

Crisis Management variables as predictors of student enrolment, teacher retention and school completion in private secondary schools

By

Valentine Joseph Owan^{1,2}

¹Department of Educational Psychology, University of Calabar, Calabar, Nigeria.

²Ultimate Research Network (URN), Calabar, Cross River State, Nigeria.

Email: owanvalentine@gmail.com

Chinenye Blessing Amaonye^{4,2}

Department of Educational Management & Policy,

Nnamdi Azikiwe University, Awka, Nigeria.

Email: cb.amaonye@unizik.edu.ng

Pauline Cletus Njok

Department of Arts and Social Science Education

Faculty of Education, Coal City University, Enugu.

Email: paulinenjok85@gmail.com

Abstract

Little empirical evidence exists on how crisis management predicts the sustainability of private secondary schools in Ikom Education Zone of Cross River State, Nigeria. Consequently, the researchers examined the extent to which crisis management variables predict student enrolment, teacher retention, and student completion. Guided by resilience theory and institutional theory, the researchers adopted a quantitative, cross-sectional predictive design. Using stratified random sampling based on Taro Yamane's formula, 176 of the 249 eligible school principals participated, giving a response rate of 89.8%. The researchers collected data online using Google Forms and analysed them with descriptive statistics, one-sample *t*-tests, and multiple regression. Principals reported that the effectiveness of managing disease outbreaks, violence or security threats, and accidents or emergencies was significantly above the average benchmark of 2.50. However, student enrolment (37.05%) and teacher retention (35.27%) were significantly below the 50% benchmark, whereas student completion (64.53%) was significantly above it. The result of multiple regression indicated that the crisis management variables jointly explained 67% of the variance in student enrolment ($R^2 = .67$), 43% of the variance in teacher retention ($R^2 = .43$), and 65% of the variance in student completion ($R^2 = .65$). Disease outbreak management did not significantly predict student enrolment ($\beta = -.03, p = .695$), teacher retention ($\beta = .01, p = .895$), or student completion ($\beta = -.02, p = .796$). Violence or security threat management significantly predicted student enrolment ($\beta = .25, p = .005$) and teacher retention ($\beta = .47, p < .001$), but not student completion ($\beta = .15, p = .108$). Accident or emergency management significantly predicted student enrolment ($\beta = .62, p < .001$) and student completion ($\beta = .69, p < .001$), but not teacher retention ($\beta = .19, p = .178$). These results support the need for school proprietors and education authorities to strengthen crisis preparedness, particularly school safety and emergency response, as part of efforts to improve the sustainability of private secondary schools.

Keywords: School Sustainability, School Safety, Emergency Preparedness, Risk Management, Institutional Resilience.

Introduction

Private secondary schools have become an important part of Nigeria's education system by expanding access to education and complementing government efforts to meet increasing demand for secondary schooling (Crawford et al., 2024; Chuktu et al., 2024). Their continued operation is therefore important not only for educational access but also for employment generation and community development (Owan & Agunwa, 2019). However, sustaining private schools remains challenging because they depend largely on internally generated revenue, particularly tuition fees, while facing increasing financial, administrative, and operational pressures (Alkaabi et al., 2022; Owan & Offu, 2021).

Evidence indicates that many private secondary schools experience declining enrolment, difficulty retaining qualified teachers, and unstable academic outcomes, all of which threaten their long-term viability (Okoi et al., 2024; Owan et al., 2022). These challenges are further intensified by crises such as infectious disease outbreaks, security threats, and accidents or infrastructure failures, which disrupt teaching, reduce parental confidence, interrupt learning, and increase operational costs (Lawal, 2022; Opabola et al., 2023). Because most private schools receive regulatory rather than financial support from government, they are particularly vulnerable to disruptions that affect enrolment and revenue generation (Ekaette et al., 2020; Owan, 2018).

The Ikom Education Zone of Cross River State reflects many of these challenges. The zone comprises urban and rural communities with varying socioeconomic conditions, while schools frequently contend with health emergencies, insecurity, and infrastructural problems that may affect their ability to operate effectively (Arop & Owan, 2018; Lawal, 2022). Although previous studies have linked school sustainability to factors such as leadership, school climate, teacher motivation, discipline, and student achievement (Etor et al., 2019; Chowdhury & Synthia, 2021), limited attention has been given to the contribution of crisis management. Although previous researchers have examined school leadership, school safety, organisational resilience, and institutional sustainability separately, little empirical evidence exists on how specific dimensions of crisis management predict student enrolment, teacher retention, and student completion in private secondary schools in Nigeria. Consequently, policymakers have limited empirical evidence to guide the design of crisis response strategies that improve student enrolment, teacher retention, and student completion.

Effective crisis management may strengthen school resilience by reducing disruptions, maintaining confidence among parents and staff, and supporting continuity of learning during emergencies (Grissom & Condon, 2021; Dwangu & Mahlangu, 2021). Understanding this relationship is important because the closure of private schools affects students, teachers, families, and the wider community. This study therefore examines how the management of disease outbreaks, security threats, and accidents predicts student enrolment, teacher retention, and student completion among private secondary schools in the Ikom Education Zone of Cross River State, Nigeria. Specifically, the study aims to:

- i. Assess the level of effectiveness in managing disease outbreaks, violence or security threats, and accidents or emergencies in private secondary schools.
- ii. Determine the level of school sustainability, measured by student enrolment, teacher retention, and student completion in private secondary schools in the Ikom Education Zone.

