

## **Psychological, Physical Environment and Socio-Cultural Variables as Predictors of Physical Activity Involvement Among School-Aged Children in Rural and Urban Settlements in Sokoto State, Nigeria**

**Sunday K. Odior**

National Institute for Sports, Lagos

### **Abstract**

*The rising rate of childhood obesity and other health problems strongly tied to physical inactivity is increasingly becoming a major cause of concern in public health. Physical activity is fundamental to the healthy development of children and adolescents. As such, promoting physical activity is becoming a top public health priority throughout the world. Previous studies focused mainly on demographic / biological predictors of physical activity among different population, with little concentration on both rural and urban settlements. This study therefore, examined psychological, physical environment and socio-cultural variables as predictors of physical activity involvement among school-aged children in rural and urban settlements in Sokoto State, Nigeria. The descriptive survey research design was employed and data were generated using self-developed and adopted questionnaire. The International Physical Activity Questionnaire was used to measure physical activity level. A sample of 1158 respondents was used in the study, through the use of stratified, purposive and simple random sampling techniques. The result of the study showed that physical activity was moderated among the respondents, with rural school-aged children demonstrating higher physical activeness compared to their urban counterparts. The finding on the predictive effects revealed that, psychological variables ( $F_{(3,1154)}=242.967, p<0.05$ ), physical environmental variables ( $F_{(3,1154)}=320.141, p<0.05$ ) and socio-cultural variables ( $F_{(3,1154)}=992.304, p<0.05$ ) significantly predicted physical activity involvement among the respondents. Psychological variables of self-efficacy, attitude towards physical activity and physical activity participation intention had relative prediction on physical activity involvement. Facilities for play at school, facilities for play at home and transportation to and from school were relatively tested as physical environmental variables. Socio-cultural variables of gender stereotype, parental support and modelling had relative prediction on physical activity involvement among respondents. It was concluded that psychological, physical environmental and socio-cultural variables had significant prediction on physical activity involvement among the respondents. Modification of the tested variables as an effective strategy to improving physical activeness among the population was recommended.*

**Keywords:** *Physical Activity Involvement, School-Aged Children, Rural and Urban Settlements.*

### **Introduction**

The rising rate of childhood obesity and other health problems strongly tied to physical inactivity is increasingly becoming a major cause of concern in public health. Although children are naturally active but, beyond exhibition of this natural instinct, guided physical activity is impactful in enhancing healthful growth and psycho-social adjustment in them. Physical activity is fundamental to the healthy development of children and adolescents as well as plays protective role against chronic diseases and disorders in later life. As a result, promoting physical activity is becoming a top public health priority throughout the world (World, health Organization, 2008). According to Best, Ball, Zarnowiecki, Stanley and Dollman (2017), physical activity is pivotal for children's health and well-being, yet participation declines across teenage years. Available evidence indicated that, physical activity is less prone to cardiovascular risk factors such as high blood pressure, excess weight and type 2 diabetes (Salmon, Booth, Phongsavan, Murphy & Timeprio, 2007; WHO, 2008). In the same vein, evidence also revealed that high level of physical activity also promotes cognitive abilities and mental health; the greatest effects having been found in relation to self-confidence and depression (Stierdt, Liersh & Walter, 2014).

The physical activity guidelines of the United States Department of Health and Human Services [USDHHS] (2008) revealed that, 60 minutes or more of physical activity daily for children and adolescents are not fulfilled in most countries, particularly Nigeria (Langness, Richter &

Hurrelmann, 2005; WHO, 2008; Akinroye et al., 2014). In Nigeria, evidence showed that, increased incidence and prevalence of non-communicable diseases in Africa is strongly attributable to low level of physical activity and sedentary living. In order to curtail this, there is need for target intervention, but for this intervention to be responsive; there is need to understand predictors, especially modifiable ones associated with physical activity.

