

# Investigating The Impact of Physics Curriculum Design on Students' Mental Health and Academic Performance Implication for Counselling

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## Abstract

The study investigated the impact of physics curriculum design on students' mental health and academic performance: Implication for counselling. To achieve this, a quantitative research design was adopted for the study. The population for the study comprised of 17,729 SS2 physics students in public senior secondary schools in the FCT, Abuja. A Sample size of 380 SS2 students were selected for the study through Research Advisors Table (2006). A 21-item instrument tagged 'Questionnaire on Impact of Physics Curriculum Design on Mental Health and Students Academic Performance' (QPMA) was developed for the study. In addition, a 40-item Physics Achievement Test was developed for the study for the purpose of assessing students' academic achievement in physics. To ensure validity of the instruments used, they were given to experts in educational research and Measurement and Evaluation. Scores from the appraisal of experts were used to obtain consensus logical validity indices of 0.80 and 0.72 respectively. The instruments were later pilot tested on 30 students; the respondents were part of the population but not part of the sample for this study. The data obtained from the pilot test was used to compute the internal consistency of the instrument using Cronbach's Alpha reliability method. and indices of 0.78 and 0.74 were obtained. Mean and standard deviation was used to answer the research questions while regression statistics was used to test the hypotheses at 0.05 level of significance. Findings on the study showed there is a significant the impact of physics curriculum design on students' mental health and academic performance. The study recommended that physics curriculum be restructured to help enhance students' mental health and academic performance

**Key Words:** Academic Performance, Counselling, Mental Health and Physics curriculum

## Introduction

Physics education is a key to scientific innovation and technological development, and the process equips the students with the best problem-solving skills that assure the students of resolving concerns affecting people around the world regarding renewable energy development, medical technology, and climate change mitigation (Duit, 2014; UNESCO, 2017). The change in curricular trends towards learner-centered and context-oriented ways of study, as well as the integration of real-world applications to facilitate access to abstract concepts and make them

more relatable and engaging to learners, is a paradigm shift observed all over the world (Bennett et al., 2016; Gilbert, 2006). The approaches seek to bridge the divide between theoretical and practical use and make the learners understand the subject better and also maintain interest. Physics education is challenged in Nigeria where science and technology are crucial in the attainment of the national development target of the Vision 20:2020 agenda (Federal Republic of Nigeria, 2010). A conventional physics course and curriculum is based on the colonial education system, which focuses on theoretical, alien-based knowledge such as those derived in the West involving mechanics or optics, which fail to resonate with the students in their socio-cultural and economic contexts (Okebukola, 2019; Ogunniyi, 2015). This discordance is part of the reason why student interest and performance in the West African Senior School Certificate Examination (WASSCE) is persistently low with the average passing rate in physics being below 50% between 2015 and 2020 (West African Examinations Council, 2021). The political issue is the general situation of education in Nigeria, where the lack of adaptation of curricula content to the local conditions affects the country confronted by the desire to become self-sufficient in science and the technological sector. In the 2018 National Policy on Education, it is proposed that context-based teaching of science be used to ensure that learning is relevant and to promote the national development (Federal Ministry of Education, 2018). Nevertheless, the pace of implementation is slow since there are challenges, such as poor mental health of students and a lack of sufficient learner engagement/learning experiences.

Mental health includes subjective well-being, perceived self-efficacy, autonomy, competence, intergenerational dependence, and self-actualization of one's intellectual and emotional potential, among others. Mental health also includes emotional, psychological, and social well-being, and it affects how people manage stress and make everyday decisions. Mental health can impact student satisfaction, engagement/learning, continuation, and completion of physics curriculum (Hughes & Spanner, 2019). However, poor mental health amongst students is increasingly reported. Mental health is the most common driver for students' dropping out of science subjects like physics, higher than any other factor such as financial support (Sanders, 2023).