- iii. Examine the collective prediction of disease outbreak management, violence or security threat management, and accident or emergency management on student enrolment, teacher retention, and student completion.
- iv. Determine the individual prediction of disease outbreak management, violence or security threat management, and accident or emergency management on student enrolment, teacher retention, and student completion.

Crisis Management

This study was anchored on Resilience Theory, which was developed by Holling (1973) and later extended by Walker et al. (2004). According to the theory, organisations strengthen their ability to withstand and recover from disruptive events through preparation, adaptation, and continuous learning. Within school settings, these assumptions imply that effective management of disease outbreaks, violence or security threats, and accidents or emergencies may minimise disruptions and support continuity in teaching and learning.

Researchers have associated infectious disease outbreaks with repeated disruptions to school activities through respiratory infections, foodborne illnesses, and other communicable diseases, particularly where preventive measures are inadequate (Wenxuan et al., 2024; Xiu Yun et al., 2017). Similar observations have been reported in studies that associated vaccination, hygiene promotion, adequate health facilities, and staff preparedness with lower disease transmission, while poor hygiene practices, inadequate resources, and weak health systems were associated with greater vulnerability to disease outbreaks (Sanni et al., 2022; Shi et al., 2024). Although these researchers improved understanding of disease prevention and health preparedness, they concentrated mainly on reducing disease transmission. Consequently, little empirical attention has been given to whether effective management of disease outbreaks contributes to student enrolment, teacher retention, and student completion in private secondary schools.

Resilience Theory also assumes that organisations improve their capacity to withstand security challenges through effective preventive strategies and timely response measures (Holling, 1973; Weick & Sutcliffe, 2007). Across different educational settings, bullying, physical aggression, sexual violence, vandalism, theft, and related security problems have been associated with poor school safety, reduced staff wellbeing, and weaker educational outcomes (Bundotich & Sarah, 2020; Ighaede Edwards et al., 2023; Obilor & Ikpa, 2021). Researchers have generally recommended comprehensive school safety policies, counselling services, community partnerships, and early intervention programmes to improve school security. However, comparatively little empirical evidence explains whether effective management of violence or security threats contributes directly to student enrolment, teacher retention, and student completion in private secondary schools.

The assumptions of Resilience Theory further imply that advance planning, adequate safety infrastructure, and continuous learning strengthen organisational capacity during emergencies (Holling, 1973; Walker et al., 2004). Consistent with this position, researchers have associated inadequate emergency preparedness, including limited safety equipment, disaster response plans, and trained personnel, with greater vulnerability to floods, fires, infrastructure failures, and other emergencies, particularly in developing countries (Ayeni & Orhewere, 2021; Omoyemiju, 2022). In contrast, regular safety training, emergency drills, stronger infrastructure, and community-based disaster preparedness have been associated with improved preparedness and fewer interruptions to

school activities (Amadi et al., 2024; Lawanson et al., 2023). Despite these contributions, little empirical attention has been given to whether effective management of accidents and emergencies contributes to student enrolment, teacher retention, and student completion in private secondary schools.

Thus, the literature review suggests that previous researchers have concentrated largely on disease prevention, school safety, and emergency preparedness. However, comparatively little empirical evidence exists on the collective and individual contribution of these dimensions of crisis management to student enrolment, teacher retention, and student completion in private secondary schools, particularly within the Nigerian setting. This limitation in previous research provides the rationale for the present investigation.

School Sustainability

This study was further anchored on Institutional Theory, which was developed by Meyer and Rowan (1977) and later advanced by Scott (1995). According to the theory, organisations improve their legitimacy and long-term survival by adopting practices that conform to social expectations and institutional demands. Within private secondary schools, these assumptions imply that sustained student enrolment, teacher retention, and student completion are important indicators of institutional stability because they contribute directly to the continued operation of the school.

Institutional Theory further assumes that schools strengthen their legitimacy by attracting and retaining students. Consistent with this assumption, researchers have associated student enrolment with insecurity, poverty, school location, gender disparities, and education policies (Asante, 2024; Ikwelle & Ekwosianya, 2024; Sani et al., 2022). While conflict and economic hardship have generally been associated with lower school participation, improved funding, affordable education, supportive learning environments, and favourable policy interventions have been associated with higher enrolment, although the reported effects differ across regions and educational settings. Despite these contributions, previous researchers concentrated mainly on socioeconomic and policy-related factors, with comparatively little empirical attention given to the contribution of crisis management to sustained student enrolment in private secondary schools.

Institutional Theory also assumes that organisational practices influence employees' commitment to an institution. In agreement with this position, researchers have associated teacher retention with job security, leadership quality, remuneration, workload, mentoring, and opportunities for professional development (Anachuna et al., 2023; Hassan et al., 2023; Ohamobi & Onwuaso, 2024). Supportive leadership, career advancement, and continuous professional learning have generally been associated with higher retention, whereas poor working conditions and limited investment in staff development have been associated with increased teacher turnover. Although these factors have received considerable empirical attention, comparatively little evidence explains whether effective crisis management contributes to teachers' decisions to remain in private secondary schools.

The assumptions of Institutional Theory further imply that schools strengthen their long-term viability by adopting practices that encourage students to complete their education. Researchers have associated student completion with socioeconomic conditions, school climate, educational policies, institutional support, and resource utilisation (Gikie et al., 2020; Owan & Ekpenyong, 2022; Oyeyipo, 2024). Poverty, early marriage, peer influence, and discriminatory school practices have

generally been associated with school dropout, whereas supportive learning environments, effective resource utilisation, and favourable education policies have been associated with improved student retention and completion, although infrastructure limitations may reduce these benefits. Nevertheless, previous researchers have given comparatively little attention to whether effective crisis management contributes to higher student completion in private secondary schools.