A wide variety of interventions to promote the participation of children and adolescents in physical activity have been developed and evaluated. The majority of these studies produced only modest effects (Salmon et al., 2007; van Sluijs, McMinn & Griffin, 20007; Stierdt et al., 2014). Similarly, evidence showed that a possible reason is the insufficient knowledge of factors closely related to the activity behaviour of children and adolescents (Baranowski & Jago, 2005). As a result, an important prerequisite for the planning and development of effective interventions is a comprehensive knowledge of key variables affecting involvement in physical activity hence the present study.

Previous researchers have attempted to gain understanding of the predictors of physical activity among different population groups including children and adolescents. In a recent study, Best et al. (2017) investigated predictors of physical activity that were relatively consistent across three different measures of physical activity, in pre and early adolescent among South Australians. The respondents aged 9–13 years and their parents were surveyed on personal, interpersonal and environmental predictors of physical activity. Child physical activity was objectively measured using pedometers (7 days). Consistent predictors across multiple physical activity measures were parent support for physical activity, having appropriate clothing for sport, enjoyment of physical activity and perceived availability of sporting clubs. These predictors can enhance or impede participation in organized physical activity. As such, they are potential avenues for directing intervention efforts to increase physical activity in early adolescents.

In another study, Stuart, Atkin, Cavill and Foster (2011) in a systematic review examined factors associated with children's and adolescents' physical activity level focusing on quantitative reviews of non-intervention studies. Systematic reviews examining associations between quantitatively measured variables and physical activity level in young people (below 19 years) in a ten-year period from 2000–2010 were identified using electronic and manual searches. The reviewed identified demographic, psychological and social/cultural predictors. Demographic predictors of physical activity were age and gender. Psychological predictors of physical activity were positive motivation, positive body image and the existence of barriers to physical activity. Social / cultural predictors of physical activity were parental influence and social support, while environmental predictors of physical activity were access to facilities, distance from home to school, time spent outside and local crime.

The evidence is suggestive of a number of different types of predictors of physical activity for children and adolescents. Beyond age and gender, though, most are likely to have only small or small-to-moderate effects in isolation and may work best in interaction with other influences. The reviewers recommended that sports psychologists and administrators should look into social, organizational and community-level predictors apart from individual predictors. This is primarily aimed at improving physical activity behaviour of children and adolescents. With predictors of physical activity among Nigerian children understudied, the present study examined psychological, physical environment and socio-cultural variables as predictors of physical activity involvement among school-aged children in rural and urban settlements in Sokoto State, Nigeria.

### **Statement of the problem**

The increasing rate of childhood obesity and other health problems has been ascertained to be associated with physical inactivity. Thus, this has become a major cause of concern in public health, particularly in developing countries. Considering the essential value of physical activity to the healthy development of adolescents; physical activity is therefore, becoming a top public health priority. Previous studies focused mainly on demographic / biological predictors of physical activity among different population, with little concentration on both rural and urban settlements. This study therefore, examined psychological, physical environment and socio-cultural variables as predictors of physical activity involvement among school-aged children in rural and urban settlements in Sokoto State, Nigeria.

**Objectives of the study**

Based on the established fact from the literature on decline in physical activity participation across teenage years, research question was raised, while hypotheses were formulated in line with the specific objectives. Therefore, the objectives were to:

1. Determine the level of physical activity involvement among school aged children in Sokoto State, Nigeria?
2. Examine the joint prediction of psychological variables (self-efficacy, attitude towards physical activity and physical activity participation intention) on physical activity involvement among school aged children in rural and urban settlements in Sokoto State, Nigeria.
3. Examine the joint prediction of physical environment variables (facilities for play at school, facilities for play at home and transportation to and from school) on physical activity involvement among school aged children in rural and urban settlements in Sokoto State, Nigeria.
4. Examine the joint prediction of socio-cultural variables (gender stereotype, parental support and modelling) on physical activity involvement among school aged children in rural and urban settlements in Sokoto State, Nigeria.
5. Examine the relative prediction of physical environment, psychological and socio-cultural variables on physical activity involvement among school aged children in rural and urban settlements in Sokoto State, Nigeria.