Effective curriculum content further takes into consideration various factors that enhance student engagement/learning experiences, such as alignment with learner interests and real-world applications. This connection fosters a dynamic classroom atmosphere where students feel a sense of relevance and purpose in their studies. An engaging curriculum captivates students' interests and fosters their participation in the learning process. It consists of various key elements that collectively enhance student engagement through thoughtful design and implementation. The attainment of students learning outcomes in physics therefore can only become a reality if learners are exposed to a curriculum that is well designed and which takes into cognizance their mental health and academic performance. The study is therefore geared towards investigating the impact of physics curriculum design on students' mental health and academic performance implication for counselling

### **Statement of the Problem**

Physics is a core science subject offered at senior secondary level. It is however disheartening to note that in spite of its relevance, students' academic performance in the subject has been on the decline in recent years. Coupled with this is the fact that learners who try to learn the subject get confused and, in most cases, experience a deterioration in their mental health. Despite the importance of physics in understanding the natural world and its application in various aspects of human life, many students experience anxiety, disinterest and poor academic achievement in physics. This challenge is particularly pronounced in Nigerian secondary schools, where students often struggle with the abstract nature of physics content leading to a decline in mental wellbeing and academic achievement. This ugly trend has been attributed by some stakeholders to the inadequacy of qualified and experienced physics teachers while others have attributed it to the use of ineffective teaching strategies. There is however a growing concern that other factors may be responsible for this ugly trend in student achievement and mental health, prominent among such factors is the nature of the physics curriculum content used for instructional delivery in secondary schools. The content of the physics curriculum has made the teaching and learning of physics complex and most cases; learners are hardly carried along in the learning process because they are hardly engaged and exposed to learning experiences that may enhance their mental health and academic achievement. Despite these growing concerns, there has been limited research on how physics curriculum content and learning

engagement impact students' mental health and academic performance in public secondary schools of the FCT, Abuja., Nigeria. It is based on this realization that the current study is set to examine the impact of physics curriculum content and learning engagement on students' mental health and academic performance in public secondary schools of the FCT, Abuja., Nigeria.

### **Purpose of the Study**

The purpose of the study is to investigate the impact of physics curriculum content and learning engagement on students' mental health and academic performance in public secondary schools of the FCT, Abuja., Nigeria: Implications for counselling. Specifically, the study seeks to:

1. Determine the impact of physics curriculum content on the mental health of students in public secondary schools of the FCT, Abuja., Nigeria.
2. Examine the impact of physics curriculum content on the academic performance of students in public secondary schools of FCT, Abuja., Nigeria.
3. Ascertain the impact of physics curriculum learning engagement/experiences on the mental health of students in public secondary schools of FCT, Abuja., Nigeria.
4. Determine the impact of physics curriculum learning engagement/experiences on the academic performance of students in public secondary schools of in the FCT, Abuja., Nigeria.

### **Research Questions**

The following research questions guided the study and were answered:

1. What is the impact of physics curriculum content on the mental health of students in public secondary schools in the FCT, Abuja, Nigeria?
2. How does physics impact curriculum content impact the academic performance of students in public secondary schools in the FCT, Abuja., Nigeria?
3. What is the impact of physics curriculum learning engagement/experiences on the mental health of students in public secondary schools in the FCT, Abuja., Nigeria?
4. To what extent does physics curriculum learning engagement/experiences have impact on the mental health of students in public secondary schools in the FCT, Abuja., Nigeria?

### **Research Hypotheses**

The following hypotheses were tested at 0.05 level of significance:

H0<sub>1</sub>: There is no significant impact of physics curriculum content on the mental health of students in public secondary schools in the FCT, Abuja., Nigeria.

H0<sub>2</sub>: There is no significant impact of physics curriculum content on the academic performance of students in public secondary schools in the FCT, Abuja., Nigeria.

H0<sub>3</sub>: There is no significant impact of physics curriculum learning engagement/experiences on the mental health of students in public secondary schools in the FCT, Abuja., Nigeria.

H0<sub>4</sub>: There is no significant impact of physics curriculum learning engagement/experiences on the academic performance of students in public secondary schools in the FCT, Abuja., Nigeria.