Previous researchers have therefore identified several factors associated with student enrolment, teacher retention, and student completion. However, comparatively little empirical evidence exists on the contribution of crisis management to these three indicators of school sustainability in private secondary schools, particularly within the Nigerian setting. This limitation in previous research provides additional justification for the present investigation.

Conceptual Framework

The conceptual framework of this study was anchored on Resilience Theory (Holling, 1973; Walker et al., 2004) and Institutional Theory (Meyer & Rowan, 1977; Scott, 1995). These theories were adopted because they explain how effective crisis management may contribute to school sustainability in private secondary schools. As presented in Figure 1, crisis management constitutes the independent variable and is represented by three dimensions: management of disease outbreaks, management of violence or security threats, and management of accidents or emergencies. School sustainability constitutes the dependent variable and is represented by three indicators: student enrolment, teacher retention, and student completion.

The arrows linking the three crisis management dimensions to the three indicators of school sustainability represent the proposed direct relationships examined in this study. Each crisis management dimension is assumed to predict student enrolment, teacher retention, and student completion independently. The framework also assumes that the three dimensions of crisis management collectively contribute to school sustainability. Accordingly, the study examines both the individual and joint contributions of disease outbreak management, violence or security threat management, and accident or emergency management to student enrolment, teacher retention, and student completion in private secondary schools. The relationships presented in Figure 1 formed the basis for the hypotheses tested in this study.

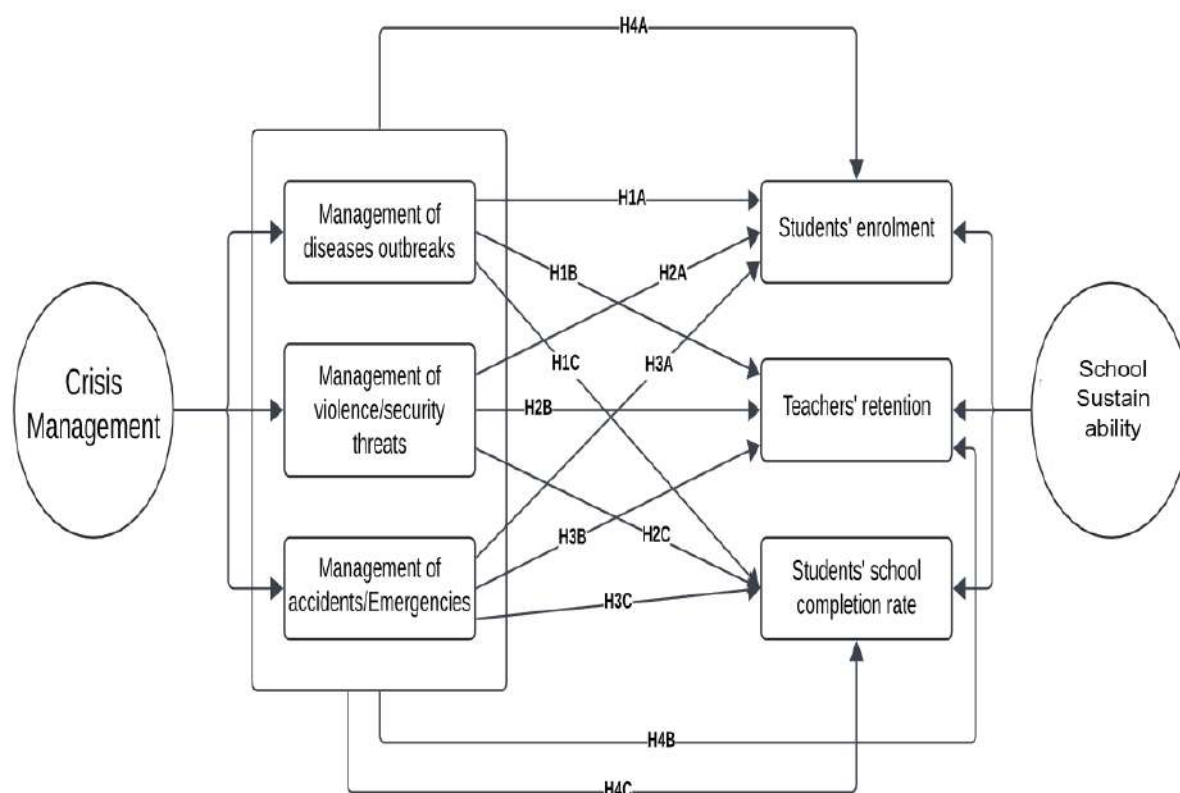


Figure 1: Conceptual framework of the study

Hypotheses Development

Resilience Theory assumes that organisations maintain continuity during disruptive events through effective preparation, response, and recovery (Holling, 1973; Walker et al., 2004). Consistent with this assumption, researchers have associated inadequate preparedness for disease outbreaks, violence or security threats, and emergencies with disruptions to school activities, whereas stronger health measures, school safety practices, and emergency preparedness have been associated with greater organisational stability (Amadi et al., 2024; Ayeni & Orhewere, 2021; Lawanson et al., 2023; Omoyemiju, 2022; Sanni et al., 2022; Shi et al., 2024). Despite these observations, little empirical attention has been given to the level of crisis management in private secondary schools within the Ikom Education Zone. Consequently, the following hypothesis was formulated:

HO₁: The level of effectiveness in managing disease outbreaks, violence or security threats, and accidents or emergencies in private secondary schools is significantly below the expected benchmark.

