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Effect of School-Based Nutrition Education on Adolescents' Knowledge of Nutrition, Eating Disorders and Dietary Practices in Obio/Akpor, Rivers State.

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ABSTRACT :

The study investigated the effect of school-based nutrition education intervention on the knowledge of good nutrition and eating disorders and on the dietary practices of adolescents in secondary schools in Obio/Akpor Local Government Area of Rivers State, Nigeria. The study adopted a two-group non-equivalent control group pretest-posttest quasi-experimental design with a three-month follow-up. The population of the study consisted of 5,264 students enrolled in four secondary schools, from which 310 adolescents aged 10 to 19 years were drawn using a multistage sampling technique, with 155 in each of the intervention and control groups, and 299 completed the post-intervention assessment. Data were collected with the Nutrition Education and Eating Disorder Questionnaire (NEEDQ), whose knowledge sections yielded Kuder-Richardson 20 coefficients of 0.87 and 0.81, while the dietary-practice section yielded a Cronbach's alpha coefficient of 0.84. The intervention group received 12 weekly nutrition education sessions, whereas the control group continued with normal school activities. The research questions were answered using mean and standard deviation, whereas the hypotheses were tested using Welch's independent-samples t-test and analysis of covariance (ANCOVA) at the 0.05 level of significance. The findings of the study showed that combined knowledge of good nutrition and eating disorders increased by 7.82 points in the intervention group compared with 1.32 points in the control group ($p < .001$; $d = 1.96$). The findings also showed that healthy dietary-practice scores increased by 8.83 points in the intervention group compared with 0.86 point in the control group, and that the difference remained significant after baseline scores were controlled ($p < .001$; partial $\eta^2 = .690$). One of the recommendations was that the Rivers State Ministry of Education should integrate structured nutrition and eating-disorder education into secondary-school health education programmes and sustain its implementation across schools.

Keywords: *Nutrition Education, Knowledge of Good Nutrition, Eating Disorders, Dietary Practices, Adolescents, Rivers State.*

INTRODUCTION

Adolescence is a transitional period of development between childhood and adulthood which, according to the World Health Organization (WHO, 2024), spans the ages of 10 to 19 years. The period is characterized by rapid physical growth and hormonal changes, which raise the nutritional requirements of adolescents, and by increasing independence and changing social relationships, which gradually shift control over food choices from the family to the individual (Adinma et al., 2020). Adequate nutrition during this stage supports growth, cognitive development and academic functioning, whereas inadequate or disturbed patterns of eating may compromise physical health and psychological wellbeing. Adolescents in secondary schools are, however, exposed to a wide range of food-related influences, including peer preferences, advertising, social media and changing standards of attractiveness, which may encourage them to skip meals, consume processed snacks, eat irregularly or adopt restrictive practices that they perceive as healthy. Beyond these ordinary dietary lapses, some adolescents develop persistent disturbances in eating behaviour that are accompanied by distressing thoughts and emotions concerning body weight and shape. Pastore et al. (2023) described such conditions as eating disorders and noted that they affect the physical, psychological and social wellbeing of children and adolescents. Galmiche et al. (2019) similarly observed that eating disorders, including anorexia nervosa, bulimia nervosa and binge-eating disorder, occur most frequently among teenagers and young adults. These observations suggest that the adolescent years constitute a decisive window within which sound dietary knowledge and healthy eating habits ought to be cultivated.

The range of these influences suggests that the family and informal sources of information alone may be insufficient to equip adolescents with the knowledge and skills required to make sound dietary decisions in a food environment shaped by peers, advertising and social media. In this regard, adolescents need structured opportunities to learn about balanced diets, meal regularity, food groups and the dangers associated with extreme dietary restriction, recurrent overeating and inappropriate weight-control behaviours. Adinma et al. (2020) maintained that schools provide a good entry point for reaching adolescents and educating them on dietary choices and the consumption of adequate and healthy diets. Akinrinoye et al. (2023) further reported disordered eating behaviours and feeding or eating-disorder presentations among schooling adolescents in Ibadan, which indicates that disordered

eating also occurs among Nigerian secondary-school students and suggests that adolescents within the Nigerian school system require deliberate and well-structured nutrition education.