### **Literature review**

Physics is a subject that has in its curriculum both theoretical and calculation aspects, which made it closely related to mathematics. The physics curriculum plays a pivotal role in shaping learners' understanding of the natural world, and developing critical thinking skills. However, the voluminous content, the design and the delivery of the physics curriculum has been criticized for contributing to students' stress, anxiety and declining academic performance (Angell et al, 2024, Bennett & Hogarth, 2019)

Usman & Abubakar (2019). Conducted a study mainly to find the Level of Physics Curriculum Content Coverage and Factors Responsible for Non-coverage of the Curriculum and their Effects on Students' Achievement in Katagum Educational Zone, Bauchi State Nigeria. Four research questions and three hypotheses were developed for the study. The study employed survey research design. The population of the study comprised of 8,912 students and the sample was made up of 200 SS II physics students. Three instruments were used in collecting data for the study namely; Physics Curriculum Content Coverage Rating Scale (PCCCRS), Physics Students Achievements Test (PSAT), and Factors Responsible for Non-Physics Curriculum Content Coverage (FRNPCCC). The three instruments were validated by three experts. The reliabilities of the three instruments were computed using Cronbach alpha and test-retest reliability coefficient indexes. The reliabilities of PCCCRS, PSAT, FRNCCC were found to be Inter-rater of value of 0.76, Cronbach alpha with a value of 0.86 and test-retest reliability of 0.84. Descriptive and inferential statistics were used to answer questions and test the hypotheses stated. The findings revealed that; there is significant effect of physics curriculum content coverage on students' achievements, some topics are partially or totally not covered by the teachers and have direct effects on students' achievement, there are significant differences among schools with high, moderate and low physics content coverage, there is significant difference between physics curriculum content coverage in public and private schools. It was found that, among all the 25 factors tested, only 6 factors were not among the factors responsible for non-content coverage of physics curriculum in secondary. Increase in teachers' content coverage of specified curriculum leads to an increase in students' achievement in Physics; factors such as lack of professional/qualified physics teachers, lack of teaching materials/ laboratories, Physics teachers' welfare, Boko-haram insurgency and so on were found to be responsible for the none curriculum content coverage in schools. Based on the findings of the study, it was recommended among others that Ministries of Education and all stakeholders should frequently supervise teachers to curb lousiness, laziness and sluggishness on the part of teachers to ensure proper coverage of academic contents of physics in schools. The study of Usman and Abubakar did not consider the impact of curriculum content on mental health, which makes the research different from this work. More so the study area is not the same and sample size also differs.

Han and Naci (2019), Investigated the causal effect of high school curriculum on various student outcomes including academic performance at university, happiness, physical and mental health, self-confidence, confidence in academic ability, and attitudes towards studying and learning. We exploit a curriculum reform in China, the implementation of which started in 2004, but rolled out in different years in different provinces. The new curriculum pivoted away from the old lock-step course structure where all students had to take the same courses and only those subjects that were covered in the national university entrance exam were considered important. In contrast, the new curriculum introduced a course credit system, changed textbooks, and provided flexibility in course selection. It also introduced elective courses and made such courses as arts and physical education mandatory, and a graduation requirement. Using survey data on university students and employing a difference-in-difference approach, we find that the students who were exposed to the new curriculum in high school have better academic performance in university. They are happier, and their physical and mental wellbeing is better. These students are more likely to have positive attitudes towards themselves and they are more involved in student clubs. They have more confidence in their academic ability, they have more positive attitudes towards studying, and they have more general self-confidence. These results indicate that the reform had a significant impact on students' academic success and well-being, arguably by allowing them to focus on subject matters in which they are interested, and by reducing undue stress of a regimented curriculum. The study of Han and Naci was conducted in a university population while this work is secondary school based, this work has to do with physics curriculum but that of Han and Naci (2019) is not subject centered. That makes this work different from the research of Han and Naci.

