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EDITORIAL

The task of effectively applying Science, Technology, Engineering and Mathematics (STEM) education research of utmost importance to STEM educators and other stakeholders, even the survival of any nation depends on the sustainability of its STEM education programme.

Currently, we are facing the challenges of COVID-19 pandemic. Our country Nigeria did not anticipate such disease and as such caught up with the pandemic. Hence the un-preparedness of our nation led to the closure of public places including schools.

Therefore, Science Teachers' Association of Nigeria (STAN) Anambra State Chapter dedicated this 2nd Biennial State conference hold on decencies 8th-9th, 2021 at Federal Science and Technical College, Awka, Anambra State, Nigeria to COVID-19 and Emerging issues in STEM Education.

The editorial board had welcomed our members whose papers - articles were extracted from conference.

Happy Reading.

Prof. Rita N. Nnorom
Editor-In-Chief



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**ISSUES IN PHYSICAL AND HEALTH EDUCATION AND COVID 19
PANDEMIC TOWARDS THE HEALTH BEHAVIOURS AND ATHLETIC
PERFORMANCES AMONG STUDENTS OF F.C.E. [T], UMUNZE,
ANAMBRA STATE**

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Abstract

The study examined the issues in physical and health education and Covid-19 pandemic towards health behaviours and athletic performances among students of Federal College of Education (Tech), Umunze in Anambra State. Physical Education is one of the discipline in all levels of education in Nigeria that exposes students to acquire knowledge and skills to promote health and all round fitness. There is need to develop appropriate lifestyle indices for health promotion and skill acquisition so that the students should be free from diseases, inabilities and discomfort. To achieve this purpose, three research questions were formulated to guide the study, literatures were reviewed as well. Descriptive survey research design was adopted for the study. The population for the study consisted of four hundred and twenty-one (421) NCE students. The sample size was two hundred and ten (210) NCE students using simple random sampling technique. Instrument for data collection was a structured and validated questionnaire that consisted of twelve (12) question items put into three clusters with response options of Strongly Agree = 4, Agree = 3, Disagree = 2 and Strongly Disagree = 1. Mean was used in data analysis. The result of the study showed that students while away their time cracking jokes, watching movies etcetera, the students do not sneeze under the flex of elbow is a way of preventing Covi-19 pandemic among others. It was therefore recommended that, government should provide appropriate recreational centers at pandemic situations, students should adopt healthy lifestyle indices to promote healthy behaviours and athletic performances among others.

Key words: *Physical and Health Education, Pandemic and Athletic Performance*



Introduction

Healthy nation is a wealthy nation. Nothing could be achieved successfully in an ill society. Physical and health education is one of the disciplines in all levels of education in Nigeria. It exposes students to acquire knowledge and skill to be fit and also to promote health. According to Lynch, Gregory and Wayne (2016) physical and health refers to the acquisition of skills and knowledge necessary to help in the development of the body, mind and spirit in order to promote health wellbeing. Physical Education specifically is concerned with the process of developing the body and mind through movement and careful selection of physical activities which help to develop the body, enhance total fitness, growth and all round development of the body through selected physical activities. Health education involves process through which one acquires health knowledge which is necessary for maintaining healthy living.

In line with other experts, Eddy (2021) high lightened branches of physical education to include; Athletics games, gymnastics, recreations, combat sports, Rhythmic and dance, safety education, aquatic sports (swimming) fundamental movements among others. Also branches of Health Education includes such as First aid and safety education, drug education, environmental education, drug education, environmental health disease (communicable and non-communicable, community health, family planning, sex education, food and nutrition among others.

Besides, individual physical and mental wellbeing is the major concern of two similar areas of education, that is, physical and health. Olivet (2015) asserted that physical and health education is a course taught in schools that focuses on developing physical fitness and inability to perform and enjoy day to day activity. Also physical and health education is a learning process that focuses on knowledge, attitudes and behaviours that are imperative for students to embark a lifestyle of health and fitness. Furthermore, as a result of knowledge acquired through physical and health education, students develop skills and achieve the knowledge for living a healthy life.

However, some objectives of physical and health education encourages individual to abide by these two similar areas. While physical education objectives were; to correct posture, to create interest and love for games in students, to provide avenue for social interaction among students, develop the ability to reason and make decisions, provide career opportunities, encourage intentional cooperation and friendship through sports,



enable students to have a sense of leadership, loyalty and obedience, that of health includes but not limited to acquiring and practice desirable health habits that lead to total fitness, provide information on drugs, drug misuse, and danger of self-medication, teaches personal cleanliness and environmental hygiene. These were to enable people to enjoy good health and improve longevity. Health Education has the aim of acquiring practicing desirable health habit which leads to a total fitness, creates awareness of diseases including the transmission mode, prevention and cure. According to Gupta and Mahajan (2003) health education aimed to develop a sense of responsibility to health condition in individuals, family members and communities. However, the cooperation, interactions, healthy lives enjoyed by physical and health education were suddenly interrupted by a cancer world disease called Covid-19 Pandemic.

