

Perception, Promotion, and Practice of Healthy Eating and Physical Activity among Primary School Teachers in Sokoto, Nigeria

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Abstract

Introduction: Studies have shown that teachers have considerable influence on the eating and physical activity behavior of school pupils and ultimately the prevalence of overweight and obesity among them.

Objectives: This study aimed to assess the perception, promotion, and practice of healthy eating and physical activity among primary school teachers in Sokoto, Nigeria.

Materials and Methods: A cross-sectional descriptive study was conducted among 277 teachers practicing in the primary schools in Sokoto, Nigeria. A structured self-administered questionnaire was used to collect data on the research variables. Data were analyzed using IBM SPSS version 20 statistical computer software package.

Results: The mean age of the respondents was 31.98 ± 8.07 years. Apart from students having access to adequate and safe drinking water within the school premises, less than half respondents strongly perceived the need for the other measures for facilitating healthy eating and any of the measures for facilitating physical activity among school pupils. Only about a third and less of respondents very often promote healthy eating and physical activity among their pupils. More than a third of respondents practice unhealthy eating, and about a fifth of them (19.1%) live sedentary lifestyle. The main barriers to healthy eating and physical activity were lack of information, poor motivation, unavailability of healthy foods, and lack of access to facilities for physical activity.

Conclusion: These findings underscore the need for the management of Sokoto State Primary Education Board to develop and implement healthy eating and physical activity policies and practices in the primary schools across the state.

Key words: Healthy eating, Perception, Physical activity, Practice, Promotion, Teachers

INTRODUCTION

The prevalence of obesity and overweight among school-age children and adolescents continues to rise at alarming rates across the globe with an estimated 340 million overweight or obese children and adolescents aged 5–19 years in 2016.^[1] The prevalence of obesity has tripled among persons aged 6–19 years globally in the

past 3 decades, with a dramatic rise in the prevalence of overweight and obesity from just 4% in 1975 to over 18% in 2016.^[1] This trend is believed to be related to the rising prevalence of childhood obesity globally (as childhood obesity is known to track into adulthood), with the number of overweight children under five estimated to have risen from 32 million in 2000 to 42 million in 2013 and projected to rise to 70 million in 2025 if the current global trends continue.^[2]

Whereas obesity was hitherto considered to be a disease of developed countries, the rise in its prevalence has been >30% higher in developing than developed countries in recent years, and its prevalence in developing countries is now almost on a par with that of developed countries.^[3,4] This is corroborated by the findings from

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studies conducted in sub-Saharan Africa that revealed a trend toward increasing prevalence of overweight and obesity among school-aged children in the region.^[5,6] In addition, high overweight/obesity prevalence rates were reported in studies conducted among school-aged children in studies conducted in many sub-Saharan African countries including Kenya (19.0%),^[7] Tanzania (22.6%),^[8] and Nigeria (17.4%).^[9]

The rising prevalence of overweight and obesity among both children and adults globally has been attributed to an increased intake of energy-dense foods that are high in fat, and an increase in physical activity due to the increasingly sedentary nature of many forms of work, changing modes of transportation, and increasing urbanization.^[1] Unhealthy eating and physical inactivity are among the leading preventable cause of deaths worldwide.^[10] A study among the United States youths reported that concurrent healthy eating and regular physical activity were favorably associated with cardiovascular disease (CVD) biomarkers when compared with unhealthy diet and sedentary lifestyle.^[11]

A cause for concern is the fact that overweight and obesity are major risk factors for non-communicable diseases (NCDs) including diabetes, certain cancers, and CVDs; and overweight and obese children are more likely to develop NCDs at younger age.^[1] Furthermore, childhood obesity has been associated with other problems including low school performance, social isolation, and other psychological problems which are detrimental to mental health, while healthy eating and physical activity have been shown to play a significant role in students' academic performance.^[12,13]