Nutrition education is an organized process through which adolescents acquire knowledge, understanding and practical judgement concerning food, nutrients, dietary practices and their implications for health. Contento (2016) viewed nutrition education as a combination of educational strategies, accompanied by environmental supports, designed to facilitate the voluntary adoption of food choices and other nutrition-related behaviours conducive to health and wellbeing. This definition suggests that nutrition education extends beyond the transmission of facts about nutrients to include the development of motivation, skills and supportive conditions that enable individuals to apply what they have learnt. Among adolescents, its relevance is heightened because increasing autonomy, peer influence, body-image consciousness and exposure to commercial food environments begin to shape dietary decisions during this period. Nutrition education accordingly performs both an informational and a preventive function, as it strengthens the capacity of adolescents to distinguish nutritionally appropriate practices from behaviours that may compromise their physical and psychological wellbeing. Pastore et al. (2023) observed that eating disorders among young people involve persistent disruptions in eating habits accompanied by distressing thoughts and emotions, which implies that effective nutrition education ought to cover not merely what adolescents eat but also how they interpret food, body weight and potentially harmful eating practices.

In practice, many adolescents acquire information about food from peers, advertising, social media and cultural assumptions rather than from structured and verifiable sources, and such information is frequently inaccurate or incomplete. Napolitano et al. (2019) reported that adolescents' familiarity with terms such as anorexia nervosa and bulimia nervosa did not necessarily translate into accurate knowledge of the defining characteristics of these disorders. By implication, many adolescents need deliberate and structured educational exposure to correct misconceptions about food, body weight and eating behaviour.

School-based nutrition education interventions are structured educational activities delivered within the school environment to improve the nutrition knowledge, dietary practices and related competencies of learners. Such interventions commonly include mini-lectures, interactive discussions, demonstrations, group activities, age-appropriate scenarios and follow-up activities. Samad et al. (2024) observed that school-based healthy-eating interventions produce more favourable outcomes among adolescents when health education operates alongside supportive environmental, family or community conditions. The school offers a platform for reaching large numbers of adolescents during the period in which food preferences, health beliefs and lifestyle practices are being consolidated (Adinma et al., 2020).

The success of any school-based nutrition programme depends on its content and the manner in which it is delivered. De Medeiros et al. (2022), in a systematic review and meta-analysis, reported that school-based food and nutrition education interventions produced favourable effects on several aspects of adolescents' food consumption, although the magnitude of improvement differed according to the dietary behaviour examined. This variation suggests that intervention content, duration and implementation strategy influence the extent to which learning is translated into practice. Raut et al. (2024) found that nutrition education delivered through mini-lectures and interactive discussions improved nutrition knowledge and attitudes among school-going adolescents, while Mancone et al. (2024) demonstrated that workshops, interactive activities and digital tools strengthened nutritional literacy and self-regulation. In other words, adolescents benefit when nutrition education gives them opportunities to process, discuss and apply information rather than merely memorize it, and when the messages are reinforced over a sustained period rather than presented as a single incidental exposure.

Knowledge of good nutrition refers to what adolescents know about food quality, nutrient requirements, meal patterns, food groups and the health consequences of dietary choices, and it gives them a cognitive framework for evaluating food-related information. Onwuama et al. (2019) demonstrated that structured nutrition education improved dietary knowledge among secondary-school students in Lagos, suggesting that school-based exposure can strengthen adolescents' knowledge of appropriate dietary practices rather than leaving such knowledge to informal acquisition. Wiafe et al. (2023) similarly reported that repeated nutrition education improved young adolescents' knowledge of iron and iron-rich food intake practices in Ghana, which illustrates how repeated instructional exposure can deepen knowledge within a specific nutritional domain.