A pandemic occurs when a disease that people are not immuned to spreads across large area. A disease is pandemic when it occurs throughout the world or it affects a very large population of the world. Covid-19 is a contagious disease that crept the whole economy Godwin (2020), started that Covid-19 is more deadly than influenza. Moore (2021) in a debate on origin of Covid-19 asserted that the initial events in the Covid-19 pandemic took place in or near Wuhan China in late 2019. When the virus that was likely endemic to bats infected one or more human then began to spread from person to person Coronavirus are group of viruses that can cause disease in both animal and human. On 11th March 2020, the World Health organization declared Covid-19 “Pandemic” According to Landman (2021) pandemic is a kind of epidemic, one which has spread across a wider geographical range than an epidemic and which has affected a significant portion of the population. Kelly (2021) stated that pandemic is a disease outbreak that spreads across countries or continents and affect more people and take more lives than epidemic. An outbreak is an immediate occurrence of disease to that affect large people. Landman (2021) describe an outbreak as a sudden rise in incidence of disease and typically is confined to a localized area. The World Health Organization (WHO) in Kelly (2020) declared Covid-19 pandemic when it became clear that the illness was severe and that it was spreading quickly over a wide area. Singer Thompson, Michael and Bonsall (2021) stated clearly that Covid-19 pandemic is an epidemic occurring worldwide or over a wide area, crossing international boundaries.

Besides, there are so many pandemic that claimed lives of large number of people like influenza, HIV/AIDS and other such pandemic Web (2020) asserted that since 20th century, there have been so many pandemics such as HINI pandemic of 2009, Spanish flu of 19/8/19 (which did not originate from Spain) flu pandemic in 1957 and 1968 and



now Covid-19 of 2019/20. According to Web (2020) the best know pandemic across is the Black Death, a plague of 14th century. Pandemic causes havoc not only to life of people but also to our economy, health behaviours and athletics performances. This is why Arongudade (2020) high lightened that challenges of the pandemic cut across all boarder.

Now, the new pandemic Covid-19 even makes live more difficult for people especially towards physical and health education discipline. According to Arongudade the basic protocols of World Health Organization on Covid-19 include physical and social distancing, regular washing of hands under running water, wearing masks among others.

Succinctly puts, Physical and Health Education involves interactions with people, how can an athletes engage in physical and social distancing? Can an athlete play alone? How can they wear masking knowing fully well that during physical activities, heart rate and breathing increases? Again, physical and health education encourages people to travel to other countries but Covid-19 had put all these to halt with its consistent lockdown. That is in accordance with Ndujike (2020) who asserted that Covid-19 led to restriction of entry into another country for travelers from China, Italy, Iran, South Korea, Spain, Japan, France, Germany among others which were countries with over one thousand cases domestically at that time as well as restricting the issuance of Visa on arrival to travelers from the named countries. These restrictions with other Covid-19 protocols demoralize and scare athletes thereby denying them the opportunity to move around and improve in their athletics skills.

Many athletes were so scared that friends and family members are avoided. Worst still if diagnosed to be Covid-19 positive, hope is lost. As stressed by Blauise (2020) that coronavirus diagnosis made one psychotic. Blauise asserted that even when one had recovered, one admitted that the condition left one in shock and total panic that the victim should always try to ensure that people are not too close and the victim have to be mentally strong. All the athletics competitions was abruptly halt, athletes would not exercise their skills and knowledge. This led to unhealthy behaviour, lockdown, stay at home, social and physical distance as a result athletes stay away from each other. Friendly behaviours were denied and athletes were on their own. However, COVID - 19 poses problems which fringed to human relationships, efforts need to be made to curb down these problems, restore healthy living by ensuring that all COVID – 19 protocluls were made available to all athletes. Measures to adopt to made all athletics



activates functional should be put in place. When all the needful were put in place, athletes should be free to exercise their skills without being perturbed.