Chidi-Belonwu and Egbuchu, (2024) investigated the impact of academic workload on the mental health of undergraduate students of Rivers State University. The design for the study is correlational research design. The population for this study was made up of all the undergraduate students in Rivers State University in Law Faculty. A sample of 400 students were drawn from the population. The respondents were made up of 163 male and 237 female students respectively. School Work Inventory (SWI) and Mental Health Questionnaire (MHQ) instruments

were used for data collection. The reliability of the instrument was ascertained using the Cronbach Alpha technique on SPSS. It was revealed respondents had a mean value of 28.90 (SD = 9.35) on work load, while for mental health it was 41.67 (SD = 4.51) which when subjected to independent sample t-test, the result yielded a t-value of 2.131. These findings therefore suggest that there is influence of work load on mental health of undergraduate students of Rivers State University. It was recommended that lecturers should find out the possible ways of students' work load. This will help boost their sense of self-importance, relevance and also improve their mental health. The study of Chidi-Belonwu and Egbuchu focused on work load and mental health while this research focused on curriculum content in physics and mental health.

Ejiga and Shie (2022) investigated the relationship between Senior Secondary School physics student, self - concept and academic performance in Jos North Local Government Area of Plateau State, three research questions and three hypotheses was formulated for the study. The instrument for data collection was self- concept conduct inventory questionnaires (SSCIQ) and physics achievement test questions (PAT). A correlation research design was used for the study. The correlation coefficient of 0.98 provides an estimate of reliability of a full test were half- test correlation is 0.96. The targeted population of the study comprises of SS II physics students in Jos North Local Government Area of Plateau State, numbering 350 students of these numbers 227 were male and 123 were female students respectively. The sample size used for this study was 200 students. A simple random sampling technique was employed to draw a representative sample for the study.

The Pearson's Product Moment Correlation Coefficient 'r' was used to determine the

relationship between self-concept and students' academic performance. While the t- test for

independence samples were used to examine the differences that existed between male and female self-concept and their academic performance in physics. The finding of the study showed that there is positive relationship between Senior Secondary school students' self-concept and their performance in physics. It also revealed that there is no significant difference between male and female students' self-concept and academic achievement in physics. The findings further revealed that the male and female students do not differ significantly in their academic performance in physics. The recommendations made among others were that necessary measures be put in place in our educational system to remove inferiority complex in our students and enhance the development of positive self-concept on their academic achievement students. The study of Ejiga and Shie looked into self-concept in Physics and academic performance while this work considered curriculum and academic performance.

### **Methodology**

Quantitative research design was used in this study. This involved qualitative and quantitate research designs in which interviews were conducted for a focus group and questionnaires were also administered. The population of the study comprises 17,729 SS2 physics students in public senior secondary schools in the FCT, Abuja. A Sample size of 380 SS2 students were selected for the study through Research Advisors Table (2006). A 21-item instrument tagged 'Questionnaire on Impact of Physics Curriculum Design on Mental Health and Students Academic Performance' (QPMA) was developed for the study. In addition, a 40-item Physics Achievement Test developed for the study for the purpose assessing students' academic achievement in physics. To ensure validity of the instruments used, they were given to experts in educational research and Measurement and Evaluation for face and content validity. The experts subjected them to critical appraisal. Scores from the appraisal of experts were used to obtain consensus logical validity indices of 0.80 and 0.72 respectively. The instruments were later pilot tested on 30 students; the respondents were part of the population but not part of the sample for this study. The data obtained from the pilot test was used to compute the internal consistency of the instrument using Cronbach's Alpha reliability method. The analyses of the responses yielded reliability indices of 0.78 and 0.74. Mean and standard deviation was used to answer the research questions developed for the study while regression statistics was used to test the hypotheses at 0.05 level of significance

## Results

The research questions were answered using descriptive statistic of mean and standard deviation while regression statistics was employed in testing the hypotheses at 0.05 level of significance.

**Research Question One:** What is the impact of physics curriculum content on the mental health of students in the FCT, Abuja, Nigeria?

**Table 1: Impact of Physics Curriculum Content on the Mental Health of Students in the FCT, Abuja, Nigeria.**

S/N	Statement	SA	A	D	SD	Mean	Std Dev	Decision
1	I have phobia for physics because of the nature of the curriculum	38	304	38	0	3.00	0.45	Agreed
2	The content of the Physics curriculum is difficult to comprehend	95	247	38	0	3.15	0.57	Agreed
3	Studying to understand most topics in Physics is very Stressful	19	323	38	0	2.95	0.39	Agreed
4	The content of the Physics Curriculum is highly overwhelming during practice and study	57	285	19	19	3.00	0.63	Agreed
5	Attending physics class create anxiety in me	114	57	171	38	2.65	1.92	Agreed
6	Physics practical is tasking due to its calculation content	38	266	38	38	2.80	0.75	Agreed
	Cluster Mean					2.93	0.79	

Results based on table 1 indicates the impact of physics curriculum content on the mental health of students in the FCT, Abuja, Nigeria. Results show that the average mean is given as 2.93. This value is above the benchmark value of 2.50 for a 4-point likert scaled questionnaire. Hence, there is a high impact of physics curriculum content on the mental health of students in the FCT, Abuja, Nigeria.

