

Influence of Health Education and Healthy Lifestyle on Students' Academic Achievement in Biology in Nigeria

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Abstract The positive effects of health education and healthy lifestyle on adolescent academic achievement cannot be over emphasized as learning experiences to help students accurately assess the level of risk-taking behaviour among their peers, emphasis on the value of good health that reinforces health-enhancing attitudes and beliefs are paramount. Little effort had been made by researchers to examine the influence of health education and healthy lifestyle on students' academic achievement. This study examined the influence of health education and healthy lifestyle on students' academic achievement in Biology. Seven hundred and twenty (720) students of both sexes participated in the study. Three instruments used in the study are Health Education Efficiency Questionnaire ($\alpha=0.89$), Adolescent Healthy Lifestyle Questionnaire ($\alpha=0.94$) and Biology Achievement Test ($r=0.88$). Data were analysed using descriptive and inferential statistics of Multiple Regression at $p<0.05$. The result showed that three independent variables were found to have significant relative prediction on students' achievement. Health Education, $\beta = -0.097$, $t(715) = 2.102$, $p<0.05$, Risk Behaviour, $\beta = 0.011$, $t(715) = 0.241$, $p<0.05$ and Value for good Health, $\beta = -0.138$, $t(715) = 3.843$, $p<0.05$. It is therefore recommended that health education should be made mandatory for all students in the secondary school to enable them form and develop a healthy lifestyle.

Keywords Health Education, Healthy Lifestyle, Academic Achievement, Influence, Risk Behaviour

1. Introduction

A continuing debate about the influence of health education on healthy living and academic achievement has occurred since the 1960's. It has become a bigger issue now that there are series of constraints in our nation's schools. Decision makers often find it easy to cut health education programmes because they believe sports and health education are not overly important in the academic arena.

Recently, it was discovered that physical and health education was eliminated among the core subjects in many secondary schools based solely on conjecture that it has nothing to offer for the growth and academic attainment of the students. There is dearth of literature to empirically conclude on this assumption if based on knowledge of the positive effects of the programme on adolescent development. It is obvious that decision makers need to be well informed about the impact of health education on academics and health condition of adolescents before they decide to retain or eliminate it from the curriculum.

According to Weed and Ericksen [1], an effective health education curriculum possesses several characteristics which if followed religiously by the practitioners of health education, will bring about transformation in the healthy lifestyle and academic achievements of the adolescent in our educational system. To a large extent, health barriers such as chronic heart disease, hypertension, obesity, cardio respiratory infection among others will be heavily reduced (Babatunde) [2]. This was corroborated by experts in the field of health education and emphasized that effective curriculum which has instructional strategies and learning experiences built on theoretical approaches (for example, social cognitive theory and social inoculation theory) that have effectively influenced health-related behaviors among youth is what is desired to achieve optimum benefits from health education (Kirby, Coyle, Alton, Roller, & Robin) [3]. Therefore, the most promising curriculum goes beyond the cognitive level and addresses health determinants, social factors, attitudes, values, norms, and skills that influence specific health-related behaviors in adolescent.

Review of literature revealed that such instructional strategies and learning experiences will motivate students to critically examine personal perspectives, thoughtfully consider new arguments that support health-promoting attitudes and values, and generate positive perceptions about protective behaviors and negative perceptions about risk behaviors (Eisen, Pallitto, Bradner, & Bolshun) [4]. Moreover, it helps students to accurately assess the level of risk-taking behavior among their peers (for example, how

many of their peers use illegal drugs), correct misperceptions of peer and social norms, emphasizes the value of good health, and reinforces health-enhancing attitudes and beliefs (Babatunde) [5].

Lohrmann and Wooley [6] in their submission conclude that health education provides for students to validate positive health-promoting beliefs, intentions, and behaviors. It also provided opportunities for students to assess their vulnerability to health problems, actual risk of engaging in harmful health behaviors, and exposure to unhealthy situations. However, what we experience in our society today was contrary to the above submission which is an indication of gaps that existed from eliminating health education from the school curriculum in Nigeria. This informed the need for this study.