Even though regular physical activity and healthy eating are crucial to halting the rising prevalence of overweight and obesity among children and young adults globally, reports from studies conducted in many developing and developed countries showed that majority of them fail to meet the recommended healthy eating and physical activity standards due to several barriers including lack of information, poor motivation, access to unhealthy foods, unavailability of equipment/facilities for physical activity, and time constraints among others.^[14,15] Whereas motivation by parents has been associated with increased compliance with healthy eating and physical activity among school-aged children, there has been a progressive decrease in parental encouragement for healthy eating and physical activity as children grow older, and over time, and with the parents perceiving various intrapersonal, interpersonal, and environmental barriers to supporting healthy eating and physical activity among their children.^[16-19]

The school is an institution for socialization, children and adolescents are at a critical transition period in their

lives, it is believed that behavior patterns and trajectories established now will influence their health for a lifetime.^[20] School-aged children constitute substantial proportions of the populations across the globe. Nigeria is the most populous country in Africa, with an estimated population of over 140 million people based on the 2006 census, of which 28.3% were aged 5–14 years.^[21] By providing unmatched access to this large population of young people, schools, therefore, offer ideal settings for delivering health-promoting strategies that provide opportunity for students to learn about and practice healthy behavior. With the poor motivation for healthy eating and physical activity among school-aged children by parents, and the rising prevalence of overweight and obesity among them globally, promotion of healthy eating and physical activity in schools has been recommended by the Centers for Disease Control and Prevention (CDC) and is believed to be the most viable option for halting the current trend.^[3]

Teachers cannot promote healthy eating and physical activity among their pupils if they are unaware of the benefits of these behaviors to their health or practice them (as the pupils see them as role models). Studies have shown that teachers have considerable influence on the eating and physical activity behavior of the children in their care. Associations have also been established between teachers' perception of healthy eating and physical activity and their compliance with/promotion of these behaviors among pupils and their parents. In addition, teachers that complied with healthy eating and physical activity guidelines were found to have lower risk of overweight and obesity.^[22,23]

Understanding teachers' perception, promotion, and practice of healthy eating and physical activity is important in identifying the barriers to these healthy behaviors, particularly within the school environment and to develop strategies for addressing them. There is a dearth of research examining the perception and promotion of healthy eating and physical activity among teachers in Nigeria. This study was conducted to assess the perception, promotion, and practice of healthy eating and physical activity among primary school teachers in Sokoto, Nigeria.

MATERIALS AND METHODS

Study Design and Population

A cross-sectional descriptive study was conducted among teachers practicing in the primary schools in Sokoto metropolis, the capital of Sokoto State, Nigeria, between October and November 2014. Sokoto State with a population of about 4 million (based on the 2006 census) has a primary school-age population of about 1 million, 1963 public schools, 12,737 teachers, and an enrollment of

610,886 pupils^[24]; and in recent years, many private schools have been established in Sokoto metropolis. Teachers who have been in practice for at least 1 year and consented to participate in the study were considered eligible for this study.

Sample Size Estimation and Sampling Technique

The sample size was estimated at 272 using the statistical formula for calculating sample size in cross-sectional studies,^[25] a 78.7% prevalence of moderate physical activity among teachers in a previous study,^[26] a precision level of 5%, and an anticipated 95% participant response rate.

The eligible participants were selected by multistage sampling technique. At the first stage, two of four local government areas (LGAs) in Sokoto metropolis were selected by simple random sampling using the ballot option. At the second stage, six primary schools were selected in each of the selected LGAs by systematic sampling technique using the list of schools in the respective LGAs to constitute the sampling frame. At the third stage, selection of participants in each of the selected schools was done by systematic sampling technique using the staff list in the respective schools to constitute the sampling frame. Proportionate allocation of the study participants was done based on the staff strength in the selected schools. 277 participants were enrolled into the study.