Institutional Theory assumes that organisations strengthen their long-term survival by adopting practices that promote institutional stability (Meyer & Rowan, 1977; Scott, 1995). Previous researchers have associated student enrolment, teacher retention, and student completion with school sustainability, although insecurity, poor working conditions, poverty, and other socioeconomic

factors continue to limit these outcomes in many educational settings (Asante, 2024; Gikie et al., 2020; Hassan et al., 2023; Ikwelle & Ekwosianya, 2024; Oyeyipo, 2024; Sani et al., 2022). However, little empirical evidence is available on the level of these indicators in private secondary schools within the Ikom Education Zone. Therefore, the following hypothesis was formulated:

HO₂: The level of school sustainability, measured by student enrolment, teacher retention, and student completion in private secondary schools in the Ikom Education Zone, is significantly below the expected benchmark.

Resilience Theory further assumes that effective crisis management strengthens organisational continuity, while Institutional Theory associates organisational stability with sustained institutional outcomes (Holling, 1973; Meyer & Rowan, 1977; Scott, 1995; Walker et al., 2004). Previous researchers have examined disease prevention, school safety, emergency preparedness, student enrolment, teacher retention, and student completion separately (Amadi et al., 2024; Bundotich & Sarah, 2020; Hassan et al., 2023; Lawanson et al., 2023; Oyeyipo, 2024). However, comparatively little empirical evidence explains whether the three dimensions of crisis management jointly contribute to school sustainability in private secondary schools. This limitation led to the formulation of the following hypothesis:

HO₃: Disease outbreak management, violence or security threat management, and accident or emergency management jointly predict student enrolment, teacher retention, and student completion in private secondary schools in the Ikom Education Zone.

Although the three dimensions of crisis management may jointly predict school sustainability, their individual contributions may differ because each addresses a different source of disruption. Previous researchers have examined these dimensions independently in relation to school health, school safety, or emergency preparedness, but little empirical evidence compares their relative contribution to student enrolment, teacher retention, and student completion within the same study. Consequently, the following hypothesis was formulated:

HO₄: Disease outbreak management, violence or security threat management, and accident or emergency management individually predict student enrolment, teacher retention, and student completion in private secondary schools in the Ikom Education Zone.

Methods

This study adopted a positivist philosophy and a quantitative, cross-sectional predictive design to examine the prediction of school sustainability from crisis management variables (Creswell & Creswell, 2017). The study population comprised 249 eligible principals of private secondary schools in the Ikom Education Zone, Cross River State, Nigeria, each having served in their current school for at least three years. The sample size was determined using Taro Yamane's formula, yielding 153 participants. To account for possible non-response, the sample was increased by 15%, resulting in a target sample of 176 principals (Nanjundeswaraswamy & Divakar, 2021). A stratified random sampling technique, with each LGA serving as a stratum, was employed to ensure proportional representation. Participants were selected using computer-generated random numbers from an alphabetical list of eligible principals. Table 1 presents the sample distribution.

Table 1: Sample Distribution of the Study

LGA	Eligible Principals	Sample Size	Percentage Sampled (%)
Abi	23	16	69.57
Boki	59	42	71.19
Etung	19	13	68.42
Ikom	42	30	71.43
Obubra	72	51	70.83
Yakurr	34	24	70.59
Total	249	176	70.68

Source: Author's computation

Ethical approval for the study was obtained from the Research Ethics Committee of the University of Calabar (Ref: UC/IRB/2024/028). Participation was voluntary, and informed consent was obtained electronically on the first page of the Google Forms questionnaire. Participants were informed of their right to withdraw at any stage without penalty. No identifying information was collected unless voluntarily provided, and all responses were anonymised, stored in password-protected files, and reported only in aggregate form.

Data were collected using a structured online questionnaire administered through Google Forms. The survey link was distributed via email, while a WhatsApp group facilitated communication and improved response rates. Contact details of participants were obtained from the Cross River State Secondary Education Board. The questionnaire comprised demographic information, 15 items measuring crisis management across disease outbreaks, violence or security threats, and accidents or emergencies, and school-level indicators of student enrolment, teacher retention, and student completion over the preceding three academic sessions. The crisis management items were adapted from Moslehi and Ebrahim (2019).

To establish content validity, the instrument was subjected to expert review by five specialists, comprising three experts in Educational Management and two experts in Measurement and Evaluation from the University of Calabar. The experts examined the relevance, clarity, adequacy, and appropriateness of the items in relation to the study objectives. Their observations and recommendations guided the revision of ambiguous statements, refinement of item wording, and improvement of the overall structure of the questionnaire before pilot testing. The revised instrument was pilot-tested with 20 principals outside the study area. Internal consistency was assessed using Cronbach's alpha, with coefficients ranging from .79 to .85, indicating acceptable reliability (Hair et al., 2022). Principals extracted enrolment, retention, and completion data from official school records, and telephone verification was conducted for 10% of the responses to improve data accuracy.