The National Federation of State High School Associations (NFHS) and its membership assert that interscholastic sports and health education promote citizenship, sportsmanship, lifelong lessons, teamwork, self-discipline, and facilitate the physical emotional development of our nation's youth. NFHS stated further that, "students who participate in activity programmes tend to have higher grade-point averages, better attendance records, lower dropout rates and fewer discipline problems" (NFHS). Eppright, Sanfacon, Beck, and Bradley [7] also examined the importance of athletics and health education during childhood and adolescent development. They argued that participating in health education class and athletics encourages the development of leadership skills, self-esteem, muscle development and overall physical health.

Participation in physical and health education may help at-risk students and other students who have academic difficulties, both during high school and in higher education. Kirby [8] found that educators believe that knowledge of health education reduces the probability of school dropout by approximately forty percent while involvement in these activities was perceived by educators to support at-risk students by maintaining, enhancing, and strengthening the student-school connection (Kirby) [8].

Lytle and Achterberg [9] argue that participation in extracurricular and health education decreases the tendency to drop out because it gives those students at-risk an opportunity to create a positive and voluntary connection to the educational institution. Tobler and Stratton [10] found a greater percentage of students who participate in high school health programme went to college compared to students who did not participate in athletics. The Stone, McKenzie, Welk and Booth [11] study also concluded that the positive effect of athletic participation on college attendance was more evident among students with lower levels of cognitive development.

Although there is some evidence that athletics can enhance the academic performance for students in general, there may be some major differences between males and females when it comes to the effects of sports participation. Males often find that athletic participation brings them

popularity; however, that is often not the case for females (Maduka) [12]. In the late 1980's, Maduka [12] found that females attained different status attributions depending on the type of sport. In the Kane study, females associated with sex-appropriate sports (such as tennis, volleyball, and golf) received Athletic Participation significantly greater status than females who were associated with sex-inappropriate sports (such as basketball and softball). Maduka [12] concluded that, "social assessments made about female sport participation within high school status systems remain heavily influenced by traditional beliefs regarding feminine, 'ladylike' behavior.

Contento, Balch, and Bronner [13] stated: team sports have been considered less socially acceptable for the female athlete because they require behaviors traditionally accepted of the masculine role, but not the feminine role, such as bodily contact and the use of heavy objects. Hence, it is understandable that female athletes high in feminine orientation who participate in traditional masculine activities perceive their participation to be more in conflict with their predominant orientation toward femininity. This shift is related to the emphasis on health promotion and disease prevention in the health care arena.

2. Statement of the Problem

There is growing evidence on the importance of daily physical activity for health in children and adolescent as well as evidence on positive health outcomes from health education programmes that promote physical activity and fitness for children and youth. However, less information is available on these topics for adolescent. Previous results support the notion that the health education knowledge may not be the same between male and female when considering the healthy lifestyle of both male and female and because healthy students not only excel academically but also are more likely to be engaged positively in social, community, and extra-curricular activities, the benefits of supporting student health, nutrition, and physical fitness are far-reaching. Hence, the need to explore whether there will be any significant influence of health education and healthy lifestyle of adolescent on students' academic achievement. This study therefore examined the influence of health education and healthy on students' academic achievement in Biology in Nigeria..

3. Research Questions

To address the problem, three research questions were raised and answered in the study. These are:

1. What type of relationship exists (a) among the predictors (Health Education, Unhealthy Situation, Risk Behavior, Illegal drug use and Harmful health behaviour) and (b) between each of the predictors and

the criterion (student academic achievement in Biology)?

2. Which of the predictor variables is more influential in predicting students' academic achievement in Biology?
3. Does the obtained regression equation resulting from a set of five predictor variables allow reliable prediction of student achievement in Biology?

4. Research Design

The study was a survey research adopting expo-facto non-experimental research design. This design was chosen as no variable is going to be manipulated since the event had occurred.

4.1. Participants

Multistage sampling technique was used to select thirty (30) public secondary schools proportionate to size and Seven hundred and twenty (720) students comprising males and females were randomly selected to participate in the study.

4.2. Instrumentation

Three instruments: Health Education Curriculum Efficiency Questionnaire (HECEQ) $\alpha=0.89$, Adolescent Healthy Lifestyle Questionnaire (AHLQ) with reliability co-efficient of 0.94 using Cronbach Alpha and Health Education Achievement Test (HEAT) with reliability co-efficient of 0.88 derived from KR₂₀ were used to collect data for the study.

