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INFLUENCE OF EXERCISE ON STRESS MANAGEMENT OF PRIMARY SCHOOL PUPILS AFTER COVID-19 PANDEMC LOCKDOWN IN NGOR OKPALA LGA OF IMO STATE NIGERIA.

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ABSTRACT

The study determined the influence of physical exercise on stress management of primary school pupils after COVID-19 pandemic lockdown. The study was conducted in Ngor-Okpala Local Government Area of Imo State Nigeria. The researchers raised two research questions and formulated two null hypotheses. The design of the study was descriptive and analytic survey. The sample of the study was 400 primaries school (3-6) pupils. The instruments used in data collection were: pupil exercise routine checklist (PERC) and pupil stress management questionnaire (PSMQ). The instruments were validated by specialists from department of Educational Psychology and Measurement and Evaluation Alvan Ikoku Federal University of Education, Owerri. Imo State Nigeria. The reliability of the instruments was determined to be 0.71 and 0.66. The data collected were analyzed using descriptive statistics (mean and standard deviation) and t-test in testing the null hypotheses. Findings of the study revealed that physical exercise was routinely carried out by primary school pupils before the COVID-19 pandemic lockdown but was embarked on by primary school pupils after COVID-19 pandemic lockdown. The second finding of the study was that the stress management of pupils was within health friendly level before the pandemic but increased adversity after the COVID-19 pandemic lockdown. The implication of the findings was that lack of physical exercise could have caused the increase in stress of pupils in primary schools in Ngor-Okpala. The researchers therefore recommended that: primary school pupils should be guided into physical exercise which could be done individually to avoid transmission of corona virus and at the same time improve health condition of the primary school pupils.

Key Words: *Influence, pandemic, stress, lockdown, exercise*

INTRODUCTION

Reasons why students in public secondary schools perform poorly in both written and oral examination in many Nigerian primary schools has been attributed to poor physical activities. Physical exercise is recognized by qualified teachers as an important factor in improving memory and retrieval of information. Exercise also facilitates information assimilation and processing. Kantor (2022) defined physical exercise as that which activities memory, builds stamina and improve thinking skills. Also physical exercise is a planned, structured, and repetitive activity aimed at improving or maintaining fitness, health, and wellness. It's a voluntary activity that involves bodily movement, muscle contraction, and energy expenditure. According to (WHO) physical exercise is any bodily activity that enhances or maintains physical fitness and overall health. Also according to the (American college of Sports and Medicine) views physical exercise as activity that is planned, structured, and repetitive, with the goal of improving or maintaining fitness. Authors emphasize the numerous benefits of regular physical exercise, which includes: improved cardiovascular health in the sense that: it strengthens the heart: regular physical exercise makes ones heart more efficient at pumping blood, which reduced the risk of heart disease. It also improve blood flow: regular physical exercise help lower blood pressure and keep it under control's weight management, enhances mental or intellectual well-being, increases strength and flexibility, reduced risk of chronic diseases. In explaining the health importance of physical exercise, Goldman (2020) in his own stated that physical exercise reduces insulin resistance, reduces inflammation and stimulate the release growth factors and better general body functioning, mood and sleep. Physical exercise reduces stress and anxiety which collectively reduces attention in classroom among learners.

Importance of physical exercise cannot be overstated in relation to students' academic achievement. According to Asian, Otolehi and Agulanna (2020), physical exercise supports quality academic achievement. Segel (2019) asserts that inactivity among students may result in poor academic achievement. Inactivity impairs body functions resulting in poor memory, poor encoding process and retrieval failure of information. Simon (2022) in a study evaluated the effect of exercise in academic achievement of students and determined physical exercise improved tremendously achievement of students in high schools. Physical exercise has been accepted by WHO (2017) as an ingredient in body functioning of adolescents. Exercise creates a healthy mind; alert brain cells and improves the quick response of neurons in transmitting information from the brain to sensory organs. Exercise operationally improves attention in classroom activities. It equally improves coordination of body cells for optimal performance (Ubochi, 2019). Classroom participation of students according to Asian, Otolehi and Agulanna (2020) could be improved by exercise. Boredom, as aspect of ineffective classroom participation according to Suido (2020) may be controlled through exercise.