Completed questionnaires were downloaded in CSV format, screened for completeness, coded, and analysed using IBM SPSS Statistics version 27. Crisis management items were measured on a four-point Likert scale ranging from 1 (Strongly Disagree) to 4 (Strongly Agree). A four-point scale was adopted to minimise central tendency bias and encourage respondents to indicate a clear

opinion (Nadler et al., 2015; Matas, 2018). Descriptive statistics summarised the data. One-sample *t*-tests compared observed crisis management scores with the expected midpoint (2.50) and school sustainability indicators with the predetermined benchmark. Multiple linear regression was used to examine the collective and individual effects of disease outbreak management, violence or security threat management, and accident or emergency management on student enrolment, teacher retention, and student completion. Regression assumptions were assessed and satisfied before analysis, with statistical significance set at $p < .05$.

Results

Level of crisis management in private secondary schools

A one-sample *t*-test was conducted to compare the observed mean scores of effectiveness in the management of disease outbreaks, violence or security threats, and accidents or emergencies with the hypothesised benchmark of 2.50. The detailed results of the analysis are presented in Table 2.

Table 2: One-Sample T-Test Showing the Level of Effectiveness in the Management of Disease Outbreaks, Violence/Security Threats, and Accidents/Emergencies in Private Secondary Schools

Variables	μ	M	SD	t	p	Cohen's d
Management of disease outbreaks	2.50	2.86	0.57	7.89	.000	0.63
Management of violence/security threats	2.50	3.00	0.47	13.35	.000	1.06
Management of accidents/emergencies	2.50	2.87	0.57	8.14	.000	0.65

Note. $n = 158$; $df = 157$; μ = hypothesised mean; M = observed mean; SD = standard deviation; t = one-sample *t* statistic; p = significance level; Cohen's d = standardised effect size.

From Table 2, the observed mean scores for disease outbreak management ($M = 2.86$, $SD = 0.57$), violence/security threat management ($M = 3.00$, $SD = 0.47$), and accident/emergency management ($M = 2.87$, $SD = 0.57$) were all significantly higher than the hypothesised benchmark of 2.50, $t(157) = 7.89$, $p < .001$; $t(157) = 13.35$, $p < .001$; and $t(157) = 8.14$, $p < .001$, respectively. Cohen's d values ranged from 0.63 to 1.06, indicating moderate to large effect sizes. These results do not support H1, which proposed that crisis management in private secondary schools is significantly low. Instead, the results indicate that the management of disease outbreaks, violence/security threats, and accidents/emergencies was significantly above the expected benchmark.

Level of school sustainability in private secondary schools

A one-sample *t*-test was conducted to compare the observed levels of student enrolment, teacher retention, and student completion with the hypothesised benchmark of 50%. The detailed results of the analysis are presented in Table 3.

Table 3: One-Sample T-Test of Mean Differences for Enrolment, Teacher Retention, and Completion Rates in Private Secondary Schools in the Ikom Education Zone

Variables	μ	M	MD	SD	t	p	Cohen's d
Students' enrolment rate	50.00%	37.05%	-12.95	8.23	-19.78	.000	1.57
Teachers' retention rate	50.00%	35.27%	-14.73	8.46	-21.88	.000	1.74
Students' completion rate	50.00%	64.53%	14.53	14.10	12.95	.000	1.03

Note. $n = 158$; $df = 157$; μ = hypothesized mean; M = observed mean; MD = mean difference ($M - \mu$); SD = standard deviation; t = one-sample t statistic; p = significance level; Cohen's d = standardized effect size.

The results in Table 3 show that the observed student enrolment rate ($M = 37.05\%$, $SD = 8.23$) was significantly lower than the hypothesised benchmark, $t(157) = -19.78$, $p < .001$, with a large effect size (Cohen's $d = 1.57$). Similarly, the observed teacher retention rate ($M = 35.27\%$, $SD = 8.46$) was significantly lower than the benchmark, $t(157) = -21.88$, $p < .001$, with a large effect size (Cohen's $d = 1.74$). In contrast, the observed student completion rate ($M = 64.53\%$, $SD = 14.10$) was significantly higher than the benchmark, $t(157) = 12.95$, $p < .001$, with a large effect size (Cohen's $d = 1.03$). These results indicate that private secondary schools in the Ikom Education Zone experience significantly lower levels of student enrolment and teacher retention than the hypothesised benchmark, whereas student completion is significantly higher. Therefore, H2 received partial support because only two of the three indicators of school sustainability were significantly below the benchmark.

Collective prediction of crisis management variables on school sustainability

Multiple regression analysis was conducted to determine the joint contribution of disease outbreak management, violence or security threat management, and accident or emergency management to student enrolment, teacher retention, and student completion. The regression statistics, including the model fit indices and coefficients of determination, are presented in Table 4.

Table 4: Collective Prediction of the Three Crisis Management Variables on Each of the Three Indicators of Private Secondary School Sustainability in Ikom Education Zone

Dimension	Model	SS	df	MS	F	p	R ²	Adj. R ²
Students' enrolment	Regression	7131.85	3	2377.28	104.42	.000	.67	.66
	Residual	3505.99	154	22.77				
	Total	10637.84	157					
Teacher retention	Regression	4804.12	3	1601.37	38.30	.000	.43	.42
	Residual	6438.97	154	41.81				
	Total	11243.09	157					
Student completion	Regression	20193.84	3	6731.28	94.02	.000	.65	.64
	Residual	11025.58	154	71.60				
	Total	31219.42	157					

Note: Predictors = management of disease outbreaks, management of violence/security threats, management of accidents/emergencies; SS = Sum of Squares; MS = Mean Square; F = F-value; p = the significance value; R^2 = the coefficient of determination; Adj. R^2 = the adjusted R^2 .

The results in Table 4 indicate that the overall regression models were statistically significant for all three outcomes: student enrolment, $F(3, 154) = 104.42, p < .001$; teacher retention, $F(3, 154) = 38.30, p < .001$; and student completion, $F(3, 154) = 94.02, p < .001$. The predictors jointly explained 67% of the variance in student enrolment ($R^2 = .67$, adjusted $R^2 = .66$), 43% of the variance in teacher retention ($R^2 = .43$, adjusted $R^2 = .42$), and 65% of the variance in student completion ($R^2 = .65$, adjusted $R^2 = .64$). These results indicate that the combined management of disease outbreaks, violence or security threats, and accidents or emergencies significantly predicted student enrolment, teacher retention, and student completion in private secondary schools within the Ikom Education Zone. Therefore, H3 was supported.

Individual prediction of crisis management variables on school sustainability

Multiple regression analysis was conducted to determine the individual contribution of disease outbreak management, violence or security threat management, and accident or emergency management to student enrolment, teacher retention, and student completion. The regression coefficients for the individual predictors are presented in Table 5.

Table 5: Individual Prediction of Crisis Management Variables on the Three Indicators of School Sustainability in Private Secondary Schools in the Ikom Education Zone

Dimensions	Model	B	SE	β	t	p
Students' enrolment	(Constant)	-0.67	2.54		0.26	.792
	Mgt. of disease outbreak	-0.46	1.17	-0.03	0.39	.695
	Mgt. of violence	4.42	1.56	0.25	2.83	.005
	Mgt. of accidents	9.00	1.58	0.62	5.71	.000
Teacher retention	(Constant)	0.97	3.44		0.28	.777
	Mgt. of disease outbreak	0.21	1.59	0.01	0.13	.895
	Mgt. of violence	8.48	2.12	0.47	4.01	.000
	Mgt. of accidents	2.89	2.14	0.19	1.35	.178
Student completion	(Constant)	3.34	4.50		0.74	.459
	Mgt. of disease outbreak	-0.54	2.08	-0.02	0.26	.796
	Mgt. of violence	4.48	2.77	0.15	1.62	.108
	Mgt. of accidents	17.20	2.79	0.69	6.16	.000

Note: Mgt. = management; B = unstandardised regression coefficient; SE = standard error; β = Standardised regression coefficient; t = t-value; p = probability value

Based on the results in Table 5, the following regression equations were derived:

$$SE = -0.67 - 0.46 (\text{MDO}) + 4.42 (\text{MVST}) + 9.00 (\text{MAE}) \quad (2)$$

$$TR = 0.97 + 0.21 (\text{MDO}) + 8.48 (\text{MVST}) + 2.89 (\text{MAE}) \quad (3)$$

$$SC = 3.34 - 0.54 (\text{MDO}) + 4.48 (\text{MVST}) + 17.20 (\text{MAE}) \quad (4)$$

Table 5 indicates that disease outbreak management did not significantly predict student enrolment ($\beta = -0.03$, $p = .695$), teacher retention ($\beta = 0.01$, $p = .895$), or student completion ($\beta = -0.02$, $p = .796$). Violence or security threat management significantly predicted student enrolment ($\beta = 0.25$, $p = .005$) and teacher retention ($\beta = 0.47$, $p < .001$), but its contribution to student completion was not statistically significant ($\beta = 0.15$, $p = .108$). Accident or emergency management significantly predicted student enrolment ($\beta = 0.62$, $p < .001$) and student completion ($\beta = 0.69$, $p < .001$), whereas its contribution to teacher retention was not statistically significant ($\beta = 0.19$, $p = .178$). These results indicate that the individual contributions of the crisis management dimensions varied across the three indicators of school sustainability. Disease outbreak management was not a significant predictor of any of the three outcomes. Violence or security threat management predicted student enrolment and teacher retention, whereas accident or emergency management predicted student enrolment and student completion. Therefore, H4 received partial support because only some of the crisis management dimensions significantly predicted the indicators of school sustainability.

Discussion of Findings

Private secondary schools in the Ikom Education Zone recorded significantly higher levels of disease outbreak management, violence or security threat management, and accident or emergency management than the hypothesised benchmark. One possible explanation is that schools have become more conscious of crisis preparedness following repeated health emergencies, increasing security concerns, and growing public expectations regarding school safety. These conditions may have encouraged school proprietors and administrators to strengthen preventive measures and response procedures to minimise disruptions to teaching and learning. Similar observations were reported by Shi et al. (2024), who associated health preparedness with improved institutional resilience. Likewise, Bundotich and Sarah (2020) and Amadi et al. (2024) associated school safety planning and emergency preparedness with improved organisational capacity during crises. The present finding therefore suggests that many private secondary schools have incorporated crisis management into their routine administrative practices rather than treating it as an occasional response to emergencies.

Although crisis management practices exceeded the benchmark, student enrolment and teacher retention remained significantly below the expected level, whereas student completion exceeded the benchmark. This pattern suggests that effective crisis management alone may not be sufficient to attract new students or retain qualified teachers. Private schools continue to operate in a competitive environment where parents' financial capacity, school reputation, tuition costs, teachers' remuneration, and employment conditions also influence enrolment and staff retention. Earlier researchers similarly associated low enrolment with insecurity, economic hardship, and other socioeconomic challenges (Asante, 2024; Sani et al., 2022), while Hassan et al. (2023) associated teacher turnover with unfavourable working conditions. In contrast, the relatively high student completion rate suggests that students who remain enrolled receive sufficient academic and administrative support to complete their education. Gikie et al. (2020) also associated supportive school environments with improved completion rates. These findings indicate that strengthening crisis management should be accompanied by measures aimed at improving school attractiveness and teachers' welfare if private schools are to achieve long-term sustainability.

The joint regression analysis indicates that disease outbreak management, violence or security threat management, and accident or emergency management collectively predicted student enrolment, teacher retention, and student completion. This result suggests that crisis management operates as an integrated administrative function in which the combined effect of several preparedness measures is more important than reliance on a single strategy. Schools that strengthen different aspects of crisis management are likely to inspire greater confidence among parents, teachers, and students because they are better prepared to maintain continuity during periods of disruption. This explanation agrees with Resilience Theory, which assumes that organisations become more stable when they strengthen their capacity to prepare for, adapt to, and recover from crises (Holling, 1973; Walker et al., 2004). Similar observations were reported by Shi et al. (2024) and Bundotich and Sarah (2020), who associated effective crisis preparedness with reduced educational disruption and improved institutional continuity.

The individual regression analysis indicates that the contribution of each crisis management dimension differed across the three indicators of school sustainability. Violence or security threat management significantly predicted student enrolment and teacher retention, whereas accident or emergency management significantly predicted student enrolment and student completion. Disease outbreak management, however, did not significantly predict any of the three outcomes. A possible explanation is that school security and physical safety remain visible concerns for parents and teachers because incidents involving violence or accidents often have immediate consequences for school operations. Consequently, schools with stronger safety and emergency management practices may enjoy greater public confidence and organisational stability. In contrast, the absence of a significant relationship between disease outbreak management and the three outcomes may indicate that health management practices have become routine following earlier public health emergencies. As a result, differences in disease outbreak management may no longer distinguish schools to the same extent as security and emergency preparedness. This finding differs from Shi et al. (2024), who reported a stronger contribution of disease preparedness to organisational resilience. The difference may reflect variations in study setting, time, and outcome measures, since the present study focused specifically on school sustainability indicators within private secondary schools in Nigeria.

The findings also support the assumptions of Resilience Theory and Institutional Theory. Resilience Theory explains why schools that strengthen preparedness and response mechanisms are better able to maintain continuity during periods of disruption, while Institutional Theory explains why stable organisational practices contribute to student enrolment, teacher retention, and student completion. From a practical perspective, the findings suggest that proprietors of private secondary schools should invest in comprehensive crisis preparedness, improve school safety measures, strengthen emergency response systems, and create better working conditions for teachers. Education authorities can complement these efforts by developing policies and training programmes that improve crisis preparedness across private secondary schools.

Limitations and Suggestions for Future Research

This study has some limitations that should be considered when interpreting the findings. First, the study relied primarily on self-reported data from school principals, which may be influenced by recall errors or social desirability bias. Future studies should combine questionnaire data with interviews, official school records, or independent assessments to strengthen data validity.

Second, although probability sampling supported statistical inference, the use of a sample rather than a census may not fully represent all eligible principals in the Ikom Education Zone. Future research could include larger samples or complete enumerations where feasible. Third, the cross-sectional design limits conclusions about changes over time and causal relationships. Longitudinal studies would provide a better understanding of how crisis management practices influence school sustainability over time. Furthermore, because all crisis management variables were measured from the same respondents, the possibility of common method variance cannot be completely ruled out. Future studies could reduce this possibility by collecting data from multiple sources or by separating the measurement of predictor and outcome variables. Finally, because the study focused on private secondary schools within a single education zone, the findings may not be directly generalisable to other educational settings. Future studies should include different regions and school types to examine whether these relationships are consistent across contexts. Despite these limitations, the study provides useful evidence on the contribution of crisis management to student enrolment, teacher retention, and student completion in private secondary schools.

Conclusion

The extent to which crisis management variables predict school sustainability in private secondary schools in the Ikom Education Zone of Cross River State, Nigeria was examined in this study. The results indicate that although private secondary schools generally maintain satisfactory levels of crisis management, differences exist in the contribution of the various crisis management dimensions to student enrolment, teacher retention, and student completion. While crisis management variables jointly predict the three indicators of school sustainability, their individual predictive effects differ according to the type of crisis being managed. These findings suggest that school sustainability depends not only on the ability of schools to respond effectively to crises but also on the specific forms of preparedness adopted to address different sources of disruption. The findings further indicate that strengthening crisis management has implications beyond emergency response because it contributes to the continuity and stability of school operations. Although the study was conducted in private secondary schools within the Ikom Education Zone, the evidence may guide school proprietors, educational administrators, and policymakers in similar educational settings where maintaining school stability under changing conditions remains an important concern.

Recommendations

Based on these findings, the following recommendations are proposed:

- i. Education authorities should provide regular training and practical simulations to strengthen principals' capacity to manage disease outbreaks, security threats, and emergencies effectively.
- ii. Proprietors and school administrators should strengthen school safety systems and emergency preparedness while improving staff welfare and institutional support to enhance teacher retention and sustain student enrolment.
- iii. Future studies should examine crisis management across different educational levels and geographical regions using longitudinal designs to provide stronger evidence on its long-term effects on school sustainability.