**Research questions**

The understated question was raised to guide the study:

1. What is the level of physical activity involvement among school aged children in Sokoto State, Nigeria?

**Hypotheses**

The following hypotheses were tested in the study:

1. There will be no significant joint prediction of psychological variables (self-efficacy, attitude towards physical activity and physical activity participation intention) on physical activity involvement among school aged children in rural and urban settlements in Sokoto State, Nigeria.
2. There will be no significant relative prediction of self-efficacy, attitude towards physical activity and physical activity participation intention on physical activity involvement among school aged children in rural and urban settlements in Sokoto State, Nigeria.
3. There will be no significant joint prediction of physical environment variables (facilities for play at school, facilities for play at home and transportation to and from school) on physical activity involvement among school aged children in rural and urban settlements in Sokoto State, Nigeria.
4. There will be no significant relative prediction of facilities for play at school, facilities for play at home and transportation to and from school on physical activity involvement among school aged children in rural and urban settlements in Sokoto State, Nigeria.
5. There will be no significant joint prediction of socio-cultural variables (gender stereotype, parental support and modelling) on physical activity involvement among school aged children in rural and urban settlements in Sokoto State, Nigeria.
6. There will be no significant relative prediction of gender stereotype, parental support and modelling on physical activity involvement among school aged children in rural and urban settlements in Sokoto State, Nigeria.

***Method***

The descriptive survey research design of the cross-sectional type was used in this study. This design was considered appropriate when researchers aimed at surveying variables and their relationships as well as how they naturally occurred without any attempt to manipulate them.

The population of the study comprised school-aged children in rural and urban settlements in Sokoto State, Nigeria. The population was 8,230, from which the sample size was drawn.

The sample size was derived by using the below formula.

$$n = \frac{m}{1+m-1/N}$$

The sample comprised 1,200 respondents selected from 12 local government areas in the state. There are 23 local government areas in Sokoto State. Out of the existing 23 LGAs, a total number of 12 LGAs were selected in both urban and rural areas of state. The sampling techniques involved a multi stage sampling procedure involving four stages. The first stage involved stratification of the population into urban and rural local government areas from which three local government areas were randomly sampled from each stratum. The next sampling stage involved purposive sampling of public schools in the upper arm of the Universal Basic Education (Primary four – JSS 3). At the third sampling stage, simple random sampling technique of fish bowl was used to sample 10 schools from each of the LGAs; making a total of 120. The last sampling stage involved simple random sampling technique to select 10 respondents from each school to make 1,200 respondents in all.

The research instruments for the study were self-developed and adapted questionnaire. Physical activity was measured using the International Physical Activity Questionnaire. Items 3 and 6 of Part 1 (Job-related Physical Activity) of the instrument, item 20 of Part 4 (recreation, sport & leisure time), items 26 and 27 of Part 5 (time spent sitting) of same instrument were adapted. The adaptation was to ensure that the most basic activities of the school-aged children were captured in a concise manner.

Other variables were measured using self-developed and validated instrument. The International Physical Activity Questionnaire has a total of seven items. Psychological variables (self-efficacy, attitude towards physical activity and physical activity participation intention) were measured by 15 items, 5 items for each variable and the same applies to physical environment and socio-cultural variables thus making a total of 45 items under this section. Items used in measuring the predictors were designed along a modified four-point Likert rating from strongly agree to strongly disagree. The self-developed questionnaire yielded a reliability value of 0.72, while the adapted questionnaire yielded a reliability value of 0.75.

Data were collected using on the spot administration technique by trained research assistants as coordinated by the principal investigators. Since research assistants were versed in the language of the local people, they translated the questionnaire to respondents who had problem understanding and responding in English Language. Meanwhile, the analysis was based on the 1,158 questionnaire forms successfully retrieved and found useful for data analysis. Descriptive statistics of frequency count and percentages were used for analyzing research question, while inferential statistics of regression models was used to test the hypotheses at 0.05 alpha level.

## **Results**

**Research Question One:** What is the level of physical activity involvement among school aged children in Sokoto State, Nigeria?