Statement of the Problem

Physical and health education enable students to acquire knowledge and skills to be fit as well as health promotion. It also aids in the development of the body, mind and spirit in order to promote health and wellbeing. Knowledge acquired in physical and health education enable students/athletes to perform their day to day activities. Physical and health education among other importance provides avenue for social interactions, ability to reason and make decisions, provide, acquire and practice desirable health habits, provide knowledge of nutrition, food nutrients that are essential for proper growth and development. However, the breakout of COVID-19 pandemic halt not only economy of citizen but also halt athletics performances among the students in Federal College of Education (Technical), Umuze. These athletes were unable to acquire the desired skills, knowledge, health behaviours and improve athletics performance in the college. Moreover, all state, National and International athletics activities stopped abruptly. The ugly situations instead of promotion and empowerment which should be our focus, demoralizes students from acquiring the skill needed and necessary knowledge for health behavior and athletics performance. It is against this backdrop that the researchers sought to investigate on Issues in Physical and Health Education and Covid 19 Pandemic towards the Health Behaviours and Athletic Performances among Students of Federal College of Education (Tech), Umuze, Anambra State.



Purpose of the Study

The main purpose of the study was to investigate on Issues in Physical and Health Education and Covid 19 Pandemic towards the Health Behaviours and Athletic Performances among Students of Federal College of Education (Tech), Umuze, specifically the study sought to:

1. To ascertain the issues of physical and health education and Covid 19 towards health behaviours and athletics performance of F.C.E. (T), Umuze
2. The impact of Covid 19 pandemic towards health behaviours and athletics among students of F.C.E. (T) Umuze
3. Determine the possible ways for improving health behaviours and athletics performance in pandemic situations among students of F.C.E (T) Umuze.

Research Questions

1. What are the issues of physical and health education and Covid 19 pandemic towards health behaviours and athletics performance among students of F.C.E. (T), Umuze?
2. What is the impact of Covid 19 pandemic towards health behaviours and athletics performance among students of F.C.E. (T), Umuze?
3. What are the possible ways for improving health behaviours and athletics performance among students of F.C.E. (T), Umuze?

Method

Descriptive survey research design was adopted for the study which was carried in Orumba South Local Government Area. The population of the study consisted of four hundred and twenty-one (421) NCE students from school of Sciences in Federal College of Education (Technical), Umuze. Simple random sampling was adapted to select seventy students from NCE I, II and III to get two hundred and ten students (210) as a sample size. A structured and validated questionnaire was used for instrument for data collection. The researchers in an attempt to determine the reliability of the instrument carried out a trial testing once on twenty[20] lecturers at F.C .E.[T] Asaba which had a similar educational system and their scores were computed using cronbach Alpha through SPSS versions 21 and a reliability index of .3 [sixty three] was obtained. The instrument was administered to the respondents by the researchers and 100 percent



(100%) return rate was recorded. Likert 4 scale point of Strong Agree (SA) = 4, Agree (A) = 3, Strongly Disagree (SD) = 2, and Disagree (D) = 1 was used to elicit information from the respondent. Descriptive statistics mean (\bar{x}) was used to analyze the data collected. Decision rule was that any item that was 2.50 and above signifies Agree and any item with less than 2.50 signifies Disagree.

Research Question One: What are the issues of physical and health education and COVID-19 pandemic towards health behaviours and athletics performance among students of F.C.E. (T), Umuze?

Table 1: Mean rating on the effect of PHE and Covid-19 pandemic towards health behaviours

S/N	Items	SA	A	D	SD	N	X	Remark
	I stay indoor due to lockdown	102	74	22	12	210	3.26	Agreed
	I always cover my face with facemask while watching movies	119	58	25	8	210	3.37	Agreed
	I could not get to friend house due to social distance	100	87	16	7	210	3.33	Agreed
	I stayed at balcony always looking outside due to physical distance	115	76	12	7	210	3.42	Agreed
Grand Mean							3.34	

Source: Field Survey, 2021

The above table revealed positive response from the items. This indicated that covid - 19 brought halt to social interactions and prevent athletes to acquire knowledge and skill needed to be fit and promote health. So, this affect health behavior and athletics performances of students in F.C E [T], Umuze.

Research Question Two: What are the impact of COVID-19 pandemic towards health behaviours and athletic performances among students of F.C.E (T), Umuze?



Table 2: Mean rating on the impact of health behaviours and athletic performances among students of F.C.E (T), Umunze.

S/N	Items	SA	A	D	SD	N	X	Remark
	I wash my hands regularly	109	85	9	7	210	3.40	Agreed
	I put on face mask always	110	86	10	4	210	3.40	Agreed
	I stay far from people and avoid crowd	102	88	11	9	210	3.34	Agreed
	I do sneeze under flex elbow	18	12	50	130	210	1.60	Disagree
Grand Mean							2.93	

Table 2 indicated agreement in terms 1, 2 and 3. This showed that students in F.C.E (T) acquired healthy lifestyle indices through Covid-19 pandemic. It also revealed that students do not adopt the lifestyle of sneezing under flex elbow as indicated in item 4 in Table 2 above as a way of avoiding Covid-19 pandemic.