Data Collection and Analysis

A structured self-administered questionnaire was developed after a thorough review of relevant literature and used to obtain information on the sociodemographic characteristics of the study participants, their perception of healthy eating and physical activity, promotion of healthy eating and physical activity among their pupils, and their practices regarding healthy eating and physical activity. It was reviewed by researchers in the Department of Community Health, Usmanu Danfodiyo University, Sokoto, Nigeria. Corrections were made based on their inputs on content validity. The questionnaire was pretested on 20 primary school teachers in one of the LGAs that were not selected for the study. Some questions were rephrased for clarity based on the observations made during the pretesting. Five resident doctors assisted in questionnaire administration after pre-training on conduct of survey research, the objectives of the study, selection of study participants, and questionnaire administration.

Data were analyzed using the IBM SPSS version 20 computer statistical software package. Quantitative variables were summarized using mean and standard deviation, while categorical variables were summarized using frequencies and percentages; and the results were presented as frequency distribution tables.

Ethical Consideration

Institutional Ethical Clearance was obtained from the Ethical Committees of Usmanu Danfodiyo University Teaching Hospital, Sokoto, Nigeria, and Sokoto State Ministry of Health, Sokoto, Nigeria. Permission to conduct the study was obtained from the management of Sokoto State Primary Education Board; informed written consent was also obtained from the participants before data collection.

RESULTS

Sociodemographic Characteristics of Respondents

All the 277 questionnaires administered were adequately completed and found suitable for analysis, giving a response rate of 100%. The respondents' ages ranged from 20 to 59 years (mean = 31.98 ± 8.07), and most of them (83.7%) were aged 20–39 years. Majority of respondents were males (54.2%), married (56.4%), and practiced Islam as religion (69.3%). Majority of respondents (52.3%) graduated from the university, followed by those that graduated from the college of education (42.2%). Majority of respondents were mainly classroom teachers (62.0%), have practiced for a decade and less (77.0%), and worked in public schools (64.1%) as shown in Table 1.

Table 1: Sociodemographic characteristics of respondents

| Variables | Frequency n=277 (%) |
|----------------------------|---------------------|
| Age group (years) | |
| 20–29 | 140 (53.2) |
| 30–39 | 92 (35.0) |
| 40–49 | 21 (8.0) |
| 50–59 | 24 (8.7) |
| Marital status | |
| Single | 115 (41.8) |
| Married | 155 (56.4) |
| Divorced | 1 (0.4) |
| Widowed | 4 (1.5) |
| Religion | |
| Islam | 192 (69.3) |
| Christianity | 85 (30.7) |
| Level of education | |
| Quranic school only | 5 (1.8) |
| Secondary school | 5 (1.8) |
| College of education | 117 (42.2) |
| Polytechnic | 5 (1.8) |
| University | 145 (52.3) |
| Nature of duty | |
| Teaching only | 171 (62.0) |
| Administrative only | 13 (4.7) |
| Both teaching and admin | 91 (33.0) |
| Length of practice (years) | |
| 1–10 | 201 (77.0) |
| 11–20 | 45 (17.0) |
| ≥ 21 | 16 (6.0) |
| Ownership of school | |
| Government | 177 (64.1) |
| Private | 99 (35.9) |

Respondents' Perception on Measures for Facilitating Healthy Eating among School Pupils

Whereas about two-thirds 183 (66.1%) of the 277 respondents strongly perceived the need for students to have access to adequate and safe drinking water within the school premises, less than half of them strongly perceived the need for the other measures for facilitating healthy eating among school pupils. However, close to half of respondents strongly perceived the need for the school nutrition services unit to provide adequate, safe, clean, and well-maintained spaces and facilities for eating (48.4%), and the need to ensure that foods and beverages sold in the schools meet nutritional standards (47.7%). The respondents' perception on the other measures for facilitating healthy eating among school pupils is shown in Table 2.

Respondents' Perception on Measures for Facilitating Physical Activity among School Pupils

Less than half of respondents strongly perceived the need for any of the measures for facilitating physical activity among school pupils. However, close to half of respondents (49.8%) strongly perceived the need to ensure that the space and facilities provided for physical activity meet safety standards (49.8%), provision of safe and age-appropriate playground and equipment (47.3%), and ensure that injuries sustained during physical activity are adequately treated (47.3%). The respondents' perception on the other

measures for facilitating physical activity among school pupils is shown in Table 3.

