiative programme in building healthy workforce among secondary school students in Rivers State

Table 6: t-test analysis of senior secondary school teachers and students on the impact Youth Nutrition and Entrepreneurship Initiative programme in building healthy workforce for national development among secondary school students

Respondents	N	X	SD	@	DF	t-Cal	t-Crit	RMK
Teachers	40	4.45	0.50	0.05	398	2.38	1.96	Sig.
Students	400	4.25	0.58					

The result in Table 4 revealed that t-Cal (2.60) is greater than t-crit (1.96), which indicates that the hypothesis stated is not accepted. Therefore, there is a significant difference between teachers and students on the impact of the Youth Nutrition and Entrepreneurship Initiative programme in building a healthy workforce among secondary school students

Discussion

The findings of the study revealed a high level of agreement among both teachers and students regarding the positive impacts of the school-based nutrition education programme in building a healthy workforce for national development. Therefore, there is a significant difference between teachers and students on the impact of the school-based nutrition education programme in building a healthy workforce. This finding is in line with Autor (2014), who opined that school-based nutrition education programmes instill lifelong healthy eating habits, raise awareness of the importance of balanced nutrition, and prevent diet-related diseases that can impair academic achievement and long-term productivity. The findings of the study revealed that both teachers and students reported positive impacts of the Community Nutrition Outreach and Training programme in building a healthy workforce for national development. There is a significant difference between teachers and students on the impact of the Community Nutrition Outreach and Training programme in building a healthy workforce among secondary school students. This finding is in agreement with Mason et al. (2012), in their opinion, outreach services such as nutrition counselling, demonstrations, maternal and child health education, and agricultural nutrition training, communities gain practical knowledge about balanced diets, food hygiene, micronutrient intake, and disease prevention. This knowledge leads to improved health outcomes, particularly among secondary school students and working-age adults, resulting in increased productivity and reduced healthcare burdens. The findings of the study revealed that both teachers and students gave consistently positive ratings, indicating they agree or strongly agree that the initiative is impactful in promoting youth health and entrepreneurship. There is a significant difference between teachers and students on the impact of the Youth Nutrition and Entrepreneurship Initiative programme in building a healthy workforce. This finding agrees with FAO (2013). Fostering an entrepreneurial mindset, these initiatives empower youth to become job creators rather than job seekers, thus contributing to economic growth and job creation at the community and national levels.

Conclusion

Nutrition education plays a vital role in promoting healthy lifestyles, preventing diet-related diseases, and fostering long-term well-being among individuals, particularly students. By equipping learners with knowledge about balanced diets, food choices, and the importance of proper nutrition, such education not only enhances personal health outcomes but also contributes to improved academic performance, productivity, and reduced healthcare costs. Ultimately, nutrition education supports the development of a healthier, more informed population, which is essential for building a strong, resilient workforce and driving sustainable national development.

Recommendations

Base of the findings of the study, the following recommendations were made:

- Educational authorities should formally incorporate comprehensive nutrition education into the secondary school curriculum and make it compulsory to promote lifelong healthy habits and improve student well-being.

- Schools should partner with health agencies and local communities to organize outreach programmes that extend nutrition education beyond the classroom and reinforce learning through real-life applications.
- The government should implement Policies and programmes that link nutrition education with entrepreneurship, such as small-scale food ventures, which should be encouraged to empower students economically while addressing local nutrition challenges.

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