**Table 1:**

Level of Physical Activity Involvement activity

S/n	Activity	None	1-2 days	3-4 days	5-6 days
1	Number of days involved in vigorous physical activity in the past seven days	0	1,087	67	4
2	Number of days involved in moderate physical activity in the past seven days	0	1,035	93	30
3	Number of days involved in walking for at least 10 minutes in the past seven days	0	301	853	4
4	Number of days involved in sitting or lying down to read, chat with friends and family, watch TV for a long time in the past seven days	0	83	107	968

As indicated in table 1, 1,087 respondents involved in vigorous physical activity in the past one week within 1-2 days, 67 involved in it between 3-4 days, while 4 respondents involved in it between 5-6 days. In addition, 1,035 respondents involved in moderate physical activity in the past one week within 1-2 days, 93 involved in it between 3-4 days, while 30 respondents involved in it between 5-6 days. Moreover, 301 involved in walking for at least 10 minutes in the past one week within 1-2 days, 853 involved in it between 3-4 days, while 4 respondents involved in it between 5-6 days. Also, 83 respondents involved in sitting or lying down to read, chat with friends and family, watch TV for a long time in the past one week within 1-2 days, 107 involved in it between 3-4 days, while 968 respondents involved in it between 5-6 days. The finding reported sedentary living among the respondents. This level of physical activity was unsatisfactory and as such necessitates need for intervention to improve physical activity engagement. This finding of the study was in line with the findings of Akinroye et al., (2014) which reported moderate level of physical activeness among Nigerian children and youths based on available evidence.

### Test of Hypotheses

Based on the established fact from the literature on decline in physical activity participation across teenage years, the following hypotheses were formulated and tested:

**Hypothesis 1:** There will be no significant joint prediction of psychological variables (self-efficacy, attitude towards physical activity and physical activity participation intention) on physical activity involvement among school aged children in rural and urban settlements in Sokoto State, Nigeria.

**Table 2:**

Summary of the regression analysis about joint prediction of psychological variables on physical activity involvement

Model	Sum of Squares	Df	Mean Square	F	Sig.	Remark
Regression	3538.505	3	1179.502	242.967	.000	Significant
Residual	5602.185	1154	4.855			
Total	9140.691	1157				

$R=.622$ ,  $R^2=.387$ ,  $Adj. R^2=.386$ ,  $Std. Error=2.20331$

Table 2 revealed that there was a joint significant prediction of psychological variables on physical activity involvement among school aged children in rural and urban settlements in Sokoto State, Nigeria ( $F_{(3,1154)}=242.967$ ;  $R=.622$ ,  $R^2=.387$ ,  $Adj.R^2=.386$ ,  $p<0.05$ ); with about 38.6% of the variation accounted for by the independent variables. The null hypothesis was therefore rejected. The implication was that psychological variables jointly predicted physical activity involvement of school aged children in rural and urban settlements in Sokoto State, Nigeria.

It connotes the conception or perception an individual has regarding his or her ability to undertake a task. People with high self-efficacy are more likely to engage or undertake a task they believe they can effectively undertake than people with low self-efficacy. In relation to physical activity, school aged children who believe they can undertake physical activities with little or no stress are more likely to do so compare to those who do not. This finding is in line with the findings of Stuart et al. (2011) which reported self-efficacy as a psychological variable predicting physical activity behaviour among children and adolescents.

**Hypothesis 2:** There will be no significant relative prediction of self-efficacy, attitude towards physical activity and physical activity participation intention on physical activity involvement among school aged children in rural and urban settlements in Sokoto State, Nigeria.

**Table 3:**

Summary of the regression analysis about relative prediction of psychological variables on physical activity involvement

Variables	Unstandardized coefficients		Standardized coefficients Beta ( $\beta$ )	t	Sig.
	B	Std. Error			
(Constant)	1.637	.230		7.114	.000
Self-efficacy	.159	.033	.144	4.859	.000*
Attitude towards physical activity	.385	.035	.360	10.935	.000*
Physical activity participation intention	.220	.027	.227	8.036	.000*

\* Significant at  $p < .05$

Table 3 showed that self-efficacy ( $\beta=0.144$ ,  $p < .05$ ), attitude towards physical activity ( $\beta=0.360$ ,  $p < .05$ ) and physical activity participation intention ( $\beta=0.227$ ,  $p < .05$ ) had relative prediction on physical activity involvement among school aged children in rural and urban settlements in Sokoto State, Nigeria. The null hypothesis was therefore rejected. This implied that self-efficacy, attitude towards physical activity and physical activity participation intention independently had strong impact on physical activity involvement of school aged children in rural and urban settlements in Sokoto State, Nigeria.