Promotion of Healthy Eating and Physical Activity by Respondents

Only about a third and less of respondents very often promote healthy eating and physical activity among their pupils. One hundred and four (37.5%) of the 277 respondents very often educate their pupils on healthy eating, while 96 (34.7%) very often educate them on the need to engage in regular physical activity. The other respondents' healthy eating and physical activity promotion practices are shown in Table 4.

Respondents' Dietary Habits and Physical Activity Status

While majority of respondents practice healthy eating such as consumption of fruits thrice or more in a week (71.4%) and eating vegetables thrice or more in a week (78.0%), more than a third of them practice unhealthy eating such as drinking fruit juice thrice or more in a week (48.7%) and eating snacks/fast foods thrice or more in a week (30.3%). Less than a third of respondents trek to work thrice or more in a week (23.8%) or engage in moderate-intensity activity at leisure time thrice or more in a week (27.0%) as shown in Table 5.

Fifty-three (19.1%) of the 277 respondents live sedentary lifestyle by virtue of riding a car or motorcycle to work every day, their work schedule not involving moderate

Table 2: Respondents' perception on measures for facilitating healthy eating among school pupils

| Measures for facilitating healthy eating among school pupils | Responses (n=277) | | | |
|---|---------------------------------|------------------------|---------------------|------------------------------|
| | Strongly disagree frequency (%) | Disagree frequency (%) | Agree frequency (%) | Strongly agree frequency (%) |
| School authorities should periodically train teachers on healthy nutrition | 26 (9.9) | 18 (6.5) | 105 (37.9) | 128 (46.2) |
| Teachers should educate pupils on healthy nutrition as part of the school curriculum | 5 (1.8) | 18 (6.5) | 136 (49.1) | 118 (42.6) |
| Parents should be involved in lessons and other activities when nutrition education is provided to pupils | 6 (2.2) | 41 (14.8) | 124 (44.8) | 106 (38.3) |
| Parents should reinforce at home the nutrition education being provided to pupils at school | 11 (4.0) | 28 (10.1) | 123 (44.4) | 115 (41.5) |
| School authorities should provide adequate, safe, clean, and well-maintained spaces and facilities for eating | 8 (2.9) | 45 (16.2) | 90 (32.5) | 134 (48.4) |
| School nutrition services should provide nutritious, appealing, and culturally appropriate school meals for pupils | 25 (9.0) | 47 (47.0) | 124 (44.8) | 81 (29.2) |
| Free or highly subsidized breakfast and lunch should be offered to pupils | 16 (5.8) | 75 (27.1) | 119 (43.0) | 67 (24.2) |
| Inputs should be obtained from pupils about menu choices (e.g., through taste testing) | 12 (4.3) | 84 (30.3) | 139 (50.2) | 42 (15.1) |
| Meals should be served at an appropriate time and pupils should be given enough time to receive and consume their meals | 10 (3.6) | 38 (13.7) | 140 (50.5) | 89 (32.1) |
| School authorities should ensure that foods and beverages sold or served outside of school meal programs meet nutritional standards | 10 (3.6) | 15 (5.4) | 120 (43.3) | 132 (47.7) |
| School authorities should ensure that pupils have access to adequate and safe (potable) drinking water | 10 (3.6) | 16 (5.8) | 68 (24.5) | 183 (66.1) |
| School authorities should take necessary action to prevent or minimize the risk of food-borne illness among pupils | 14 (5.1) | 12 (4.3) | 123 (44.4) | 128 (46.2) |
| Pupils should be trained and actively involved in food environmental activities such as school garden and farm | 8 (2.9) | 21 (7.6) | 135 (48.7) | 113 (40.8) |