It is therefore essential to subject students to routine physical exercise during recreational period or as a period in school time table for effective learning and improved performance of students in school engagements. Apart from mental or intellectual fitness, Nwosu, Azarah, & Iwuoha (2025) views that exercise brings the desire satisfaction every student requires for full participation in classroom activities. Exercises makes primary school pupils to be stronger and healthier, it helps build strong bones and muscles.it also exercises enable primary school

pupils focus and learn: it improves concentration and memory, making it easier to learn new things.in the other hand exercise enable the pupils to be more happier: it releases happy hormones, like endorphins, serotonin, dopamine and oxytocin making them feel good and energetic. Also physical exercises make them more confident: it make the pupils feel more confident and proud of themselves. When play sports or games with friends, it is a great way to make new friends. In a study conducted by Asian, Otolehi and Agulanna (2020) exercises curbed the problem of attention deficit hyperactivity among students in junior secondary schools in Ngor Okpala Local Government Area of Imo State. Similarly, Lawrence, Melinda and Segel (2016) recommended physical exercise as alternative medicine for easing the incidence of depression among adults. Hinshaw (2019) recommended the use of physical exercise in improving the academic performance of underachievers and other externalizing problems. Equally, physical exercise was recommended for other learning problem such as: aggression. Exercise as a subject in school and routine body fitness practice would have been disrupted by the COVID-19 regulations which chiefly centered on social distancing and minimal contacts among students.

Pandemic according to (WHO) is a wide spread outbreak of a disease that affects a large number of people across multiple countries or even continents also, it is a widespread of a new disease that usually referring to an infectious disease. In the view of Merriam-Webster Dictionary: pandemic is an outbreak of a disease that occurs over a wide geographic area and affects an exceptionally high proportion of the population. In the views of Epidemiologists: pandemics involve widespread transmission of a disease, often with significant morbidity and mortality. And can be caused by infectious agents such as viruses, bacteria, or other pathogens. Centers for Disease Control and Prevention (CDCP), sees pandemic as a global outbreak of disease that affects a large number of people and spread across countries and continents. In a simpler term, a pandemic is when a disease spreads rapidly and widely, often across the world, affecting many people and causing significant disruption. COVID-19 (corona virus pandemic) was discovered from Wuhan in Huba province in China in December 2019.it spreads through respiratory droplets, contact, and possibly through airborne transmission. The virus was declared a pandemic on March, 12, 2020 (WHO, 2020). Confirmed cases of COVID-19 grew to unquantifiable number in more than two hundred countries in the whole world.

The incidence of COVID-19 pandemic lead to countries in Africa and world at large to take measures geared toward controlling the spread of the virus. This necessitated closing entry points into countries. Such as Airports, Seaports and Land borders. Businesses were shot down as well as schools at all levels. Many African countries implemented a partial lockdown whereas few applied a national and total lockdown measures. Social distancing, using face mask, regular hand washing in running water and application of hand sanitizers were other measures put in-place to curb the spread of COVID-19 pandemic. It is a highly contagious viral illness caused by the severe acute respiratory syndrome coronavirus.

Measures adopted by World Health Organization (WHO) may have serious implication to sports and other physical activities in primary, secondary and tertiary institutions in Nigeria. The fear of contacting corona virus by pupils and students has reduced the number of students in many secondary schools in Nigeria. Students, who eventually attend classes, observe physical distancing which somewhat disrupts sporting activities. Measures taking in public

secondary schools in Imo State to curb the spread of COVID-19 include, face mask, social distancing, removal of sporting activities (exercises) in school time table and minimizing contacts among students. Students are also encouraged to observe these measures at home on daily basis.

It is therefore, important to determine the relative impact of these measures, most especially absence of recreational activities (exercise) in schools. As aforesaid, the essence of exercise in healthy living and mental alertness cannot be ignored as its advantages are numerous. Weighing the comparative advantage may also be irrelevant as life is more important. COVID-19 pandemic invariably is here and may for a long time remain a pandemic. Adequate knowledge of the health implications and educational disadvantages may enable authorities fashion out ways of allowing students to engage in routine exercises which has been verified by many researchers as essential for better academic performance in secondary schools.