The implication of the study revealed that attitude defines the subjective feelings an individual has towards an object, a subject or a concept. Positive attitude towards physical activity will lead to increased involvement and vice-versa. Erroneous views about physical activeness could and does pose to be a major hindrance against involvement. When the issue of active transport is put into perspective, people who believe that walking a considerable distance, say from home to school, connotes suffering and therefore represent low economic status, will be less likely to be involved in active transport. Distances that require walking to exercise the body will be covered using automobiles thereby reducing the prospect of engaging in wholesome physical activity. It thus follows that modifying attitude towards physical activity will be an effective strategy in improving involvement. This result supports the result of Best et al. (2017) which reported similar result.

**Hypothesis 3:** There will be no significant joint prediction of physical environment variables (facilities for play at home, facilities for play at school and transportation to and from school) on physical activity involvement among school aged children in rural and urban settlements in Sokoto State, Nigeria.

**Table 4:**

Summary of the Regression Analysis about Joint Prediction of Physical Environment Variables on Physical Activity Involvement

Model	Sum of Squares	df	Mean Square	F	Sig.	Remark
Regression	4151.928	3	1383.976	320.141	.000	Significant
Residual	4988.763	1154	4.323			
Total	9140.691	1157				

$R = .674$ ,  $R^2 = .454$ ,  $Adj. R^2 = .453$ ,  $Std. Error = 2.07919$

Table 4 revealed that there was a joint significant prediction of physical environment variables on physical activity involvement among school aged children in rural and urban settlements in Sokoto State, Nigeria ( $F_{(3,1154)}=320.141$ ;  $R=.674$ ,  $R^2=.454$ ,  $Adj.R^2=.453$ ,  $p < 0.05$ ); with about 45.3% of the variation accounted for by the independent variables. The null hypothesis was therefore rejected. The implication was that physical environment variables jointly predicted physical activity involvement of school aged children in rural and urban settlements in Sokoto State, Nigeria. The finding of this study was in support of Stuart et al. (2011) which indicated that distance and mode of transportation is a significant factor in physical activeness among children and adolescents.

**Hypothesis 4:** There will be no significant relative prediction of facilities for play at home, facilities for play at school and transportation to and from school on physical activity involvement among school aged children in rural and urban settlements in Sokoto State, Nigeria.

**Table 5:**

Summary of the regression analysis about relative prediction of physical environment variables on physical activity involvement

Variables	Unstandardized coefficients		Standardized coefficients Beta ( $\beta$ )	t	Sig.
	B	Std. Error			
(Constant)	1.302	.194		6.716	.000
Facilities for play at home	.267	.027	.267	9.740	.000*
Facilities for play at school	.103	.031	.110	3.327	.001*
Transportation to and from school	.481	.037	.403	13.032	.000*

\* Significant at  $p < .05$

Table 5 showed that facilities for play at home ( $\beta=0.267$ ,  $p < .05$ ), facilities for play at school ( $\beta=0.110$ ,  $p < .05$ ) and transportation to and from school ( $\beta=0.403$ ,  $p < .05$ ) had relative prediction on physical activity involvement among school aged children in rural and urban settlements in Sokoto State, Nigeria. The null hypothesis was therefore rejected. This implied that facilities for play at home, facilities for play at school and transportation to and from school independently had strong impact on physical activity involvement of school aged children in rural and urban settlements in Sokoto State, Nigeria. This might not be far from the fact that certain obstacles discourage or impede participation even among children who are willing and ready to be physically active.