4.3. Data Collection Procedure

The researcher personally administered the instruments with the assistance of three trained research assistants after the initial permission from the school authority and consent of the participants to take part in the study. Data collection

lasted three weeks.

4.4. Data Analysis

Data collected were analysed using descriptive statistics of percentages, means and standard deviation and inferential statistics of Multiple Regression at $p<0.05$ level of significance. SPSS was used for the analysis of the data collected.

5. Results

Research Question 1: What type of relationship exists (a) among the predictors (Health Education, Unhealthy Situation, Risk Behavior, Illegal drug use and Harmful health behaviour) and (b) between each of the predictors and the criterion (student academic achievement in Biology)?

The result of this study reveals that there is a significant positive relationship between Health Education and achievement. This agrees with the findings of Robinson [14]. Botvin and Ruchlin [15] mention that academic achievement positively correlates with Health Education. This result implies that increase in health education will bring about increase in academic achievement of a student. The result reveals further that once student possess knowledge of health education, the effect will definitely show in the performance of the student in the school.

The finding also reveals that there is a significant negative relationship between Unhealthy Situation and academic achievement. This agrees with the findings of Gottfredson [16] that when there is unhealthy situation, it will not provide opportunities to reinforce health-promoting skills across health topics and grade levels. Isola [17] found supportive evidence that unhealthy situation will have negative influence in academic achievement of students. Consequently, the finding also indicates that as long as deficiency in health knowledge, performance of students will be adversely affected.

Table 1. Correlation Matrix of Students Achievement, Health Education and Healthy Lifestyle

	1	2	3	4	5	6
Biology Achievement	1.000					
Health Education	0.174*	1.000				
Unhealthy Situation	-0.119*	0.53*	1.000			
Risk Behaviour	0.174*	0.596*	0.604*	1.000		
Illegal Drug Use	0.009	0.049	0.249	0.185*	1.000	
Value of good health	-0.168*	-0.138*	-0.07	-0.178*	-0.003	1.000
Mean	9.19	41.54	43.52	39.33	41.78	22.12
SD	5.29	8.05	8.74	8.99	9.42	27.22

Note: * Correlation are significant at $p<0.05$

The finding of this study goes on to show a significant positive relationship between risk behavior and academic achievement. This is corroborated by the finding of Kirby [8] that supports the notion that health knowledge and healthy lifestyle, enhances the academic mission of schools. From his literature review, he concluded that health education reduced the probability of school dropout by approximately forty percent. Involvement in healthy lifestyle appeared to support at-risk students by maintaining, enhancing, and strengthening the student-school connection.

Furthermore, the finding showed that there is no significant relationship between Illegal Drug use and students' academic achievement in Biology. This support the finding of Sussman [18] that correlated extracurricular activity participation with background variables (e.g., social economic status, race, gender, school-year size, and prior educational experiences), outcome variables from the sophomore and senior years (e.g., standardized achievement, GPA, coursework selection, self-concept, locus of control, absenteeism, getting into trouble, and educational and occupational aspirations).

Finally, the finding shows a significant positive relationship between value of good health and academic achievement. The result supports the findings of Adeyemo [19], Reimer and Smink [20] concluding that students who attend class regularly as a result of good health knowledge seem to be more successful in their studies than those with poor health knowledge who absent themselves frequently from school. With good healthy lifestyle, there is tendency for a student to out-perform peers with a bad healthy lifestyle.

Research Question 2: Which of the predictor variables is more influential in predicting students' academic

achievement in Biology?

Table 2 present the model summary and Regression ANOVA. The multiple regression correlation coefficient R showing the linear relationship among Health Education, Unhealthy Situation, Risk Behaviour, Illegal Drug Use and Value for good Health on students' academic achievement is 0.24, the multiple R^2 is 0.058 and the Adjusted R square value is 0.051. This means that the variation in students' achievement in Biology accounted for by the five predictor variable is approximately 5.1% and it is statistically significant $F(5, 715) = 9.272, p < 0.05$. This result has a lot of implication for health educators in that presence of any of the predictor variables (Health Education, Unhealthy situation, Risk behavior, Illegal use of drug and Value for good health) will automatically increase the variation in students' academic achievement which may result to poor performance in school.