Stress according to Emilly (2012): is the body's response to threat or challenge, and it's essential to complete the stress cycle to manage it. Also stress is a condition or feeling experienced when a person perceives that demands exceed the personal and social resources the individual is able to mobilize.

Stress according to Emenalo,B.N, Agbalama & Ucheoma C (.2009), as a complex condition of the body and mind by unusual or threating situation in the external world and persisting until the situations are removes, the condition may be short or long term and the stressor may be predominantly either physiological or psychological. For children or primary school pupils that lack the ability to manage with stress situation especially during Covid 19 pandemic, the lack the ability to talk about their feelings and classroom problems. Primary school pupils may rather suffer from depression or becomes withdraw from their academic activities. It may also lead the children to frustration, anxiety, fear, and physical discomfort. Stress management refers to the techniques and strategies used to manage and reduce stress, particularly chronic stress which can have negative impacts on physical, intellectual or mental health.

Stress Management, according to Richard Pettinger, (2002) involves understanding that stress is a part of life and cannot be completely eliminated. Instead, it is about managing stress to improve overall well-being. In another view, Greenberg (2012) said that stress management involves identifying stressors, assessing their impact, and using strategies to manage or cope with them. Also according to Emilly Nagoski (2019)., stress management is about completing the body's stress cycle, which involves acknowledging and processing emotions, and taking action to release tension.

The present study is therefore set to determine relationship between COVID-19, exercise and academic achievement of primary school pupils in Ngor-Okpala Local Government Area of Imo State. COVID-19 pandemic invariably has serious health implications on pupils' activities. Stress depression, suicidal ideation is among the consequences which result of many research studies seem to approve physical exercise as thes remedy. However, the absence of physical exercise as one of the measures to curb the transmission of COVID-19 may increase the suffering of primary school pupils who ideally would have been disposed to sports. The present study may therefore, pose the following questions: Is there any

relationship between sports, exercise and COVID-19 pandemic? Is there any relationship between exercise and academic achievement of primary school pupils? Answers to these questions may help authorities fashion out way of reinstruction of sports (exercise) in schools.

Purpose of the Study

The purpose of the study is to determine the:

1. COVID-19 pandemic discouraged physical exercise and sporting activities in primary school.
2. COVID-19 disrupted normal school academic activities in schools

Research Questions

Two research questions were posted by the researchers to guide the study:

1. To what extent did primary school pupils involve themselves in physical exercise activities before and after COVID-19 pandemic?
2. What was the stress management of primary school pupils before and after COVID-19 pandemic?

Hypotheses

The study was guided by two hypotheses formulated by the researchers

1. There was no significant difference in primary school pupils' involvement in physical exercises before and after COVID-19 pandemic.
2. There was no significant difference in the stress management of primary school pupils before and after the COVID-19 pandemic.

Methodology

The study adopted a descriptive analytic survey design in that the analysis of data goes beyond descriptive to inferential statistics in determining the existing difference between physical exercise and stress management of primary school pupils in Ngor-Okpala before COVID-19 and during COVID-19. The population of the study was six hundred and sixty-seven pupils (317 males and 350 females). The sample of the study was 400 primary school pupils from (3-6). The sample was selected using stratified proportionate random sample techniques. This was to accommodate the minority group in the population. The instruments used in data collection were: Pupils Exercise Routine Checklist (PERC) & Pupils Stress Management Questionnaire (PSMQ). Exercise checklist recorded the number of days' pupils were involved in exercise while the school. Pupils scored 4 points for each day the participated in exercise giving 20 points for five days of school attendance in a week. Pupils stress management questionnaire has fifteen item questions response of participants was weighed under 4 point-likert scale of Strongly Agree (SA);+4, Agree (A); +3, Disagree (D); +2 and Strongly Disagree (SD); +1. The weights score on the questionnaire is 60 points signifying high management stress. The lowest score which signified the lowest management of stress is 15 points. 40 points and above signify high management of stress whereas 39 points and below was accepted as health friendly stress management. The physical exercise and stress management of primary school pupils were obtained before and after the COVID-19 pandemic. The checklist obtained how many times primary school pupils exercised during the pandemic and before the pandemic (school exercise schedule). Participants were selected from primary 3 to 6 from eighteen primary schools out of seventy-eight in Ngor-Okpala Local

Government Area. This represented 10% of all the primary schools in Ngor-Okpala Local Government of Imo State.