Parental constraints, lack of play facilities at home and school and other factors that might not be within the ability of the child to control can therefore debar the child from engaging in physical activity notwithstanding that the child has an intention to do so. This calls for serious action at the home, school and community level to ensure that barriers acting as hindrances to participating in physical activity among those that are willing to be removed. School and home play facilities could help improve the possibility of engaging in physical activity. Children who are living in neighbourhoods that encourage active play and leisure involving physical activeness will be more likely to be physically active than those living in environment that encourages sedentary living. This finding is in line with the findings of Stierdt et al. (2014) that also reported similar result.

**Hypothesis 5:** There will be no significant joint prediction of socio-cultural variables (gender stereotype, parental support and modeling) on physical activity involvement among school aged children in rural and urban settlements in Sokoto State, Nigeria.

**Table 6:** Summary of the regression analysis about joint prediction of socio-cultural variables on physical activity involvement

Model	Sum of Squares	df	Mean Square	F	Sig.	Remark
Regression	6587.173	3	2195.724	992.304	.000	Significant
Residual	2553.518	1154	2.213			
Total	9140.691	1157				

$$R = .849, R^2 = .721, \text{Adj. } R^2 = .720, \text{Std. Error} = 1.48753$$

Table 6 showed that there was a joint significant prediction of socio-cultural variables on physical activity involvement among school aged children in rural and urban settlements in Sokoto State, Nigeria ( $F_{(3,1154)}=992.304$ ;  $R=.849$ ,  $R^2=.721$ ,  $\text{Adj. } R^2=.720$ ,  $p < 0.05$ ); with about 72.0% of the variation accounted for by the independent variables. The null hypothesis was therefore rejected. The implication was that socio-cultural variables jointly predicted physical activity involvement of school aged children in rural and urban settlements in Sokoto State, Nigeria. In many instances, parents out of their urge to care and protect their children and ward become over protective.

This way, they shield their children from becoming physically active so as not to sustain injuries. While it is important to ensure that children are protected from injuries, shielding them from participating in physical activity predisposes them to a greater danger. It is therefore important for parents and care givers, including teachers to ensure that children are given guided opportunity to engage in sports-based and non-sports based physical activities. Parental and care giver support could transcend mere support to posing as role models. Children with physically active parents are more likely to be physically active too. This is because their parents serve as role models which they imitate and as such becoming physically active themselves. This is in line with the findings of Stuart et al. (2011) who in a systematic review showed that social support and role modeling significantly influence children physical activity level.

**Hypothesis 6:** There will be no significant relative prediction of gender stereotype, parental support and modelling on physical activity involvement among school aged children in rural and urban settlements in Sokoto State, Nigeria.

**Table 7:**

Summary of The Regression Analysis About Relative Prediction of Socio-Cultural Variables on Physical Activity Involvement

Variables	Unstandardized coefficients		Standardized coefficients Beta ( $\beta$ )	t	Sig.
	B	Std. Error			
(Constant)	.463	.126		3.670	.000
Gender stereotype	.160	.024	.155	6.682	.000*
Parental support	.476	.033	.370	14.544	.001*
Modelling	.480	.029	.409	16.474	.000*

\* Significant at  $p < .05$

Table 7 revealed that gender stereotype ( $\beta=0.155$ ,  $p < .05$ ), parental support ( $\beta=0.370$ ,  $p < .05$ ) and modeling ( $\beta=0.409$ ,  $p < .05$ ) had relative prediction on physical activity involvement among school aged children in rural and urban settlements in Sokoto State, Nigeria. The null hypothesis was therefore rejected. This implied that gender stereotype, parental support and modeling independently had strong impact on physical activity involvement of school aged children in rural and urban settlements in Sokoto State, Nigeria. The finding of this study is in in line with the findings of Stuart et al. (2011) who in a systematic review showed that social support and role modeling significantly influence children physical activity level.

It thus follows that providing role models that children could imitate in physical activeness can help in improving their level of physical activity involvement. There is always the gender stereotype of viewing girls as weak and frail and as such, they are not to engage in extraneous activities as boys. In as much as the sporting world appreciates this fact as evidenced in not making males compete against females, it is however important to ensure that every child is given opportunity to be physically active, their gender notwithstanding beyond. Beyond sports, girls can be given opportunities to be physically active. In sports as well, girls must be availed similar support as boys to engage in wholesome organized sporting programmes.