Table 3: Respondents' perception on measures for facilitating physical activity among school pupils

| Measures for facilitating physical activity among school pupils | Responses (n=277) | | | |
|---|---------------------------------|------------------------|---------------------|------------------------------|
| | Strongly disagree frequency (%) | Disagree frequency (%) | Agree frequency (%) | Strongly agree frequency (%) |
| School authorities should provide safe and age-appropriate playgrounds and equipment for physical education and physical activity | 16 (5.8) | 13 (4.7) | 117 (42.2) | 131 (47.3) |
| School authorities should ensure that space and facilities for physical activity meet recommended safety standards | 2 (0.7) | 19 (6.9) | 118 (42.6) | 138 (49.8) |
| Provision should be made for physical activity breaks during the school day to enable pupils engage in physical activity | 2 (0.7) | 25 (9.0) | 154 (55.6) | 96 (34.7) |
| Provision should be made for extracurricular programs such as intramurals interscholastic sports that are age-appropriate and safe | 10 (3.6) | 15 (5.4) | 173 (62.5) | 79 (28.5) |
| School authorities should develop, teach, and enforce safety rules in sports | 2 (0.7) | 20 (7.2) | 159 (57.4) | 96 (34.7) |
| School authorities should maintain high level of supervision during structured and unstructured physical activity programs | 6 (2.2) | 20 (7.2) | 136 (49.1) | 115 (41.5) |
| Pupils should be provided with protective clothing (e.g., reflective clothing) and protective equipment (e.g., helmet, face mask, and mouth guards) appropriate for the type of physical activity and environment, and make them use it | 8 (2.9) | 58 (20.9) | 110 (39.7) | 101 (36.5) |
| School authorities should ensure that pupils of all sizes are encouraged to participate in a wide variety of physical activity and avoid policies that single out pupils on the basis of body size or shape | 10 (3.6) | 31 (11.2) | 149 (53.8) | 87 (31.4) |
| The school environment should support pupils with disabilities and chronic health conditions to be physically active | 4 (1.4) | 33 (11.9) | 129 (46.6) | 111 (40.1) |
| School authorities should ensure that injuries sustained during physical activities are healed before allowing further participation | 4 (1.4) | 15 (5.4) | 127 (45.8) | 131 (47.3) |
| School authorities should not use physical activity or withholding from participating in physical activity as punishment for bad behavior | 11 (4.0) | 66 (23.8) | 127 (45.8) | 73 (26.4) |
| School authorities should implement, promote, and advocate for creation of safe routes to school for walk and bicycle to school program | 13 (4.7) | 81 (29.2) | 119 (43.0) | 64 (23.1) |

Table 4: Promotion of healthy eating and physical activity by respondents

| Activity | How often (n=277) | | | |
|---|--------------------------|---------------------|----------------------------|---------------------|
| | Very often frequency (%) | Often frequency (%) | Occasionally frequency (%) | Never frequency (%) |
| Educate pupils on healthy eating | 104 (37.5) | 96 (34.7) | 72 (26.0) | 5 (1.8) |
| Educate pupils' parents on how to make nutritious foods | 67 (24.2) | 47 (17.0) | 109 (39.4) | 54 (19.5) |
| Participate in ensuring that the school meals meet nutritional standards | 74 (26.7) | 78 (28.2) | 81 (29.2) | 44 (15.9) |
| Educate pupils on the need to engage in regular physical activity/sports and its benefits | 96 (34.7) | 102 (36.8) | 64 (23.1) | 15 (5.4) |
| Engage pupils in physical activities/spots either in the classroom or playground | 77 (27.8) | 74 (26.7) | 100 (36.1) | 26 (9.4) |

physical activity and not engaging in regular moderate leisure exercise.

Barriers to Healthy Eating and Physical Activity among Respondents

The most commonly cited very important barriers to eating healthy foods by the respondents were lack of information about healthy foods (57.0%), not having money to buy healthy foods (43.7%), and not having the skills to plan, shop for, prepare, or cook healthy foods (41.5%). Other very important barriers to eating healthy foods cited by the respondents are shown in Table 6.

The most commonly cited very important barriers to engaging in regular physical activities by the respondents

were not being motivated to do physical activity, exercise or sports (44.8%), not having the skills to do it (43.3%), and lack of time (42.2%). Other very important barriers to engaging in regular physical activities cited by the respondents are shown in Table 6.