**Research Question Two:** What is the impact of physics curriculum content on the academic performance of students in the FCT, Abuja, Nigeria.

**Table 2: Impact of Physics Curriculum Content on the Academic Performance of Students.**

S/N	Statement	SA	A	D	SD	Mean	Std Dev	Decision
7	The Physics Curriculum content is more abstract than real	19	304	38	19	2.85	0.57	Agreed

8	The content of the Physics curriculum is difficult to understand	114	209	57	0	3.15	0.66	Agreed
9	The Physics curriculum content is filled with calculations which makes it tasking in understanding.	114	247	19	0	3.25	0.54	Agreed
10	The Physics curriculum content has a depth which is difficult to comprehend	57	304	19	0	3.10	0.44	Agreed
11	The Physics curriculum is bulky and so gives headache to cover up	57	209	76	38	2.75	0.83	Agreed
Cluster Mean						3.02	0.61	

Results based on table 2 indicates the impact of physics curriculum content on the academic performance of students in the FCT, Abuja, Nigeria. Results show that the average mean is given as 3.02. This value is above the benchmark value of 2.50 for a 4-point likert scaled questionnaire. Hence, there is a high impact of physics curriculum content on the academic performance of students in the FCT, Abuja, Nigeria.

Research Question Three: What is the impact of physics curriculum learning engagement / experiences on the mental health of students in the FCT, Abuja, Nigeria.

**Table 3: Impact of Physics Curriculum Learning Engagement / Experiences on the Mental Health of Students**

S/N	Statement	SA	A	D	SD	Mean	Std Dev	Decision
12	The Learning engagement and Experiences in Physics curriculum content is stressful	95	190	57	38	2.85	0.57	Agreed
13	The physics curriculum content experiences are brain tasking.	19	342	19	0	3.15	0.66	Agreed
14	Physics curriculum content experiences do not motivate me to learn Physics	19	323	38	0	2.95	0.39	Agreed
15	The Physics Curriculum Practical content is time consuming and leads to boredom	57	114	171	38	3.10	0.44	Agreed
16	The Physics curriculum content experiences demand a lot of energy on learners	58	247	38	38	2.85	0.79	Agreed

Cluster Mean	2.98	0.57
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Results based on table 3 indicates the impact of physics learning engagement / experiences on the mental health of students in the FCT, Abuja, Nigeria. Results show that the average mean is given as 2.98. This value is above the benchmark value of 2.50 for a 4-point modified Likert scaled questionnaire. Hence, there is a high impact of physics curriculum learning engagement / experiences on the mental health of students in the FCT, Abuja, Nigeria.

Research Question Four: What is the impact of physics curriculum engagement /learning experiences on the academic performance of students in the FCT, Abuja, Nigeria.

**Table 4: Impact of Physics Curriculum Learning Engagement / Experiences on the Academic Performance of Students**

S/N	Statement	SA	A	D	SD	Mean	Std Dev	Decision
17	The Learning engagement and Experiences in Physics curriculum content makes it difficult to pass the subject	57	190	114	19	2.75	0.77	Agreed
18	The physics curriculum content experiences are more of abstract, that is why passing it is difficult.	38	266	76	0	2.90	0.54	Agreed
19	Physics curriculum content experiences do not motivate me to learn Physics	38	171	133	38	2.55	0.81	Agreed
20	The Physics Curriculum Practical content is difficult to practice	133	209	38	0	2.25	0.62	Agreed
21	The Physics curriculum content experiences is bulky and difficult	38	304	38	0	3.00	0.45	Agreed
	Cluster Mean					2.69	0.64	

Results based on table 4 indicates the impact of physics curriculum learning engagement / experiences on the academic performance of students in the FCT, Abuja, Nigeria. Results show that the average mean is given as 2.69. This value is above the benchmark value of 2.50 for a 4-point modified Likert scaled questionnaire. Hence, there is a high impact of physics curriculum learning engagement / experiences on the academic performance of students in the FCT, Abuja, Nigeria.