This result also agrees with the earlier studies of Adu and Olatundun [20] and Maduka [12], which indicated that a good health lifestyle will produce high performing students. It is noteworthy that the mean performance of students in this study $\bar{x} = 26.58$ were lower than the mean of value for good health ($\bar{x} = 22.12$). This shows that health education and value for good health are significantly more effective than what the academic performance of the students' indicate. This study further corroborate the study of Robinson [14] who carried out study on professional competence in teaching of Mathematics in selected high schools of India and U.S. The inter play of the predictor variables is the hallmark of good health lifestyle.

Research Question 3: Does the obtained regression equation resulting from a set of five predictor variables allow reliable prediction of student achievement in Biology?

Table 2. Model Summary and ANOVA

R		0.24			
R Square		0.058			
Adj. R Square		0.051			
Std. Error of the Estimate		5.151			
Model		Sum of Squares	Df	Mean Square	F Sig.
1	Regression	1230.025	5	246.005	9.272 .000
	Residual	20138.728	715	26.583	
	Total	21368.753	720		

Table 3. Relative predictions of the predictor variables on students' achievement in Biology

	Unstandardized		Standardized Coefficients Beta	t	Sig.
	Coefficients				
	B	Std. Error			
(Constant)	5.518	1.319		4.182	0.00
Health Education	0.063	0.03	-0.097	-2.102	0.036*
Unhealthy Situation	0.054	0.029	0.091	1.858	0.064
Risk Behaviour	0.007	0.028	0.011	0.241	0.81*
Illegal Use of Drug	-0.019	0.021	-0.034	-0.917	0.359
Value for good Health	-0.027	0.007	-0.138	-3.843	0.00*

Table 3 shows the individual variable's contribution to the prediction model to the students' achievement in Biology. The table indicates that only three independent variables were found to have significant relative prediction to the students' achievement. Health Education, $\beta = -0.097$, $t(715) = 2.102$, $p < 0.05$, Risk Behaviour, $\beta = 0.011$, $t(715) = 0.241$, $p < 0.05$ and Value for good Health, $\beta = -0.138$, $t(715) = 3.843$, $p < 0.05$ contribute significantly to the prediction model. It also shows that Unhealthy Situation, $\beta = 0.091$, $t(715) = 1.858$, $p < 0.05$ and Illegal Drug use, $\beta = -0.034$, $t(715) = -0.917$, $p < 0.05$ do not contribute significantly to the prediction model. The beta value indicates that, for every one unit change in Students' attitude to Health Education, there is a corresponding increase of -0.097 in students' achievement in Health Education, though negative. While Unhealthy situation ($\beta = -0.091$, $t(715) = 1.858$, $p < 0.05$) does not contribute significantly to the students' achievement in Health Education. The value of the standardized regression weight associated with the significant variable shows those students good health lifestyle is the potent contributor to students' achievement in Health Education among the senior secondary school. Therefore the predictor variables are the good predictor of student achievement in Biology.

5. Conclusions

The finding of this study reveals that health education, risk behavior and value for good health variables have a significant influence on the student's achievement in Biology. The predictive value of 5.1% shows a very low prediction on the students' achievement in Biology. Out of the five independent variables, only three are significant, that is, health education, risk behavior and value for good health. The remaining two variables that is, Unhealthy situation and Illegal use of drug are not significant. It can be concluded that the two non-significant variables reduced the predictive value. With this result, it means that unhealthy situation and illegal use of drug have little influence on Biology achievement among students in Nigeria. The result also

shows that with increase in health education and healthy lifestyle, tremendous improvement can be made on students' academic achievement.

6. Recommendation

In view of the major findings, it is concluded that health education, risk behavior and value for good health are great indicator of academic achievement which is a reliable prediction of the criterion variable. It is therefore recommended that government and other education stakeholders make provision for learning health education and develop positive healthy lifestyle in students in the school curriculum. Moreover, health education should be made mandatory for all students in the secondary school to enable them form and develop healthy lifestyle.

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