DISCUSSION

This study assessed the perception, promotion, and practice of healthy eating and physical activity among primary school teachers in Sokoto, Nigeria. The strong perception of the need for pupils to have access to adequate and safe drinking water within the school premises by majority, 183 (66.1%) of the 277 respondents in this study appears to be

Table 5: Respondents' dietary habits and physical activity status

| Variables | Number of time(s) (n=277) | | | |
|--|---------------------------|--------------------|---------------------|-----------------------------|
| | None frequency (%) | Once frequency (%) | Twice frequency (%) | Three or more frequency (%) |
| Dietary habits | | | | |
| Eat snacks/fast food items in a week | 17 (6.1) | 96 (34.7) | 80 (28.9) | 84 (30.3) |
| Drink fruit juice in a week | 29 (10.5) | 49 (17.7) | 64 (23.1) | 135 (48.7) |
| Drink carbonated soft drinks in a week | 32 (11.6) | 102 (36.8) | 49 (17.7) | 94 (33.9) |
| Eat fruits in a week | 18 (6.5) | 22 (7.9) | 40 (14.4) | 197 (71.4) |
| Eat vegetables in a week | 17 (6.1) | 27 (9.7) | 17 (6.1) | 216 (78.0) |
| Engagement in physical activity | | | | |
| Trek to work in a week | 86 (31.0) | 60 (21.7) | 65 (23.5) | 66 (23.8) |
| Ride a bicycle to work in a week | 126 (45.5) | 34 (12.3) | 56 (20.2) | 61 (22.0) |
| Engage in moderate-intensity activity that causes moderate increase in breathing or heart rate such as brisk walking as part of your work schedule in a week | 50 (18.1) | 76 (27.4) | 70 (25.3) | 81 (29.2) |
| Engage in moderate-intensity sports, fitness or leisure activity such as brisk walking, cycling, swimming, and volleyball (lasting between 30 min and 1 h) in a week | 53 (19.1) | 69 (24.9) | 80 (28.9) | 75 (27.0) |

Table 6: Barriers to healthy eating and physical activity among respondents

| Variables | Considered it as very important frequency n=277 (%) |
|--|---|
| Barriers to eating healthy foods | |
| Do not have information about healthy foods | 158 (57.0) |
| Do not have motivation to eat healthy foods | 114 (41.2) |
| Do not enjoy eating healthy foods | 94 (33.9) |
| Do not have skills to plan, shop for, prepare, or cook healthy foods | 115 (41.5) |
| Do not have money to buy healthy foods | 121 (43.7) |
| Healthy foods are not available in my school | 84 (30.3) |
| Do not have time to prepare or eat healthy foods because of school commitments | 78 (28.2) |
| No support from the school authority to eat healthy foods | 82 (29.6) |
| No support from my spouse to eat healthy foods | 79 (28.5) |
| No support from friends/relatives to eat healthy foods | 72 (26.0) |
| Barriers to engaging in regular physical activities | |
| Do not have motivation to do physical activity, exercise, or sports | 124 (44.8) |
| Do not enjoy physical activity, exercise, or sports | 77 (27.8) |
| Do not have the skills to do physical activity, exercise, or sports | 120 (43.3) |
| No support from the school authority to engage in physical activity, exercise, or sports | 95 (34.3) |
| No support from my spouse to engage in physical activity, exercise, or sports | 70 (25.3) |
| No support from friends and relatives to engage in physical activity, exercise, or sports | 63 (22.7) |
| Do not have enough information about how to increase physical activity | 97 (35.0) |
| Do not have access to place to do physical activity, exercise, or sports | 94 (33.9) |
| Not being able to find physical activity, exercise, or sports facilities that are affordable | 88 (31.8) |
| Do not have the time to engage in physical activity, exercise, or sports | 117 (42.2) |
| Feel shy when practicing exercise outdoor | 80 (28.9) |
| The climate is not suitable for practicing exercise | 94 (33.9) |
| Not being able to engage in physical activity, exercise, or sports because of cultural factors | 89 (32.1) |