**Hypothesis One:** There is no significant impact of physics curriculum content on the mental health of students in the FCT, Abuja, Nigeria.

**Table 5: Regression Analysis showing Significance of Impact of Physics Curriculum Content on the Mental Health of Students in the FCT, Abuja, Nigeria.**

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	599.245	1	599.245	60.847	.000
Residual	3722.691	378	9.848		
Total	4321.937	379			

a. Dependent Variable: MENTAL HEALTH OF STUDENTS

b. Predictors: (Constant), PHYSICS CURRICULUM CONTENT

Table 5 presents the result of regression analysis test carried out to determine the impact of physics curriculum content on the mental health of students in the FCT, Abuja, Nigeria. The calculated value of F is given as 60.847. while the p-value is given as 0.000 at degrees of freedom of 1 and 378. It can be observed that the p-value is below 0.05 level of significance. Thus, null hypothesis is rejected implying there is a significant impact of physics curriculum content on the mental health of students in the FCT, Abuja, Nigeria.

**Hypothesis Two:** There is no significant impact of physics curriculum content on the academic performance of students in the FCT, Abuja, Nigeria.

**Table 6: Regression Analysis showing Significance of Impact of Physics Curriculum Content on the Academic Performance of Students in the FCT, Abuja, Nigeria.**

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	872.946	1	872.946	95.588	.000
Residual	3452.054	378	9.132		
Total	4325.000	379			

a. Dependent Variable: ACADEMIC PERFORMANCE OF STUDENTS

b. Predictors: (Constant), PHYSICS CURRICULUM CONTENT

Table 6 presents the result of regression analysis test carried out to determine the impact of physics curriculum content on the academic performance of students in the FCT, Abuja, Nigeria. The calculated value of F is given as 95.588. while the p-value is given as 0.000 at degrees of freedom of 1 and 378. It can be observed that the p-value is below 0.05 level of significance. Thus, null hypothesis is rejected implying there is a significant impact of physics curriculum content on the academic performance of students in the FCT, Abuja, Nigeria.

**Hypothesis Three:** There is no significant impact of physics curriculum engagement /learning experiences on the mental health of students n the FCT, Abuja, Nigeria.

**Table 7: Regression Analysis showing Significance of Impact of Physics Curriculum Engagement/Learning Experiences on the Academic Performance of Students in the FCT, Abuja, Nigeria.**

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	870.655	1	870.655	93.183	.000
Residual	3531.829	378	9.343		
Total	4402.484	379			

a. Dependent Variable: MENTAL HEALTH OF STUDENTS

b. Predictors: (Constant), PHYSICS CURRICULUM ENGAGEMENT/LEARNING EXPERIENCES

Table 7 presents the result of regression analysis test carried out to determine the impact of physics curriculum engagement /learning experiences on the mental health of students FCT, Abuja, Nigeria. The calculated value of F is given as 93.183. while the p-value is given as 0.000 at degrees of freedom of 1 and 378. It can be observed that the p-value is below 0.05 level of significance. Thus, null hypothesis is rejected implying there is a significant impact of physics curriculum engagement /learning experiences on the mental health of students the FCT, Abuja, Nigeria.

**Hypothesis Four:** There is no significant impact of physics curriculum engagement /learning experiences on the academic performance of students in the FCT, Abuja, Nigeria.

