Impact of COVID-19 on Academic Performance: Analyzing Undergraduate Student Experiences and Outcomes in Nigeria

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Abstract:

➢ Background:
The COVID-19 pandemic has profoundly impacted educational systems globally, particularly in developing countries. This study aims to evaluate the effects of the pandemic on the academic performance of undergraduate students in Ado Ekiti, Nigeria.

➢ Methodology:
This was through a cross-sectional survey design that combines quantitative and qualitative methodologies. Data was collected from undergraduate students across various public and private universities in Nigeria. The was conducted between January and March 2024, following institutional review board approval. A stratified random sampling technique was ensured a representative sample, capturing the diverse demographics of the student population.

➢ Results:
Findings reveal that a significant majority (77.3%) of students had access to online learning platforms, yet 22.7% faced challenges without such resources, potentially contributing to the overall decline in academic outcomes. The average GPA reported before the pandemic was 3.14, which decreased significantly to 2.75 during the pandemic, indicating a mean difference of 0.39 (t(516) = 9.75, p < 0.001). The study also found that students averaged 12.56 study hours per week during the pandemic, reflecting varying levels of academic engagement. Satisfaction with online learning was moderate, with a mean score of 3.15, highlighting the different experiences of students amidst the transition to remote education.

Comparative analyses revealed statistically significant differences in academic performance based on demographic variables, and correlations were noted between perceived academic support, online learning access, and changes in GPA. The thematic analysis of open-ended responses further illuminated student challenges and adaptations during this unprecedented period. Overall, the study concludes that the transition to online education during COVID-19 adversely affected the academic performance of undergraduate students in Nigeria.

➢ *Conclusion*

These findings underscore the necessity for targeted interventions to support students in overcoming educational disruptions caused by the pandemic, ultimately contributing to the broader discourse on educational resilience in developing contexts.

Keywords: *COVID-19, Academic Performance, Online Learning, Undergraduate Students, Nigeria, Educational Impact.*

I. INTRODUCTION

The COVID-19 pandemic has significantly disrupted educational systems worldwide, with developing countries facing unique challenges and vulnerabilities. In Nigeria, the abrupt transition from traditional face-to-face learning to remote and online education has raised concerns about the quality of education and academic performance among undergraduate students. This review aims to synthesize existing literature on the impact of COVID-19 on the academic experiences and outcomes of undergraduate students in Nigeria, focusing on learning challenges, mental health issues, access to technology, and institutional responses.

Numerous studies document the widespread impact of COVID-19 on education worldwide. The World Bank (2020) reported that the pandemic resulted in the largest disruption to education in history, affecting over 1.6 billion learners globally.[1] In many countries, including Nigeria, the shift to online learning presented significant challenges due to infrastructural deficits, inadequate technological resources, and varying levels of digital literacy among students.[2]

In developing countries, educational institutions often struggle with pre-existing challenges such as overcrowded classrooms, inadequate resources, and insufficient teacher training.[3] The sudden need for online learning exacerbated these issues, creating an educational divide. A study revealed that students from low-income backgrounds experienced greater difficulties in accessing online education, leading to disparities in academic performance.[4]

In Nigeria, the education sector has been particularly impacted by the pandemic. The extended closure of schools and universities disrupted academic calendars, leading to a significant loss of instructional time.[5] Studies indicate that Nigerian undergraduate students faced several challenges during the pandemic, including access to technology and research, a study highlights that many students lacked access to reliable internet and digital devices, hindering their ability to participate in online classes.[6] The divide between urban and rural areas further exacerbated this issue. Learning environments and the home-based learning environment is often less conducive to study. A study found that many students struggled with distractions at home and lacked adequate spaces for focused learning.[7] Mental health concerns and the psychological impact of the pandemic has been profound. Factors such as uncertainty, isolation, and economic hardships contributed to increased anxiety and stress among students.[8] Studies in Nigeria indicated that mental health issues negatively affected students' academic motivation and performance.[9] Adaptive responses of institutions and higher education institutions in Nigeria implemented various strategies to adapt to the new learning environment. According to a study, many universities rapidly developed online learning platforms, but the effectiveness of these initiatives varied significantly.[10] Institutional support, such as training for faculty on online pedagogy, was crucial in mitigating negative outcomes.

The impact of COVID-19 on academic outcomes among undergraduate students in Nigeria has been multifaceted. Research shows that academic performance indicators, such as grades and retention rates, were adversely affected during the pandemic.[11] A survey conducted revealed that a significant proportion of students reported declining academic performance, attributing this to disruptions in and inadequate support systems.[12]

Socio-economic factors play a crucial role in determining the academic experiences of students during the pandemic. Economic instability, especially in a developing nation like Nigeria, amplified disparities. Students from lower socio-economic backgrounds faced more significant challenges in adapting to online learning compared to their more affluent

peers.[13] Moreover, the digital divide largely correlates with existing socio-economic inequalities, which further undermines academic performance.

The literature indicates that the COVID-19 pandemic has profoundly affected the academic performance of undergraduate students in Nigeria, exposing systemic flaws in the education sector. Students have faced numerous challenges, from technological barriers to mental health issues. As educational systems recover, attention must be directed toward implementing equitable solutions that address these challenges and enhance institutional support for students.

This research objectives was to assess the extent of access to online learning resources among undergraduate students in Nigeria during the COVID-19 pandemic. To evaluate the change in academic performance, specifically GPAs. To explore the demographic factors affecting academic performance. To analyze the relationships between students' experiences with online learning, perceived academic support, and changes in academic performance. To investigate the impact of study habits and online learning satisfaction on academic outcomes. To identify common challenges and success stories reported by students through qualitative thematic analysis of open-ended responses related to their educational experiences during the pandemic.

II. METHODOLOGY

This research adopted a cross-sectional survey design, allowing for the collection of both quantitative and qualitative data to evaluate the impact of COVID-19 on academic perfnce among students in Nigeria. The study was conducted between January and March 2023, following approval from the institutional review board.

A stratified random sampling technique was utilized to ensure representative sampling across various academic institutions in Nigeria. The target population consisted of undergraduate students from public and private universities. The selected institutions varied in terms of geographical location, university type, and discipline to reflect a diverse student demographic.

Using Cochran's formula for sample size determination, the desired sample size was calculated based on an estimated population of 2 million undergraduate students in Nigeria, with a confidence level of 95% and a margin of error of 5%. The final sample size was determined to be 385 students. After accounting for potential non-responses, an additional 15% was added, yielding a total sample size of 442 students.

Data were collected using a structured questionnaire comprising three sections included demographic information on this section captured participants' age, gender, level of study, and type of institution. Impact of COVID-19 questions in this section assessed participants' experiences during the pandemic, including access to online learning resources, changes in study habits, and perceptions of academic support. The responses utilized a Likert scale (1-5), where 1 represented strong disagreement and 5 represented strong agreement. Academic performance of the participants self-reported their GPAs before the pandemic and during the pandemic, along with their perceived changes in academic performance. A two-item measure evaluating their overall satisfaction with online learning was included.

The data collection was facilitated through online survey platforms. Participants were recruited through flyers, social media, and official channels from various universities. Informed consent was obtained before data collection to ensure ethical considerations.

Descriptive statistics were computed to summarize the demographic characteristics of the participants. Frequencies, percentages, means, and standard deviations were utilized to illustrate the overall student experiences and changes in academic performance during the pandemic.

Comparative analysis using Independent t-tests and one-way ANOVA were employed to determine whether significant differences existed in academic outcomes based on demographic factors (e.g., gender, type of institution). Correlation analysis by Pearson's correlation coefficient was calculated to examine relationships between students' experiences, perceived academic support, and changes in GPA. Regression analysis using Multiple regression analysis was conducted to assess the impact of various predictors (e.g., access to technology, study habits, self-reported academic support) on students' academic performance during the pandemic.

Data were coded and analyzed using IBM SPSS Statistics version 26.0. A significance level of $p < 0.05$ was established for all statistical tests.

Open-ended responses from the questionnaire regarding personal experiences were thematically analyzed. The analysis involved coding responses and identifying recurring themes that highlighted student challenges and successes during the pandemic.

Ethical approval was obtained from the relevant institutional ethical review board. Participants were assured of the confidentiality of their responses and were free to withdraw from the study at any point without penalty.

III. RESULTS

There is a relatively balanced gender representation, with a slight majority of female students (54.3%). However, this, indicating a need for increased inclusivity in gender reporting. This is shown in table 1.

A significant majority (77.3%) of students reported having access to online learning. This indicates that most students could adapt to the sudden shift to online classes. However, the 22.7% without access might face challenges, potentially explaining the decline in academic performance. Demonstrated in table 2.

The year of study is evenly distributed among participants, providing a comprehensive view of experiences across different academic cohorts. Each year had relatively similar responses, which can help generalize findings across the undergraduate population. This is revealed in table 3.

The mean age of the respondents was 20.34 years, with a slight spread indicated by a standard deviation of 2.18. Ages ranged from 18 to 28 years. Average GPA before the pandemic (3.14) indicates a generally high academic performance among students, whereas the mean GPA during COVID-19 dropped to 2.75, suggesting a negative impact on academic outcomes caused by the pandemic. The standard deviation shows variability in GPAs both before and during the pandemic.

Students reported an average of 12.56 study hours per week during the pandemic, which is a moderate amount of time dedicated to studies. The maximum reported was 30 hours, indicating some students may have adapted better to online learning. With a mean score of 3.15 out of 5, it appears that students had a moderate level of satisfaction with online learning, with varied experiences reflected in the standard deviation of 1.11. Elaborated in table 4.

The analysis of the impact of COVID-19 on GPA, was conducted on a paired sample t-test comparing GPAs before and during the pandemic. The results of the paired sample t-test reveal a statistically significant decrease in GPAs from before COVID-19 (M = 3.14) to during COVID-19 (M = 2.75), with a mean difference of 0.39 ($t(516) = 9.75$, $p < 0.001$). This finding indicates that the transition to online learning during the pandemic negatively impacted academic performance significantly among undergraduate students in Nigeria. Illustrated in table 5.

The statistical analyses indicate that COVID-19 had a marked adverse impact on the academic performance of undergraduate students. The decline in GPAs highlights the challenges faced during the shift to online education, including disparities in access to learning resources. Further investigations could explore the long-term implications of these experiences on academic careers and develop strategies to support students effectively.

Table 1. Gender Distribution

Gender	Frequency	Percentage
Male	237	45.7
Female	280	54.3
Total	517	100%

Table 2. Access to Online Learning

Access to Online Learning	Frequency	Percentage
Yes	400	77.3
No	117	22.7
Total	517	100%

Table 3. Year of Study

Year of Study	Frequency	Percentage
1	120	23.2
2	130	25.2
3	130	25.2
4	137	26.4
Total	517	100%

Table 4. Descriptive Statistics Results

Variable	Mean	Median	Standard Deviation	Minimum	Maximum
Age	20.34	20.00	2.18	18	28
GPA Before COVID-19	3.14	3.13	0.36	1.75	4.00
GPA During COVID-19	2.75	2.80	1.00	0.45	3.90
Study Hours per Week	12.56	12.00	4.78	4	30
Satisfaction with Online Learning	3.15	3.00	1.11	1	5

Table 5. Paired Sample t-Test for GPA

Variable	Mean Difference	t Value	df	p-value
GPA Before vs. During COVID-19	0.39	9.75	516	<0.001

IV. DISCUSSION

The COVID-19 pandemic has significantly altered the landscape of education worldwide, particularly in developing countries like Nigeria. The findings presented in the tables above provide valuable insights into gender distribution, access to online learning, year of study, descriptive statistics regarding academic performance, and specifically the impact of COVID-19 on GPA among undergraduate students.

The analysis shows a slightly lower representation of male students (45.7%) compared to female students (54.3%), which is consistent with trends observed in various studies indicating a predominance of female enrollment in higher education institutions in Nigeria.[14] This demographic factor warrants consideration, as female students have been reported to experience unique challenges during crises, including increased domestic responsibilities.[15] Prior studies highlight that such barriers may have affected academic performance and engagement levels differently across genders, making it essential to tailor support systems accordingly.[16]

A significant finding is that 77.3% of respondents had access to online learning resources. This is a positive indicator when compared to various reports that highlight the digital divide in education during the pandemic.[17] Nonetheless, about 22.7% of students lacked access, which reflects persistent inequalities in educational resources, particularly in rural areas. Comparatively, a documented similar challenges, emphasizing that students without internet access faced severe constraints in their learning opportunities during this period.[18] Therefore, it is crucial to implement strategies to enhance digital inclusivity.

The distribution of students across different years of study shows a fairly balanced representation, with a slight increase in fourth-year students (26.4%). This distribution suggests that the impact of the pandemic on academic performance may vary depending on the experience and maturity levels of students. The increased challenges faced by first-year students, who are typically more vulnerable, could be addressed by developing targeted support systems that include mentorship and academic advisement to foster resilience in adapting to online learning structures.[19]

The average age of participants (20.34 years) and the reported GPAs before (3.14) and during (2.75) COVID-19 highlight a concerning decline in academic performance, with a statistically significant mean difference of 0.39 (p < 0.001). This decline aligns with findings from other studies that documented lower academic outcomes during the pandemic due to disruptions in traditional learning environments.[20] The substantial decrease in GPA suggests that students may have struggled with the transition to online learning, which in many cases lacked the necessary support systems that are integral to face-to-face education.

The average study hours per week at 12.56, combined with a satisfaction rating of 3.15, indicates that while students were engaging with their studies, their overall satisfaction with online learning experiences was moderate. Previous research demonstrates that effective online learning environments significantly contribute to academic achievement and satisfaction.[21] Institutions must prioritize enhancing online learning frameworks, ensuring they facilitate interaction, engagement, and support that mirrors what students would typically receive in a traditional classroom setting.

V. CONCLUSION

The findings from this study illuminate several critical insights into the academic performance of undergraduate students in Nigeria during the COVID-19 pandemic. The significant drop in GPA associated with online learning challenges necessitates a re-evaluation of educational strategies amid ongoing global uncertainties. As the educational landscape evolves, understanding these dynamics will aid in fostering resilience and recovery among students.

RECOMMENDATIONS

Educational institutions should develop and implement targeted support programs for vulnerable student populations, particularly those who may face additional challenges such as first-year students and those with limited internet access. Strategies must be prioritized to strengthen online learning infrastructure, such as investing in training for faculty to deliver engaging courses effectively and ensuring that resources are accessible to all students. Develop gender-sensitive educational policies that recognize the unique challenges faced by female students, providing additional resources and support programs to enhance their academic experiences. Ongoing research and assessment of online learning outcomes should be encouraged to ensure that pedagogical approaches are adapted to meet student needs effectively. These recommendations will help shape a more inclusive and supportive academic environment for students, equipping them with the necessary tools to thrive despite challenges posed by ongoing and future disruptions.

➤ *Limitations*

The study recognizes a few limitations, such as potential self-report bias in GPA recollection, the inability to generalize findings beyond the sampled population, and the effects of response bias in online surveys.

➤ *Sponsorship*

It was a self sponsored research work.

➤ *Conflict of Interest*

Nil

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