a reflection of the general perception of water as a basic necessity of life, considering the fact that less than half of them strongly perceived the need for the other measures for facilitating healthy eating among school pupils. Similarly, less than half of respondents strongly perceived the need for any of the measures for facilitating physical activity among school pupils. These findings suggest gaps in the knowledge of the measures for promoting healthy eating and physical activity in schools, as recommended by the CDC,^[3] and they underscore the need for government and

the management of the Sokoto State Primary School Board to develop and implement healthy eating and physical activity policies and practices in the primary schools across the state (as recommended by the CDC).^[3]

Training of teachers on the benefits of healthy eating and physical activity, and the measures for promoting these practices in schools, as well as the establishment of school environments that support healthy eating and physical activity are crucial to their compliance with the practices and promotion of the practices among their pupils. This is

supported by the findings of a meta-analysis that examined the effectiveness of Health Belief Model (HBM) variables in predicting behavior, which identified perceived benefits as one of the strongest predictors of whether an individual adopted a preventive health measure^[27], and a study conducted among youths by Ashton *et al.* that reported perceived benefits of healthy eating and physical activity as the main motivators for adopting the practices.^[14] It is, therefore, not surprising that only about a third and less of respondents very often promote healthy eating and physical activity among school pupils, while compliance with healthy eating and physical activity by them was suboptimal. Similar to the poor promotion of healthy eating by the respondents in this study, a study among teachers in Minnesota public schools reported that <1/3rd of teachers collaborated with community resources to provide nutrition education, 26% collaborated with the school food services, and 45% tried to involve parents, with the major barriers to nutrition education being lack of training, curriculum materials, administrative support, and time.^[28] These findings reemphasize the need for government and policy-makers to use a coordinated approach to develop, implement, and evaluate healthy eating and physical activity policies and practices in schools as recommended by the CDC.^[3]

According to the HBM, it is believed that messages will achieve optimal behavior change if they successfully target perceived barriers (in addition to benefits, self-efficacy, and threats).^[29] The suboptimal compliance with healthy eating and physical activity by the respondents in this study could, therefore, be related to the barriers reported by them. The findings of the most common barriers to healthy eating among the respondents in this study being lack of information about healthy foods (57.0%), not having money to buy healthy foods (43.7%), and not having the skills to plan, shop for, prepare, or cook healthy foods (41.5%) are similar to the findings in studies conducted among different populations across the world including South Africa,^[30] the United Kingdom,^[31] and Australia.^[32] Similarly, the most common barriers to physical activity among the respondents in this study including lack of motivation (44.8%), not having the skills to do it (43.3%), lack of time (42.2%), and lack of access to facilities for physical activity (33.9%) were the most commonly reported barriers to physical activities in studies conducted in other places including Ghana,^[33] Barbados,^[34] and the United States of America.^[35] These findings reaffirm the submissions of the CDC on the pivotal role of schools in the prevention of obesity and promotion of physical activity and healthy eating through policies, practices, and supportive environment.^[3] The CDC recommends that schools should establish social norms supportive of physical activity, implement school employees' wellness programs (to include healthy eating and physical activity

goals and services), provide a quality school meal program and ensure that students have only appealing healthy food and beverage choices offered outside of the school meal program, implement a comprehensive physical activity program with quality physical education as the cornerstone, and provide community access to facilities for physical activity, particularly at out-of-school times.^[3]

CONCLUSION

This study showed low levels of strong perception of the need for measures for facilitating healthy eating and physical activity and their promotion among school pupils by teachers in Sokoto, Nigeria. Furthermore, a substantial proportion of respondents practice unhealthy eating and live sedentary lifestyle, with the main barriers to healthy eating and physical activity being lack of information, poor motivation, unavailability of healthy foods, and lack of access to facilities for physical activity. These findings underscore the need for the management of Sokoto State Primary Education Board to develop and implement healthy eating and physical activity policies and practices in the primary schools across the state.

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