**Table 8: Regression Analysis showing Significance of Impact of Physics Curriculum Engagement/Learning Experiences on the Academic Performance of Students in the FCT, Abuja, Nigeria.**

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	735.841	1	735.841	79.759	.000
Residual	3487.366	378	9.226		
Total	4223.208	379			

a. Dependent Variable: STUDENTS ACADEMIC PERFORMANCE

b. Predictors: (Constant), PHYSICS CURRICULUM CONTENT

Table 8 presents the result of regression analysis test carried out to determine the impact of physics curriculum engagement /learning experiences on the academic performance of the students in the FCT, Abuja, Nigeria. The calculated value of F is given 79.759. while the p-value is given as 0.000 at degrees of freedom of 1 and 378. It can be observed that the p-value is below 0.05 level of significance. Thus null hypothesis is rejected implying

there is a significant impact of physics curriculum engagement /learning experiences on the academic performance of students in the FCT, Abuja, Nigeria.

### **Discussion of Results**

Findings on hypothesis 1 indicated there is a significant impact of physics curriculum content on the mental health of students in the FCT, Abuja, Nigeria. This finding is in agreement with the finding from the study of Chidi-Belonwu and Egbuchu, 2024, which showed that there was significant impact of academic workload on the mental health of undergraduate students of Rivers State University. Findings on hypothesis 2 indicated there is a significant impact of physics curriculum content on the academic performance of students in the FCT, Abuja, Nigeria. This finding is in agreement with the findings from the study of Usman and Abubakar (2024) which showed there is significant effect of physics curriculum content coverage on students' achievement. Similarly, findings on the study of Ejiga and Shie (2022) showed there is positive relationship between Senior Secondary school students' self-concept and their performance in physics.

Findings on hypothesis 3 indicated there is a significant impact of physics curriculum engagement/learning experiences on the mental health of students in the FCT, Abuja, Nigeria. This finding is in agreement with findings from the study of Han and Naci (2019) indicated that had a curriculum content had a significant impact on students' academic success and well-being, arguably by allowing them to focus on subject matters in which they are interested.

Findings on hypothesis 4 indicated there is a significant impact of physics curriculum engagement/learning experiences on the academic performance of students in the FCT, Abuja, Nigeria. This finding is in agreement with findings from the study of Han and Naci (2019) indicated that had a curriculum content had a significant impact on students' academic success and well-being, arguably by allowing them to focus on subject matters in which they are interested, and by reducing undue stress of a regimented curriculum.

### **Implication for Counselling**

The findings of this study indicated that there is a significant impact of physics curriculum learning experiences on both the students' academic performance and their mental health, the curriculum content likewise has impact on the two variables. Invariably, the findings have implications for the in-school guidance and counselling.

Counselling is a trust relationship between a trained counsellor and a client where the latter is assisted to see things differently through focusing on feelings and behaviour with the goal of achieving a positive change (Enem et al., 2021). Counselling as a service could be one-on-one (individual counselling) or one to a group of not more than 8 (group counselling). It could be given face to face or online through any platform of the social media making the service available at all time and season.

Be it the case, counsellors should engage the physics students to identify their learning styles and preferences in physics and group them within such preferences. Some students may prefer visual learning of diagrams, simulations, videos and visualizations, some may prefer Auditory learning, individual learning, collaborative learning and some, the kinesthetic – practical, or hands-on. Placing them according to their preferences and strengths will help them assimilate easily and ensure academic excellence and improved mental health.

### **Conclusion**

The study underscores the fact that physics curriculum design had a significant impact on students' mental health and academic performance. Therefore, physics curriculum design significantly impacts students' mental health and academic performance in the FCT, Abuja.

### **Recommendations**

Based on the findings of the study, the following recommendations were arrived at;

1. Physics Curriculum content should be restructured by the curriculum planners in order to help stabilize the mental health of learners in secondary schools.
2. Curriculum planners should inculcate a variety of student-centred activities into the physics curriculum in order to foster improved learning and improvement in students' academic performance.
3. Problem solving strategies should be incorporated into curriculum by teachers in the process of engaging learners and exposing to various learning experiences in order to enhance their mental health.
4. Teachers of physics should be sensitized through workshops and seminars on how they can effectively engage students and incorporate learning experiences into the curriculum in order to enhance students' academic performance.

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### **Informed Consent**

The informant consent of all the principals and the students of the respective schools who provided the data were obtained before embarking on the study.

### **Declaration of competing interest**

The authors declare no conflicts of interest pertaining to this work.

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