Knowledge of eating disorders, on the other hand, constitutes a related but distinct dimension of adolescent health literacy, since an adolescent may understand the principles of a balanced diet while remaining unable to recognize the signs, consequences or seriousness of anorexia nervosa, bulimia nervosa or binge-eating disorder. Such knowledge includes awareness of characteristic behaviours, associated psychological features, possible health consequences, misconceptions surrounding body weight and the need for appropriate professional support. Napolitano et al. (2019) documented considerable deficits among adolescents in Italy, relatively few of whom correctly identified the features of anorexia nervosa and bulimia nervosa, whereas Nelson et al. (2024) found that a planned educational programme substantially improved adolescent girls' knowledge regarding the psychosocial problems of eating disorders. The integration of good-nutrition knowledge with eating-disorder knowledge is particularly relevant because some behaviours that adolescents perceive as healthy may become harmful when pursued excessively or for inappropriate reasons. Dietary restraint, avoidance of particular foods, deliberate fasting or intense preoccupation with calorie intake may be interpreted as evidence of discipline even when they reflect maladaptive weight-control practices, while binge eating may be misunderstood as ordinary overeating and the compensatory behaviours associated with bulimia nervosa may remain concealed from parents, teachers and peers. Robatto et al. (2024) noted that individuals with bulimia nervosa may maintain a normal body weight, which makes the disorder difficult to recognize when physical appearance is used as the principal indicator. Effective nutrition education consequently requires clear conceptual boundaries that enable adolescents to differentiate normal variations in eating from repeated patterns that may signal psychological or behavioural disturbance, thereby reducing the risk that problematic behaviours become normalized merely because they involve dieting or weight control. Eating disorders arise through interacting psychological, biological, social and environmental influences (Batista, 2018); education cannot eliminate every determinant, but it can broaden the information and interpretive skills available to adolescents.

Nutrition knowledge alone, however, does not guarantee healthy eating, because food choices are influenced by availability, affordability, family practices, taste preferences, emotional states and social expectations. The ultimate goal of nutrition education is accordingly to develop informed dietary

reasoning that adolescents apply consistently in their everyday dietary practices at home and in school.

Dietary practices refer to the habitual patterns through which adolescents select, combine and consume foods, including meal regularity, breakfast consumption, intake of fruits, vegetables and protein-rich foods, dietary variety and the consumption of processed snacks and sugar-sweetened products. Healthy dietary practice among adolescents entails adequacy, regularity, variety and moderation rather than prolonged fasting, elimination of necessary food groups or repeated attempts to compensate for eating through harmful practices. Johnson et al. (2002) operationalized healthy eating behaviour among adolescents through observable food habits, thereby indicating that dietary practice can be measured as a distinct behavioural outcome of nutrition-related learning. Shapu et al. (2023) reported that a health education intervention significantly improved the dietary practices of adolescent girls in government secondary schools in Maiduguri, Nigeria. Vasquez-Mamani et al. (2025) similarly found that a structured nutrition education programme improved the knowledge, attitudes and dietary practices of Peruvian adolescents, which indicates that structured nutrition education can improve dietary behaviour as well as knowledge.

Planning nutrition education for adolescents requires recognition that cognitive and behavioural outcomes do not necessarily change at the same rate. Mekonnen et al. (2023) reported that a school-based nutrition education intervention improved the consumption of pulses-based foods among female adolescents in Northwest Ethiopia, although several knowledge-related outcomes did not show corresponding between-group differences. In a related study, Mogre et al. (2024) observed that a school-based food and nutrition education intervention in northern Ghana increased nutrition-related knowledge and fruit consumption among primary school children, whereas comparable effects were not recorded for other dietary outcomes. Baltaci et al. (2022) likewise found no significant intervention-control differences in several adolescent energy balance-related behaviours following a family-based programme in the United States, notwithstanding the programme's emphasis on nutrition and physical activity. These divergent findings suggest that the translation of knowledge into practice depends on programme intensity, duration, delivery setting, teaching methods and the opportunities available to adolescents for applying nutritional messages in everyday life. The evidence also indicates that the effect of nutrition education delivered through a single exposure may weaken when it is not revisited, since adolescents routinely encounter competing messages about food, weight, attractiveness and dieting through family interactions, peer groups, advertising and digital media. A structured programme that combines accurate content on good nutrition and eating disorders with interactive methods and sustained reinforcement is accordingly more likely to influence both what adolescents know and how they eat.