### **Conclusion**

It was concluded that, psychological variables, physical environment and socio-cultural variables respectively had significant joint prediction on physical activity involvement among school aged children in rural and urban settlements in Sokoto State. Self-efficacy, attitude towards physical activity, physical activity participation intention, facilities for play at school, facilities for play at home, transportation to and from school, gender stereotype, parental support and modelling had relative prediction on physical activity involvement among school aged children in rural and urban settlements in Sokoto State.



### **Recommendations**

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

1. Improving self-efficacy of school children as regards physical activeness is important. The use of verbal persuasion by teachers, parents and significant others is important. Efficacy can also be improved by giving children opportunities to gain proficiency in both sports-based and non-sports-based physical activities.
2. Improving attitude towards physical activity is also important and this can be realized using education as a tool. Planned and incidental Physical and Health Education can be very impactful in increasing knowledge of benefits and thereby improving attitude towards physical activity.
3. Ensuring that opportunities to involve in physical activities at home and school must be ensured.
4. It is also important to dismantle the erroneous gender stereotype preventing girls from becoming physical active especially in relation to participating in sporting events
5. Opportunities for physical activeness must be provided at home and school to encourage and reinforce participation in physical activity involvement.
6. Teachers and parents are to be physically active too as a means of encouraging children to be physically active too.

### **References**

- Akinroye, K.K., Oyeyemi, A.L., Odukoya, O.O., Adeniyi, A.F., Adedoyin, R.A., Ojo, O.S., Alawode, D.A., Ozomata, E.A. & Awotidebe, T.O. (2014). Nigeria's 2013 Report Card on Physical Activity for Children and Youth. *Journal of Physical Activity and Health*, 2014. Suppl. 1: S88-92.
- Baranowski, T. & Jago, R. (2005). Understanding the mechanisms of change in children's physical activity programs. *Exercise Sport Science Rev*, 33: 163–8.
- Best, K., Ball, K., Zarnowiecki, D., Stanley, R. ID and Dollman, J. (2017). In Search of Consistent Predictors of Children's Physical Activity. *International Journal of Environmental Research in Public Health*, 14:1258;
- Booth, M.L. (2000). Assessment of Physical Activity: An International Perspective. *Research Quarterly for Exercise and Sport*, 71 (2):114-120.
- Langness, A., Richter, M., & Hurrelmann, K. (2005). Health behavior in school-aged children an international study. *Gesundheitswesen*, 67: 422–431.
- Salmon, J., Booth, M., Phongsavan, P., Murphy, N., & Timeprio, A. (2007). Promoting physical activity participation among children and adolescents. *Epidemiology Rev*, 29: 144–159.
- Shehu, C.E., Ibrahim, M.T.O., Oche, M.O. & Nwobodo, E.I. (2016) Determinants of place of delivery: A comparison between an urban and a rural community in Nigeria. *Journal of Public Health Epidemiology*, 8(6):91-101.
- Sterdt, E., Liersch, S. & Walter, U. (2014). Correlates of physical activity of children and adolescents: A systematic review of reviews. *Health Education Journal*, 73(1) 72–89
- Stuart, B. J. H., Atkin, A. J. ,Cavill, N & Foster, C. (2011). Correlates of physical activity in youth: a review of quantitative systematic reviews. *International Review of Sport and Exercise Psychology*, 4(1): 25-49
- U.S. Department of Health and Human Services. *2008 Physical Activity Guidelines for Americans*. Online. Retrieved on May 25, 2018 from <http://www.health.gov/paguidelines/guidelines/default.aspx>.
- van Sluijs, E, McMin, A. & Griffin S. (2007). Effectiveness of interventions to promote physical activity in children and adolescents: A systematic review of controlled trials. *BMJ*, 335: 703.
- World Health Organization. (2008). *Global Strategy on Diet, Physical Activity and Health*. WHO Report of 2017. Geneva: