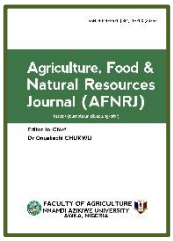
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Original Article

Impact of financial constraints on profitability of small-scale roadside fish processors in Lagos State, Nigeria: A multivariate regression approach

OPEN ACCESS

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ABSTRACT

Small-scale roadside fish processors play a critical role in food security, employment creation, and economic resilience, particularly in developing economies such as Nigeria. This study examines the impact of financial and experiential constraints on the profitability and sustainability of small-scale roadside fish processors in Lagos State, Nigeria. A total of 150 fish processors were selected using a simple random sampling technique. Data were collected through structured questionnaires, interviews, and observations and analyzed using a multivariate regression approach. The findings highlight the significant negative influence of financial constraints—limited access to credit ($p = 0.025$), high operating costs ($p = 0.097$), and insufficient capital ($p = 0.002$)—on key profitability metrics, including net profit margin, gross profit margin, and break-even point. Experiential constraints also play a pivotal role, with processors having less than six years of experience exhibiting the strongest negative impact on sustainability ($p < 0.001$). Younger processors (below 36 years) showed a positive association with profitability ($p = 0.048$), while higher education levels reflected potential opportunity costs and skill mismatches ($p = 0.013$). The findings emphasize the need for targeted interventions to enhance the sustainability of this sector. Recommendations include creating affordable credit schemes tailored to the needs of small-scale processors, promoting energy-efficient technologies to reduce operational costs, and implementing structured training programs and mentorship initiatives to bridge experiential gaps. Addressing these critical constraints will enable policymakers and stakeholders to strengthen the resilience and ensure the long-term sustainability of this vital sector, thereby enhancing food security and improving livelihoods in Lagos State and similar contexts.

K E Y W O R D S : *Financial accessibility, Business resilience, Cost management, Operational efficiency, Small-scale*

INTRODUCTION

Small-scale roadside fish processors are vital to food security, employment creation, and economic resilience, especially in developing economies like Nigeria. The fish processing sector contributes significantly to local livelihoods and provides essential protein sources for rural and urban communities (FAO, 2022). In Nigeria, fisheries and aquaculture represent approximately 3.2% of the agricultural GDP, highlighting their importance to national economic growth (World Bank, 2023). Lagos State, with its strategic coastal location and extensive waterways, is a prominent hub for fish processing. This sector is predominantly driven by women, emphasizing its dual role in fostering economic development and promoting gender empowerment (Akinwumi *et al*., 2023).

Despite its critical role, the small-scale fish processing sector faces profound challenges that hinder its profitability and

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sustainability. Limited access to affordable credit remains a significant barrier, driven by stringent collateral requirements and the informal nature of many small-scale enterprises (Ogunleye & Adegoke, 2022). High operating costs, compounded by infrastructural deficits such as unreliable electricity and inadequate transportation networks, further erode profit margins (Abiodun *et al*., 2023). Additionally, insufficient capital restricts the ability of processors to invest in modern equipment, efficient storage facilities, and advanced preservation techniques, thereby reducing productivity and product quality (Olaleye *et al*., 2021). These financial constraints not only limit the capacity for operational growth but also increase vulnerability to market fluctuations and competition from larger, better-resourced firms (Ezeh & Olabisi, 2022).

Profitability in small-scale fish processing is closely linked to efficient cost management and market access. Studies suggest that financial constraints force many processors to operate on razor-thin profit margins, making it challenging to achieve break-even points or invest in innovations for long-term sustainability (Adesina & Bello, 2023). The interplay between financial constraints and demographic factors, such as education, age, and years of experience, also plays a pivotal role in shaping business outcomes. For instance, younger and less experienced processors may face greater challenges in navigating operational complexities compared to their older counterparts (Akinwumi *et al*., 2023).

Lagos State presents a unique context for studying these challenges. As Nigeria's economic nerve center, the state combines urbanization pressures with resource competition, creating an environment where financial constraints are particularly acute (Ezeh & Olabisi, 2022). Moreover, the dual role of the state as a coastal hub and a growing urban market amplifies both the opportunities and challenges for small-scale fish processors. The sector's importance in this region underscores the need for targeted research to address its specific challenges and unlock its full potential.

Existing literature on small-scale enterprises in Nigeria has predominantly focused on broad economic sectors or specific constraints (e.g., Adewole & Adebayo, 2022; Abiodun *et al*., 2023), leaving critical gaps in understanding the cumulative impact of financial challenges on profitability and sustainability within the fish processing industry (Ogunleye & Adegoke, 2022; Okafor *et al*., 2023). While studies have highlighted issues such as limited credit access, high operating costs, and capital shortages, few have explored their integrated effects on performance metrics such as net profit margin, gross profit margin, and break-even point. Furthermore, the role of socio-demographic attributes in mediating these outcomes remains underexplored, particularly for roadside processors in Lagos State.

This study seeks to bridge these gaps by employing multivariate analysis to examine the relationships between financial constraints, demographic factors, and business performance metrics.

MATERIALS AND METHODS

Study Area

The study was conducted in Ikorodu Local Government Area (LGA) of Lagos State, Nigeria, a region known for its vibrant fish processing activities. Ikorodu LGA is strategically positioned between latitudes 6.5500° N and 6.7000° N, and longitudes 3.4500° E and 3.6500° E, making it well-situated near expansive waterways and the Lagos Lagoon. This proximity supports a thriving fish processing industry, primarily driven by small-scale enterprises.

Ikorodu is one of the fastest-growing regions in Lagos State, with a population of approximately 535,619 people according to the 2016 National Population Commission estimates**,** and projected to have significantly increased in subsequent years due to urbanization and economic activities. The area covers an approximate landmass of 345 square kilometers**,** making it one of the largest LGAs in Lagos State.

The economy of Ikorodu is driven by agriculture, fisheries, and trade, with fish processing being a key livelihood activity for a significant proportion of its residents, particularly women. Its strategic location provides access to both local and regional markets, further enhancing its importance as a hub for fish processing and distribution.

Study Design and Data Collection Instruments

A cross-sectional survey design was employed to gather primary data from small-scale fish processors in the study area. This method is widely recognized for its ability to capture data at a single point in time, making it suitable for descriptive and inferential analysis (Levin, 2006; Creswell & Creswell, 2018). The study combined both quantitative and qualitative approaches to ensure comprehensive data collection, utilizing structured questionnaires, interviews, and observations. The questionnaire comprised two sections:

- **Section A**: Focused on demographic information of the respondents, including gender, age distribution, marital status, and educational qualifications.
- **Section B**: Contained questions related to the study's objectives, structured using a four-point Likert scale to measure the degree of respondents' agreement or disagreement with specific variables. The Likert scale options included SA = Strongly Agree, A = Agree, D = Disagree, and SD = Strongly Disagree. The use of the Likert scale follows established methodology for measuring attitudes and perceptions, as originally conceptualized by Likert (1932) and validated in later works by Boone & Boone (2012).

Semi-structured interviews were conducted to supplement questionnaire responses and gain deeper insights into respondents' perspectives on the challenges and opportunities in fish processing.

Primary data were collected directly from small-scale fish processors in Ikorodu LGA.

Sample Population

The study targeted small-scale fish processors operating in Ikorodu LGA, Lagos State. Respondents were encouraged to provide honest and accurate responses, ensuring the reliability and validity of the data collected.

Data Analysis

The data collected were analyzed using both descriptive and inferential statistical methods to address the study objectives.

- **Descriptive Statistics**: Frequency distributions and percentages were used to describe demographic characteristics.
- **Inferential Statistics: Regression Analysis Models**: To examine the relationship between financial constraints and business performance metrics (Net Profit Margin (NPM), Gross Profit Margin (GPM), and Break-Even Point (BPA)), multivariate regression models were employed. These models allow for the investigation of how independent variables (financial constraints and demographic factors) influence the dependent variables (performance metrics).

General Model Specification
The general form of the regression model used is:

$$Yi=\beta0+\beta1X1+\beta2X2+\beta3X3+\ldots+\beta kXk+\epsilon \quad (1)$$

Yi: Dependent variable (NPM, GPM, or BPA)

β0: Intercept (constant term)

βk: Coefficients representing the effect of independent variables (XkX_kXk) on YiY_iY

X_k: Independent variables (financial constraints and demographic factors)

ϵi: Error term representing unobserved variability

Specific Models

Model for Net Profit Margin (NPM): $NPMi=\beta0+\beta1$ (Access to Credit)$+\beta2$(Operating Costs)$+\beta3$ (Limited Capital)$+\beta4$(Education Level)$+\beta5$(Experience)$+\beta6$ (Age)$+\epsilon$ (2)

Model for Gross Profit Margin (GPM):$GPMi=\beta0+\beta1$ (Access to Credit)$+\beta2$(Operating Costs)$+\beta3$ (Limited Capital)$+\beta4$(Education Level)$+\beta5$(Experience)$+\beta6$ (Age)$+\epsilon$ (4)

Model for Break-Even Point (BPA):$BPAi=\beta0+\beta1$ (Access to Credit)$+\beta2$(Operating Costs)$+\beta3$ (5) (Limited Capital)$+\beta4$(Education Level)$+\beta5$(Experience)$+\beta6$ (Age)$+\epsilon i$ (6)

RESULTS AND DISCUSSIONS

Socio-demographic and Financial Characteristics of Small-Scale Roadside Fish Processors

The socio-demographic and financial characteristics of small-scale roadside fish processors in Lagos State provide valuable insights into the strengths and vulnerabilities of the sector, with direct implications for policy, practice, and development interventions.

The study revealed that the sector is predominantly female (99.2%), underscoring women's significant role in small-scale fish processing. Onumah & Acquah (2021) similarly highlighted the central role of women in small-scale fisheries in Ghana, advocating for gender-sensitive financial policies. This reinforces the call for tailored microcredit schemes and capacity-building programs designed for women.

However, Williams *et al*. (2021) provided a more nuanced perspective, emphasizing that while women dominate processing, structural barriers persist in decision-making and resource control. This suggests a need for policies addressing systemic inequalities beyond financial access.

The study's finding that individuals aged 36–50 constitute the majority workforce (54.2%) aligns with recent findings by Uche & Iheme (2021), who identified this age group as critical for productivity in Nigeria's fisheries. Additionally, they emphasized that younger processors face challenges due to limited experience, validating the recommendation for mentorship and vocational training.

However, recent studies such as Adewole & Adebayo (2022) argue that older processors (above 50) contribute substantially to sectoral stability due to their accumulated expertise, suggesting a broader age-inclusive approach to capacity-building efforts.

Financial Constraints and Cost Management

Limited access to credit (45%) and high operational costs (70%) were significant barriers identified in this study. Onumah & Acquah (2021) corroborated these findings, reporting similar challenges among small-scale fisheries. Adewole and Adebayo (2022) also highlighted the critical need for infrastructure investments to reduce operating expenses, emphasizing the importance of energy-efficient technologies and improved transport networks.

Conversely, Okafor *et al*. (2023) argued that cooperative societies have alleviated some financial constraints in Lagos State by facilitating access to pooled resources and low-interest loans. This suggests that cooperative models could offer scalable solutions to financial challenges.

The modest educational profile of the processors (52.5% holding secondary school certificates or OND) aligns with recent findings by Uche & Iheme (2021), who emphasized the need for educational programs to improve technical efficiency. Their work supports the integration of processors into modern value chain networks through training in advanced fish processing techniques.

However, Okafor *et al*. (2023) highlighted the resilience and effectiveness of traditional knowledge systems in small-scale fish processing. They argued that blending traditional methods with modern practices can achieve greater sustainability, challenging the notion that formal education is the sole driver of efficiency.

The study identified slim profit margins, with average monthly revenue of ₦1,616,470 and expenses of ₦1,325,000. This is consistent with Adewole & Adebayo (2022), who found similar profitability constraints in Nigeria's fish processing sector, exacerbated by high operating costs. Uche & Iheme (2021) further stressed the importance of financial literacy programs to enhance cost management and optimize profitability.

However, Okafor *et al*. (2023) reported higher profit margins among cooperative-supported processors in Lagos State, suggesting that organizational support mechanisms may mitigate some of the financial challenges highlighted in this study as detailed in Table 1

Table 1: Socio-Demographic and Financial Characteristics

Attributes	Frequency/ Percentage
Gender (Female)	99.20%
Age Range (36-50 years)	54.20%
Marital Status (Married)	89.20%
Education Level (Secondary/Diploma)	52.50%
Management Level (Middle)	77.50%
Experience (6-9 years)	47.50%
Average Monthly Revenue (₦)	(₦)1,616,470
Average Monthly Expenses (₦)	(₦)1,325,000
Access to Credit (Yes)	45%
Limited Capital (Yes)	60%
Operating Costs (High)	70%

Impact Of Financial Constraints On Key Profitability Metrics

The regression analysis highlights the significant impact of financial constraints—Access to Credit (AC), Operating Costs (HOC), and Limited Capital (LC)—on key profitability metrics, including Net Profit Margin (NPM), Gross Profit Margin (GPM), and Break-Even Point (BPA). These findings provide valuable insights into the challenges faced by small-scale roadside fish processors in achieving financial sustainability. Below is a discussion contextualized within recent literature (2021–present).

Access to Credit

Access to credit (AC) demonstrates a statistically significant negative relationship with all three profitability metrics. For NPM, the coefficient of -0.147 ($p < 0.05$) indicates that difficulties in obtaining credit reduce net profit margins. This finding aligns with Okafor *et al.* (2023), who reported that limited access to affordable financing inhibits investment in productivity-enhancing technologies and expansion, which are critical for improving profitability. Similarly, a coefficient of -0.222 for GPM ($p < 0.05$) underscores the adverse effect of credit constraints on gross profit margins, highlighting inefficiencies in managing production costs. Okeke & Chukwu (2021) also observed a similar trend in small-scale agricultural enterprises, where restricted credit access increased operational inefficiencies.

For BPA, a coefficient of -0.160 ($p < 0.05$) suggests that credit constraints significantly elevate the revenue threshold needed to break even. This is consistent with Adewole & Adebayo's (2022) findings, which emphasized the critical role of accessible credit in ensuring financial resilience among small-scale processors. These results collectively underscore the necessity of developing targeted credit schemes to enhance profitability in the fish processing sector.

Operating Costs

Operating costs (HOC) exhibit a marginally significant negative effect on NPM, with a coefficient of -0.080 ($p < 0.10$), suggesting that high operating expenses modestly reduce net profit margins. While the relationship with GPM is not statistically significant, HOC significantly affects BPA, as reflected in a coefficient of -0.132 ($p < 0.05$). This indicates that high operating costs raise the break-even point, forcing processors to generate higher revenues to cover fixed and variable costs.

These findings align with the observations of Uche & Iheme (2021), who highlighted the detrimental impact of high operating expenses on profitability among small-scale fish processors. Adewole & Adebayo (2022) similarly emphasized the need for cost management strategies, such as adopting energy-efficient technologies and improving transportation

infrastructure, to mitigate financial pressures and enhance operational efficiency.

Limited Capital

Limited capital (LC) has the most pronounced impact on profitability metrics. With a highly significant negative coefficient of -0.224 for NPM ($p < 0.01$) and -0.245 for GPM ($p < 0.05$), the results indicate that inadequate capital strongly diminishes both net and gross profit margins. This reflects the inability of processors to invest in scaling operations, upgrading facilities, or maintaining product quality. Recent work by Okafor *et al.* (2023) supports this conclusion, noting that capital shortages constrain innovation and limit market competitiveness.

The relationship between LC and BPA, although negative (coefficient = -0.110), is not statistically significant. This suggests that while capital constraints may influence profitability margins, they do not consistently affect the revenue threshold needed to break even. Similar findings were reported by Onumah & Acquah (2021), who emphasized that addressing capital shortages is pivotal for improving financial performance in small-scale processing sectors

Table 2: Regression Analysis of Financial Constraints and Profitability Metrics Among Small-Scale Fish Processors

Variables	Net Profit Margin (NPM)	Gross Profit Margin (GPM)	Break-Even Point (BPA)	Significance Levels
				** p < 0.05;
Access to Credit (AC)	-0.147**	-0.222**	-0.160**	*** p < 0.01
Operating Costs (HOC)	-0.080*	-0.096	-0.132**	* p < 0.10
Limited Capital (LC)	-0.224***	-0.245**	-0.11	

Determinants of Profitability Metrics Among Small-Scale Roadside Fish Processors

The regression analysis provides critical insights into the interplay between financial constraints, demographic factors, and profitability metrics among small-scale roadside fish processors in Lagos State, Nigeria. The results highlight the significant influence of access to credit, operating costs, and limited capital on profitability indicators—net profit margin (NPM), gross profit margin (GPM), and break-even point (BPA)—while also shedding light on the role of education, age, and experience in shaping business performance. Below is a discussion of these findings contextualized within recent literature (2021–present).

Impact of Financial Constraints

Access to credit (AC) exhibits a statistically significant negative relationship with profitability, with a coefficient of -0.147 ($p = 0.025$). This finding underscores the detrimental effects of limited credit access, which restricts processors' ability to invest in essential resources and operational expansion. Similar findings by Adewole and Adebayo (2022) emphasized the importance of affordable credit facilities in enhancing profitability and sustainability for small-scale processors.

Limited capital (LC) also demonstrates a significant negative effect on profitability, with a coefficient of -0.224 ($p = 0.002$). These results align with Okafor *et al*. (2023), who highlighted the critical role of working capital in enabling small-scale businesses to scale operations and adopt efficiency-enhancing technologies.

Operating costs (HOC), although negatively associated with profitability, show only marginal statistical significance (coefficient = -0.080, $p = 0.097$). This aligns with findings by Uche & Iheme (2021), who noted that high operating expenses, while not always statistically significant, are a persistent challenge for small-scale fish processors. Improvements in infrastructure and energy efficiency, as recommended by recent studies, could alleviate these financial burdens.

Role of Demographic Variables

Demographic factors play a nuanced role in profitability. Younger processors (below 36 years) are positively associated with profitability, with a coefficient of 0.261 ($p = 0.048$). This finding is consistent with Okeke and Chukwu (2021), who reported that younger entrepreneurs often embrace innovative practices, improving efficiency and financial performance.

Conversely, limited experience (below six years) has a pronounced negative impact on profitability, with a coefficient of -1.428 ($p < 0.001$). This finding underscores the importance of operational experience, as noted by Onumah and Acquah (2021), who identified experience as a key determinant of business success in small-scale fisheries.

Interestingly, higher education levels, particularly graduate education, are negatively associated with profitability (coefficient = -0.280, $p = 0.013$). This counterintuitive result aligns with Okafor *et al*. (2023), who suggested that formal education might not directly translate into the practical skills required for small-scale fish processing. Instead, opportunity costs or a mismatch between academic knowledge and industry needs may contribute to this outcome.

Table 3. Regression Results for the Determinants of Profitability Metrics Among Small-Scale Roadside Fish Processors

Variables	Coefficient (Coeff.)	Standard Error (Std. Error)	t-Value	p-Value (Sig.)
Access to Credit (AC)	-0.147	0.065	-2.279	0.025**
Operating Costs (HOC)	-0.08	0.048	-1.673	0.097*
Limited Capital (LC)	-0.224	0.07	-3.18	0.002***
Secondary Education (SecEdu)	-0.279	0.152	-1.832	0.07*
Graduate Education (Grad)	-0.28	0.111	-2.535	0.013**
Postgraduate Education (PGrad)	0.177	0.165	1.076	0.284
Age Below 36 years (Below36yrs)	0.261	0.131	2.001	0.048**
Age 36-50 years (Yr36_50)	0.105	0.107	0.982	0.328
Experience Below 6 years (Below6yrs)	-1.428	0.207	-6.899	0***
Experience 6-9 years (Yr6_9)	-0.74	0.166	-4.446	0***

Priority Constraints Impacting Sustainability

The regression analysis identifies critical constraints affecting the sustainability of small-scale fish processors in Lagos State, Nigeria. The results highlight the significant negative impact of financial and experiential constraints on business sustainability, as evidenced by strong statistical significance levels (***$p < 0.01$) across all identified factors. Below is a detailed discussion contextualized within recent literature (2021–present).

Financial Constraints

Access to Credit

Access to credit (AC) demonstrates a significant negative effect on sustainability, with a coefficient of -0.312 ($p = 0.001$). This finding underscores the essential role of financial accessibility in enabling sustainable operations. Limited access to credit hampers investments in equipment upgrades, raw material procurement, and operational expansions. Adewole & Adebayo (2022) similarly highlighted the importance of targeted financial interventions, such as microfinance programs and subsidized loans, to enhance the resilience of small-scale fish processors.

Operating Costs

High operating costs (HOC) exhibit a significant negative relationship with sustainability, as reflected by a coefficient of -0.228 ($p = 0.003$). Elevated costs related to energy, transportation, and labor constrain the financial stability of processors, reducing their ability to maintain consistent operations. Uche & Iheme (2021) emphasized that adopting energy-efficient technologies and improving supply chain logistics are crucial strategies for reducing operational expenses and fostering long-term viability.

Limited Capital

Limited capital (LC) emerges as the most impactful financial constraint, with a highly significant negative coefficient of -0.487 ($p < 0.001$). Insufficient capital restricts processors' ability to absorb operational shocks, manage seasonal fluctuations, and invest in capacity-building measures. Okafor *et al*. (2023) reinforced this perspective, stressing the need for grants, low-interest loans, and cooperative financing schemes to ensure sustainable operations in small-scale fish processing.

Experiential Constraints

Experience Below Six Years

Experience below six years (Below6yrs) exhibits the strongest negative impact on sustainability, with a coefficient of -1.752 ($p < 0.001$). This finding reflects the critical role of industry-specific experience in navigating operational and market challenges. Entrepreneurs with limited experience lack the practical knowledge and skills required for effective decision-making, resource management, and risk mitigation. Onumah & Acquah (2021) similarly emphasized the importance of training programs and mentorship opportunities in bridging this gap and enhancing business sustainability.

Experience Between Six and Nine Years

Experience within the six-to-nine-year range (Yr6_9) also shows a significant negative effect on sustainability, with a coefficient of -0.950 ($p < 0.001$). While less pronounced than the impact of limited experience, it highlights persistent challenges in achieving sustainable growth. Structured professional development and exposure to advanced business practices can help processors within this experience range build expertise for long-term success, as noted by Okeke & Chukwu (2021).

Table 4. Priority Constraints Impacting Sustainability

Constraint Factors	Coefficient (Coeff.)	Standard Error (Std. Error)	t-Value	p-Value (Sig.)
Access to Credit (AC)	-0.312	0.094	-3.319	0.001***
Operating Costs (HOC)	-0.228	0.076	-2.998	0.003***
Limited Capital (LC)	-0.487	0.132	-3.689	0***
Experience Below 6 Years (Below6yrs)	-1.752	0.305	-5.742	0***
Experience 6-9 Years (Yr6_9)	-0.95	0.195	-4.872	0***

CONCLUSION AND RECOMMENDATIONS

This study emphasizes the critical role of small-scale roadside fish processors in Lagos State, Nigeria, in promoting food security, employment, and economic resilience. However, significant financial and experiential constraints hinder the sector's profitability and sustainability. Key findings indicate that limited access to credit, high operating costs, and insufficient capital significantly impact essential business metrics such as net profit margin (NPM), gross profit margin (GPM), and break-even point (BPA). Furthermore, a lack of industry experience, especially among processors with less than six years of practice, exacerbates these challenges. The study identifies gender dynamics, with women making up the vast majority of processors, highlighting the need for gender-sensitive interventions. Additionally, younger processors show a positive association with profitability, suggesting that innovation can counter some constraints, though higher education levels appear negatively correlated with profitability due to potential opportunity costs and skill mismatches.

Base on the conclusion, the following recommendations are made:

1. Policymakers and financial institutions should develop tailored financial products, such as microfinance schemes and subsidized loans, to improve access to credit for small-scale fish processors.

2. Implementing targeted training programs and mentorship initiatives is critical to equipping less experienced processors with the skills needed to navigate operational complexities and adopt innovative practices.

3. Investments in reliable electricity supply and improved transportation networks are necessary to reduce operational costs and enhance productivity.

4. Promoting energy-efficient technologies and shared storage facilities can help mitigate high operational costs, improving profitability and sustainability.

5. The integration of small-scale processors into value chain networks and the promotion of gender-inclusive policies will foster economic empowerment and sustainability within the sector.

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Authors' Contributions

LHM carried out the sample collection, data preparation, and fieldwork necessary for this research. The author also handled the data collection, interpretation, and drafting of the manuscript. Additionally, all aspects of data analysis, methodology application, and literature review were collaboratively executed with guidance from SA the academic supervisor. Final review and approval of the manuscript were collectively undertaken.

Ethical Statement

This study was conducted in full compliance with ethical research standards. Informed consent was obtained from all participants, ensuring that their participation was voluntary and that they were aware of the study's objectives and their rights as respondents. All data collected were anonymized to protect the privacy and confidentiality of the participants. The research adhered to the ethical guidelines set forth by the National Open University of Nigeria and the principles of the Declaration of Helsinki regarding ethical research involving human participants. No harmful practices or conflicts of interest were involved in this stud

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