Studies in Nigeria have examined nutrition knowledge and dietary practices (Onwuama et al., 2019; Shapu et al., 2023), but school-based nutrition education studies have more commonly focused on general nutrition knowledge than on eating-disorder knowledge. Few have combined good-nutrition education with eating-disorder education within the same programme, and evidence on the effect of such a programme on both knowledge and dietary practices among adolescents in Obio/Akpor Local Government Area of Rivers State remains scarce, and this gap justified the present study.

Statement of the Problem

There is a consensus in the literature that adequate nutrition knowledge and healthy dietary practices during adolescence support growth, psychological wellbeing and academic functioning (Mogre et al., 2024). Secondary-school adolescents are expected to understand the principles of good nutrition, recognize eating behaviours that may threaten their health and maintain regular and balanced dietary practices. Unfortunately, many adolescents skip meals, consume processed snacks, eat irregularly and remain unable to recognize the warning signs of anorexia nervosa, bulimia nervosa and binge-eating disorder, particularly where body-image concerns, peer pressure and social media shape their attitudes towards food. Persistent deficiencies of this kind may expose adolescents to poor nutritional status, psychological distress and disordered eating. Studies in Nigeria have examined nutrition knowledge and dietary practices among pregnant women (Adeomi et al., 2020; Jembi et al., 2023), but evidence remains limited on whether a structured school-based programme that combines good-nutrition education with eating-disorder education can simultaneously improve adolescents' knowledge and dietary practices in Obio/Akpor Local Government Area. Thus, the researcher was constrained to examine the effect of a school-based nutrition education intervention on the knowledge of good nutrition and eating disorders and the dietary practices of adolescents in secondary schools in Obio/Akpor, Rivers State.

Aim and Objectives

The aim of this study was to investigate the effect of a school-based nutrition education intervention on the knowledge and dietary practices of adolescents in secondary schools in Obio/Akpor Local Government Area of Rivers State. Specifically, the study had the following objectives:

1. To determine the difference between the pre- and post-intervention knowledge of good nutrition and eating disorders among adolescents in the intervention and control groups in secondary schools in Obio/Akpor Local Government Area.
2. To determine the effect of the school-based nutrition education programme on the post-intervention dietary practices of adolescents in the intervention and control groups in secondary schools in Obio/Akpor Local Government Area.

Research Questions

The following research questions were answered in the study:

1. What is the difference between the pre- and post-intervention knowledge of good nutrition and eating disorders among adolescents in the intervention and control groups in secondary schools in Obio/Akpor Local Government Area?

2. What is the effect of the school-based nutrition education programme on the post-intervention dietary practices of adolescents in the intervention and control groups in secondary schools in Obio/Akpor Local Government Area?

Hypotheses

The following null hypotheses were tested in the study at 0.05 level of significance:

1. There is no significant difference between the pre- and post-intervention knowledge of good nutrition and eating disorders among adolescents in the intervention and control groups in secondary schools in Obio/Akpor Local Government Area.
2. The school-based nutrition education programme has no significant effect on the post-intervention dietary practices of adolescents in the intervention and control groups in secondary schools in Obio/Akpor Local Government Area.

METHODOLOGY

The study adopted a two-group non-equivalent control group pretest-posttest quasi-experimental design with a three-month follow-up, a design suited to naturally occurring groups that receive different conditions without random assignment (Shadish et al., 2002). The population of the study consisted of 5,264 students in four secondary schools in Obio/Akpor Local Government Area; Community Secondary School, Rukpokwu and Our Lady of Lourdes Secondary School, Ozuoba constituted the intervention group, while Community Secondary School, Rumuodomaya and Federal Government Secondary School, Rumuokoro constituted the control group. A sample size of 310 adolescents aged 10 to 19 years, comprising 155 per group, was determined through power analysis (Cohen, 1988; Faul et al., 2009) with a 17% attrition allowance and drawn using multistage sampling involving proportionate allocation (Cochran, 1977), stratification by class level and sex, and simple random sampling. Data were collected using the Nutrition Education and Eating Disorder Questionnaire (NEEDQ). Knowledge of good nutrition and knowledge of eating disorders were each measured with 12 True, False and Not Sure items adapted from Whati et al. (2005), Ferro-Lebres et al. (2014) and Feldhege et al. (2022), giving a combined score of 0 to 24, while dietary practices were measured with 12 items adapted from Johnson et al. (2002), yielding scores of 12 to 48 classified as poor (12–23), moderate (24–35) and good (36–48). The instrument was validated by experts, and a pilot study involving 30 adolescents yielded Kuder-Richardson 20 coefficients of 0.87 and 0.81 for the knowledge sections and a Cronbach's alpha coefficient of 0.84 for the dietary-practice section. The intervention group received 12 weekly sessions of 45 to 60 minutes on balanced diets, food groups, meal regularity, body image, recognition of eating disorders and help-seeking, whereas the control group continued with normal school activities. Of the 310 adolescents assessed at baseline, 299 (148 intervention; 151 control) completed the post-intervention and follow-up assessments. The research questions were answered using mean and standard deviation, whereas Welch's independent-samples t-test on change scores and analysis of covariance (ANCOVA) controlling for baseline scores were used to test the hypotheses at the 0.05 alpha level. Ethical approval was obtained from the University of Port Harcourt Research Ethics Committee.

RESULTS

Research Question One: What is the difference between the pre- and post-intervention knowledge of good nutrition and eating disorders among adolescents in the intervention and control groups in secondary schools in Obio/Akpor Local Government Area?

Table 1: Pre- and post-intervention knowledge scores of adolescents in the intervention and control groups

Study group	Knowledge variable	N	Pre Mean	SD	Post Mean	SD	Mean Change
Intervention	Nutrition knowledge	148	6.85	2.31	10.43	1.50	3.58
	Eating-disorder knowledge	148	6.06	2.14	10.30	1.45	4.24
	Combined knowledge	148	12.91	3.83	20.73	2.32	7.82
Control	Nutrition knowledge	151	6.97	2.24	7.30	2.37	0.33
	Eating-disorder knowledge	151	6.40	2.22	7.39	2.24	0.99
	Combined knowledge	151	13.38	3.75	14.70	3.95	1.32

The results in Table 1 showed that both groups had similar knowledge scores before the intervention. After the intervention, combined knowledge increased by 7.82 points in the intervention group compared with 1.32 points in the control group, indicating substantially greater improvement among adolescents who received the programme.

Research Question Two: What is the effect of the school-based nutrition education programme on the post-intervention dietary practices of adolescents in the intervention and control groups in secondary schools in Obio/Akpor Local Government Area?

Table 2: Dietary-practice scores and levels of adolescents by study group and assessment period

Study group	Assessment period	n	Mean $\pm$ SD	Poor n (%)	Moderate n (%)	Good n (%)
Intervention	Pre-intervention	148	30.03 $\pm$ 5.70	19 (12.8)	101 (68.2)	28 (18.9)
	Post-intervention	148	38.86 $\pm$ 4.82	0 (0.0)	41 (27.7)	107 (72.3)
	Three-month follow-up	148	36.91 $\pm$ 5.30	1 (0.7)	56 (37.8)	91 (61.5)
Control	Pre-intervention	151	29.98 $\pm$ 5.36	13 (8.6)	114 (75.5)	24 (15.9)

Post-intervention	151	30.84 ± 5.08	14 (9.3)	108 (71.5)	29 (19.2)
Three-month follow-up	151	31.36 ± 5.49	13 (8.6)	103 (68.2)	35 (23.2)

Note. Poor = 12–23; moderate = 24–35; good = 36–48. Higher scores indicate healthier dietary practices.

The dietary-practice results in Table 2 showed that the two groups had similar mean scores of 30.03 and 29.98 before the intervention. After the intervention, the intervention-group mean increased to 38.86, with 72.3% attaining good dietary practice and none remaining in the poor category, whereas the control-group mean rose only to 30.84, with 19.2% attaining good dietary practice. At the three-month follow-up, 61.5% of intervention-group adolescents retained good dietary practice against 23.2% of control-group adolescents, indicating a sustained advantage for the intervention group.

Test of Hypotheses

Ho1: There is no significant difference between the pre- and post-intervention knowledge of good nutrition and eating disorders among adolescents in the intervention and control groups in secondary schools in Obio/Akpor Local Government Area.

Table 3: Welch's independent-samples t-test of pre–post knowledge change between the intervention and control groups

Knowledge variable	Intervention Mean Change ± SD	Control Mean Change ± SD	Mean Diff.	<i>t</i>	df	<i>p</i>	<i>d</i>	Decision
Nutrition knowledge	3.58 ± 2.30	0.33 ± 2.56	3.25	11.57	294.83	<.001	1.34	Reject Ho
Eating-disorder knowledge	4.24 ± 2.11	0.99 ± 2.11	3.25	13.29	296.88	<.001	1.54	Reject Ho
Combined knowledge	7.82 ± 3.40	1.32 ± 3.25	6.50	16.89	295.81	<.001	1.96	Reject Ho

The results in Table 3 showed that the pre–post change in nutrition, eating-disorder and combined knowledge was significantly greater in the intervention group than in the control group (*d* = 1.34 to 1.96); hence, the null hypothesis was rejected (*p* < .001).

Ho2: The school-based nutrition education programme has no significant effect on the post-intervention dietary practices of adolescents in the intervention and control groups in secondary schools in Obio/Akpor Local Government Area.

Table 4: ANCOVA of post-intervention dietary-practice scores by study group, controlling for pre-intervention scores

Source	SS	df	MS	F	<i>p</i>	Partial η^2
Pre-intervention score (covariate)	5145.887	1	5145.887	710.574	<.001	.706
Study group	4763.577	1	4763.577	657.782	<.001	.690
Error	2143.595	296	7.242			

Note. Adjusted post-intervention means: intervention = 38.84, 95% CI [38.41, 39.28]; control = 30.86, 95% CI [30.43, 31.29].

The results in Table 4 showed that, after controlling for pre-intervention scores, the adjusted post-intervention dietary-practice mean was significantly higher in the intervention group (38.84) than in the control group (30.86) (partial η^2 = .690); hence, the null hypothesis was rejected (*p* < .001).

FINDINGS, DISCUSSION AND IMPLICATIONS

The analysis of the data in Table 1 showed that the school-based nutrition education intervention improved adolescents' knowledge of good nutrition and eating disorders, since the gains recorded in the intervention group considerably exceeded those of the control group across nutrition knowledge, eating-disorder knowledge and combined knowledge. This implies that the programme strengthened adolescents' knowledge of both balanced nutrition and the characteristics of disordered eating rather than improving nutrition knowledge alone. This finding corroborates Onwuama et al. (2019), who reported that an eight-week nutrition education programme significantly improved dietary knowledge among secondary-school students in Lagos, and agrees with Wiafe et al. (2023), who found that repeated nutrition education improved young adolescents' knowledge of iron and iron-rich foods in Ghana. The finding is also in agreement with Nelson et al. (2024), who reported considerable improvement in eating-disorder knowledge among adolescent girls after a planned educational programme, whereas Napolitano et al. (2019) documented marked deficits in the recognition of eating disorders where deliberate educational exposure was absent.

These findings are also in accord with Mancone et al. (2024), who observed that a food-literacy intervention combining workshops, interactive activities and digital tools produced significant and sustained improvement in adolescents' nutritional knowledge. It is therefore not surprising that the present study found a significant difference between the intervention and control groups in the pre–post change in knowledge, with large effect sizes. Mekonnen et al. (2023), however, reported limited between-group differences in several knowledge-related outcomes despite improvements in dietary behaviour, which suggests that programme content, duration, teaching methods and the manner in which knowledge is measured can influence the magnitude of cognitive gains. The substantial improvement recorded in the present study suggests that the programme, which integrated eating-disorder content with good-nutrition content and delivered both through interactive and sustained sessions, was sufficiently comprehensive to improve adolescents' knowledge across both domains.

The findings obtained from answering research question two showed that the nutrition education programme produced a substantial improvement in the healthy dietary practices of adolescents in the intervention group, whose mean score increased by 8.83 points compared with 0.86 point among those in

the control group. The effect remained significant after baseline scores were controlled, with a large effect size, and the intervention-group score remained well above both its baseline level and the corresponding control-group score at the three-month follow-up, which indicates that an appreciable proportion of the behavioural change persisted after the weekly sessions had ceased. These findings are in agreement with Shapu et al. (2023), who reported significant improvements in the dietary practices of adolescent girls in government secondary schools in Maiduguri following a health education intervention; the similarity is noteworthy because both studies involved Nigerian secondary-school adolescents and delivered structured education within the school environment. These findings are also in line with Vasquez-Mamani et al. (2025), who found significant improvement in the dietary practices of Peruvian adolescents following a nutrition education programme, and with Raut et al. (2024), who reported favourable changes in the diet quality of school-going adolescents after a nutrition education intervention. Taken together, these studies show that the effects of structured nutrition education can extend beyond knowledge acquisition to changes in eating behaviour. The findings, nevertheless, contrast with Mogre et al. (2024), who reported that improved nutrition knowledge among schoolchildren in northern Ghana was accompanied by increased fruit consumption but not by comparable improvements in other dietary outcomes, and with Baltaci et al. (2022), who found no significant intervention-control differences in several adolescent energy balance-related behaviours following a family-based programme. These differences may reflect variations in programme intensity, delivery setting, family involvement, measurement of dietary outcomes and the opportunities available to adolescents for applying nutritional messages. The findings do not establish that improved knowledge alone caused the behavioural change, because other components of the programme may also have contributed; they demonstrate, however, that the programme produced favourable changes in both the cognitive and behavioural domains which it targeted.

Adequate knowledge of good nutrition is a vital requirement for healthy eating, but such knowledge becomes meaningful only when adolescents apply it within their everyday food choices and routines. More importantly, the capacity to recognise eating behaviours that may signal anorexia nervosa, bulimia nervosa or binge-eating disorder remains a vital component of adolescent health literacy, because such behaviours may otherwise be normalised as dieting or ordinary overeating. When adolescents lack this knowledge, their dietary decisions may be shaped by peers, advertising and social media rather than by accurate information. For this reason, school health programmes ought to combine balanced-nutrition content with eating-disorder education and deliver both through interactive and sustained methods. In this regard, school administrators and health educators need to integrate such programmes into existing school health activities and reinforce them periodically, since the dietary improvements declined slightly after the weekly sessions ceased. Such measures would strengthen the nutritional wellbeing of adolescents.

CONCLUSION

Having established that the school-based nutrition education intervention improved adolescents' knowledge and dietary practices, the study has substantiated the value of structured nutrition education as a health-promotion tool in secondary schools. This study therefore concludes that the intervention significantly improved adolescents' knowledge of good nutrition and eating disorders, with large effects across nutrition, eating-disorder and combined knowledge. This study further concludes that the programme produced a large and significant improvement in healthy dietary practices, a considerable part of which was sustained three months after the intervention had ended.

RECOMMENDATIONS

Based on the findings of the study, the following recommendations were made:

1. The Rivers State Ministry of Education should integrate structured nutrition and eating-disorder education into secondary-school health education programmes and ensure the regular implementation of such education across public secondary schools in the State.
2. Secondary-school administrators and health educators should sustain nutrition education through regular school health activities that emphasise balanced eating, healthy food choices, dietary variety and meal regularity among adolescents in both day and boarding schools.
3. School administrators and health educators should reinforce nutrition and eating-disorder education periodically after the initial programme so that the improvements recorded in adolescents' knowledge and dietary practices are maintained beyond the period of active instruction.

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