Research Question Three: What are the possible ways for improving health behaviours and performances in pandemic situations among students of F.C.E. (T), Umunze?

Table 3: Mean rating of the ways for improving health behaviours and athletic performances in pandemic situations among students.

Items	SA	A	D	SD	N	X	Remark
I believe government should provide Covid-19 facilities	88	72	30	20	210	3.08	Agreed
I believe government should fumigate athletic fields	150	50	2	8	210	3.62	Agreed
I believe government should provide Covid-19 vaccine	97	69	34	10	210	3.20	Agreed
I believe in maintaining personal hygiene	108	93	7	2	210	3.46	Agreed
Grand Mean							3.34

Source: Field Survey, 2021.

Data presented in Table 3 indicated positive response all through. This showed that healthy behaviours for effective athletic performances can be achieved when healthy lifestyle indices are adopted in pandemic era thereby promoting the health of athletics/student. Government efforts are highly needed for effective results



Discussion

From the results, it could be concluded that COVID-19 issues of total lock down, social and physical distancing, putting on facemasks among other covid-19 protocols prohibit students from acquiring knowledge and skills needed to be fit and promote health. This led to poor healthy behaviours and poor athletics performances during the covid-19 pandemic era. The results also proved that students despite the fact that they kept to some covid-19 issues they do not strictly adhere to some issues such as sneezing under a flex elbow among others. This indicated that students in F.C.E[T], Umuze do not adopt some stipulated protocols for covid-19 pandemic as a way of avoiding the disease.

However, all things being equal, the result also revealed that if certain conditions were made, such as provision of covid-19 facilities by the Government, fumigation of athletics fields, individuals taking covid-19 vaccine and maintenance of regular hygiene among others positive health behaviors were made, there would be much improvement in health behaviors and performances in pandemic situations among students of F.C.E[T], Umuze.

Conclusion

The study investigated on the issues in PHE and COVID-19 pandemic towards health behaviours and athletic performances among students in F.C.E (T), Umuze, Anambra State. It is clear that nothing could be achieved in an ill society especially at COVID-19 pandemic era and physical activities practiced in schools were also quenched due to fast spreading of the disease thus affecting heavily the healthy behaviours and athletic performances of students in F.C.E (T), Umuze. This outcry in educational sector created an imbalance and this need is really felt by the researchers.

Recommendations

Based on the findings, the following recommendations were made;

1. Government should provide appropriate recreational centers for health up-keep of students of pandemic situations.
2. Students should adopt appropriate healthy behaviours at pandemic situations for health promotion and high level of athletic performances.
3. Students should absorb healthy lifestyle indices so as to curb endemic and pandemic diseases.



References

- Arongudade, L. (2020). World Press day nigeria has unhealthy dose of disinformation, fake News: *Vanguard Newspaper*; May 14. (27) 7.
- Association (2021) Downloaded from www.nature-com article.
- Blause, M. (2020). *Coronavirus made me psychotic*, *Vanguard Newspaper*, May 4 (27) 31.
- Eddy, J. M. (2021). Edudelight>com 2019-2021 kids Britannica.com. *Encyclopaedia and Britannica.inc. Physical and health education focuses on learning through physical actions*
- Gupta, M.C & Mahajan B.K (2003). *Textbook of preventive and social medicine*. New Delhi: Japee brothers.
- Godwin, M.D. (2020). COVID-19 origin. Retrieved on 4th Nov. 2022 from www.medicalnewstoday.com>article.coronavirus (Covid-19) origin, a cause and how it spread
- Moore, J.P. (2021). Is the debate over the origin of Covid-19 still worth having? Retrieved on 9th Nov. 2022 from www.statenews.com>2021
- Ndujihe, C. & Omeiza A. (2020). Politics PTF on Covid-19. How far government ease lockdown? Why government, PTF NUDS. *Vanguard Newspaper*, May 4 (2020) ,Vol. (27)26
- Olivert (2021). www.edu.physicaledu.physicaleducation.internaional Baccalaureate organization 2005-2021.
- Web MD.L.L.C, (2020). Downloaded on 4th Nov.2021 from www.webmd.com
- Lynch, T, Gregory, J, Souckup & Wayne, U.(2011). “Physical education”, health and physical Education “Physical Literacy” and health literacy “*Global Nomenclature confusion, cogent Education, 3(2016). Issue 1*
- Singer, T Robin, N. Thompson M.B, & Bonsall . I (2021). *International Epidemiology*