The instruments were validated by specialists in faculty of Education department of Educational Psychology and Measurement and Evaluation, Alvan Ikoku Federal College of Education, Owerri Imo State Nigeria. The reliability of the instruments was determined to be 0.71 and 0.66. Data collected were analyzed using mean and standard deviation and t-test in testing the null hypotheses.

Procedure for Data Collection

Ngor-Okpala has three sub-educational zones namely, South, North and central education zones. The researchers selected five primary schools from each zone totaling fifteen primary schools. The instruments were administered after the COVID-19 pandemic lockdown. However, the item questions were constructed to obtain information on state of affairs before the pandemic and after the pandemic. The headmasters/headmistress granted approval for the exercise to be conducted in their schools. Pupils stress management questionnaire before the pandemic was administered first. Responses were collected, and then reshuffled version was re-administered after the expiration of 30 minutes to obtain their stress management after COVID-19 pandemic. The stress management for the two periods was compared. The physical exercise checklist before the pandemic and after were obtained through the head teachers of the selected schools. The whole exercise lasted for 60 minutes (1 hour). The researchers collected the responses and packaged, onward for analysis.

Results

Research Question One: To what extent were primary school pupils involved in physical exercise activities before and after COVID-19 pandemic?

Table 1: Mean ($\bar{X}$) and standard deviation of primary school pupils on physical exercise activities before and after COVID-19 pandemic lockdown.

Variables	N	Pre-test		Post-test		Decision (df)
		$\bar{X}$	Std. Dev.	$\bar{X}$	Std. Dev.	
Exercises	400	20.00	6.87	8.00	7.32	12.00

Table 1 shows the mean ($\bar{X}$) exercise score of pupils bef ore the COVID-19 pandemic and after (post-test mean scores). Before COVID-19 pandemic, the exercise mean scores were 20.00 whereas after the pandemic the exercise mean ($\bar{X}$) score was 8.00.

Research Question Two: What is the stress management of pupils in primary schools in Ngor-Okpala before and after COVID-19 pandemic?

Table 2: Mean ($\bar{X}$) and standard deviation of primary school pupils on stress management before and after COVID-19

Variables	N	Pre-test		Post-test		Decision (df)
		$\bar{X}$	Std. Dev.	$\bar{X}$	Std. Dev.	
Stress (level) & COVID-19	400	35.00	6.07	58.00	7.24	23

Table 2 shows that before the COVID-19 pandemic, the X stress level of primary school pupils in (3-6) was selected schools in Ngor-Okpala was 35.00 and standard deviation of 6.07 after the COVID-19 pandemic. The mean (X) stress level of primary school pupils was recorded as 58.00 and standard deviation of 7.24.

Hypothesis One: There is no significant difference on the mean (X) exercise involvement of primary school pupils before and after COVID-19 pandemic

Table 3: t-test of significant difference on exercise involvement of pupils in primary school (3-6) before and after the COVID-19 pandemic

Variables	N	$\bar{X}$	SD	Df	LS	t_{cal}	t_{crit}	Decision
Before COVID-19 (exercise involvement)	400	20.00	6.87					
				398	0.05	23.890	1.960	Significant
After COVID-19 (exercise involvement)	400	8.00	7.32					

Table 3 shows the X, SD, degree of freedom, calculated 't' and table value of 't'. The mean (X) exercise involvement of primary school pupils before COVID-19 pandemic was 20.00 whereas after COVID-19 pandemic exercise involvement mean (X) of primary school pupils were 8.00. Calculated value of't' was 23.890 whereas the table value of't' was 1.960. Based on the fact as shown on the table that t_{cal} (23.890) is greater than t_{crit} (1.960). The hypothesis of no significant difference is rejected and the alternative accepted hence. There is a significant difference in the mean score of primary school pupils' exercise involvement before and after the COVID-19 pandemic.

Hypothesis Two: There is no significant difference in the mean (X) stress management of pupils in primary schools in Ngor-Okpala before and after COVID-19 pandemic.

Table 4: t-test of significant difference on stress management of pupils in primary school (3-6) before and after the COVID-19 pandemic

Variables	N	$\bar{X}$	SD	Df	LS	t_{cal}	t_{crit}	Decision
Stress management before COVID-19	400	35.00	6.07					
				398	0.05	48.52	1.960	Significant
Stress management after COVID-19	400	58.00	7.24					

Table 4 shows the X, SD, degree of freedom, calculated't' and table value of 't'. The mean (X) stress management of primary school pupils before COVID-19 pandemic was 35.00, whereas after COVID-19, stress management mean (X) score of pupils was 58.00. The calculated value of 't' was 48.52 whereas the table value of 't' was 1.960. Based on the fact that calculated 't' is greater than table 't' (48.52>1.960), the hypothesis of no significant difference between the mean (X) stress management of primary (3-6) pupils before and after COVID-19 pandemic is rejected. There is therefore a significant difference between the mean (X) stress management of pupils before and after COVID-19 pandemic.

Discussion

The result of the study was that primary school pupils were involved in physical exercise on daily basis (5 days) before the COVID-19 pandemic but never did same after the pandemic. The result means that pupils were seldom allowed to participate in physical exercise activities after COVID-19 pandemic. The reason for the result would have been because of guidelines rolled out by the Nigerian Centre for Disease Control (NCDC) which includes social distancing and washing of hands in running water. Sports or exercise among pupils will definitely increase the spread of corona virus since exercise in school environment which involve body contacts among primary school pupils. The regulation and guidelines would have prevented the primary school pupils from getting involved in exercise while at school. Headmasters' and head mistress are instructed not to allow pupils to crowd themselves to avoid spread of the virus in primary schools. The present result is in agreement with the study of Sahu (2020) which revealed that closure of schools prevented close contacts among students in high schools and universities. The significance of the mean difference between physical exercise involvement of primary school pupils before and after COVID-19 pandemic was also determined in the present study. The mean (X) exercise score of primary school pupils before the pandemic was high because schools (primary) involved pupils in a routine physical exercise for the five days of school activities in a week. Conversely after the pandemic, primary school pupils were allowed to exercise on a very low key and under the watchful eyes of teachers every school day.

The result of the study was that the stress management of primary school pupils in Ngor-Okpala heightened after COVID-19 pandemic. This result means that the stress management of pupils in primary schools in Ngor-Okpala was lower before the pandemic than after the pandemic. The reason for the result would have been because of the absence of physical exercise or sporting activities after the pandemic in primary schools in Ngor-Okpala. Physical exercise and sports according to the result of previous studies from Asian, Otolehi and Agulanna (2020) shows that physical exercise and sporting activities contributed to the reduction of anxiety and stress among students in secondary schools. Therefore, the findings of the present study is in line with the result of K̄antor (2022) finding which revealed that behavioral techniques could be used in curbing problems encountered by students in school environment. The study determined also that there was a significant difference between the stress management level of primary school pupils before and after the COVID-19 pandemic.

Summary/Conclusion

The finding of the present study has confined the outcome of numerous studies that physical exercise contributes to mental or intellectual health and wellbeing of students. Therefore, the need for physical exercise cannot be overstated. Many stress cases among students could have been arranged because of lack of physical exercise. Aerobic exercise and flexibility exercises should therefore be encouraged among primary school pupils to replace exercises such as football, handball, basketball, were distancing are not observed.

Recommendations

1. The researchers recommended that aerobic and flexibility exercises should be introduced in primary school to replace exercises such as football and handball, where transmission rate of COVID-19 could be high.

2. The researchers recommended that sanitizers and running water should be made available in primary schools to reduce the transmission of COVID-19 among primary school pupils.

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