References

- Alkaabi, A., Cherian, J. P., & Davidson, R. (2022). Is private schooling worth it? A study on the relationship between cost, quality, and student achievement in the private schools. *International Journal of Educational Management*, 36(7), 1362–1379. <https://doi.org/10.1108/IJEM-01-2022-0010>
- Amadi, E. O., Ekpoafia, C. A., & Inyang, I. C. (2024). Principals' safety management practices for effective administration of public senior secondary schools in Rivers State, Nigeria. *African Education Indices*, 13(1), 1–20.
- Anachuna, O. N., Obi, E., & Unachukwu, G. O. (2023). Teachers' training and professional development practices of principals for teachers' retention in public and private secondary schools in Anambra State. *Journal of Emerging Trends in Educational Research and Policy Studies (JETERAPS)*, 12(4), 191–198.
- Arop, F. O., & Owan, V. J. (2018). Institutional variables and the supervision of security in public secondary schools in Cross River State. *International Journal of Innovation in Educational Management (IJIEM)*, 2(1), 1–11. <https://doi.org/10.2139/ssrn.3286244>
- Asante, G. (2024). The effects of cost elimination on secondary school enrolment in Sub-Saharan Africa. *Educational Review*, 76(3), 561–585. <https://doi.org/10.1080/00131911.2022.2028732>
- Ayeni, A. O., & Orhewere, I. O. (2021). Safety intelligence and security management in public secondary schools in Epe Local Government Area, Lagos State. *International Journal of Disaster Response and Emergency Management*, 4(1), 63–77. <https://doi.org/10.4018/IJDREM.2021010105>
- Bundotich, C. O., & Sarah, W. (2020). Prevalence of aggressive behaviours among students in secondary schools in Bungoma County, Kenya. *International Journal of Research and Innovation in Social Science (IJRISS)*, 4(6), 305–311.
- Chowdhury, T. A., & Synthia, I. J. (2021). Determinants of school choice and their relation to success to the institution: A comparative study between public and private schools in Bangladesh. *International Journal of Educational Management*, 35(1), 217–231. <https://doi.org/10.1108/IJEM-07-2019-0254>
- Chuktu, O., Owan, V. J., Abang, K. B., Idika, D. O., Ekpo, E. E., Ekon, E. E., Dan, F. A.-O., Ojini, R. A., Sunday, M. O., Robert, I. A., & Aduma, P. O. (2024). Institutional attributes and parents' contentment with the quality of teaching, care, and safety of pupils in public primary schools. *Cogent Education*, 11(1), Article 2295167. <https://doi.org/10.1080/2331186X.2023.2295167>
- Crawford, L., Hares, S., & Todd, R. (2024). The impact of private schools, school chains and PPPs in developing countries. *The World Bank Research Observer*, 39(1), 97–123. <https://doi.org/10.1093/wbro/lkad005>
- Creswell, J. W., & Creswell, J. D. (2017). *Research design: Qualitative, quantitative, and mixed methods approaches*. Sage publications.
- Dwangu, A. M., & Mahlangu, V. P. (2021). Accountability in the financial management practices of school principals. *International Journal of Educational Management*, 35(7), 1504–1524. <https://doi.org/10.1108/IJEM-06-2021-0243>
- Ekaette, S. O., Ameh, E., & Owan, V. J. (2020). Statistical trends of school size, location and enrolment: An evaluation of public junior secondary schools for sustainable development.

- World Journal of Vocational Education and Training*, 2(2), 76–88. <https://doi.org/10.18488/journal.119.2020.22.76.88>
- Etor, C. R., Obeten, R. B., & Obona, E. E. (2019). Management of skill-oriented subjects and goal attainment in private secondary schools in Ikom education zone, Cross River State, Nigeria. *Global Journal of Educational Research*, 18(1), 27–34. <https://doi.org/10.4314/gjedr.v18i1.4>
- Gikie, S. W., Karoki, S., & Kinyanjui, S. (2020). Evaluation of the impact of the free secondary education on students' progression using Markov chain model: A case study of Kiambaa Sub-County, Kiambu County. *Bulletin of Mathematics and Statistics Research*, 8(2), 17.
- Grissom, J. A., & Condon, L. (2021). Leading schools and districts in times of crisis. *Educational Researcher*, 50(5), 315–324. <https://doi.org/10.3102/0013189X211023112>
- Hair, J. F., Hult, G. T. M., Ringle, C. M., & Sarstedt, M. (2022). *A primer on partial least squares structural equation modeling (PLS-SEM)* (3rd ed.). SAGE.
- Hassan, F. O., Ibikunle, G. A., & Akinyemi, I. A. (2023). Principals' leadership behaviour, teaching workload and turnover intention among teachers in private secondary schools in Ogun State, Nigeria. *African Journal of Educational Management, Teaching and Entrepreneurship Studies*, 9(3), 87–96. <https://ajemates.org/index.php/ajemates/article/view/304>
- Holling, C. S. (1973). Resilience and stability of ecological systems. *Annual Review of Ecology and Systematics*, 4, 1–23. <https://doi.org/10.1146/annurev.es.04.110173.000245>
- Ikwelle, A. C., & Ekwosianya, M. C. (2024). Investigating challenges and effects of students' low enrolment on the sustainability of primary school education in Eastern Nigeria. *African Journal of Humanities and Contemporary Education Research*, 13(1), 342–351. <https://doi.org/10.62154/bfbseg90>
- Lawal, O. (2022). COVID-19 risks and systemic gaps in Nigeria: Resilience building lessons for pandemic and climate change management. *SN Social Sciences*, 2(11), 247. <https://doi.org/10.1007/s43545-022-00557-8>
- Lawanson, O. I., Proverbs, D., & Ibrahim, R. L. (2023). The impact of flooding on poor communities in Lagos State, Nigeria: The case of the Makoko urban settlement. *Journal of Flood Risk Management*, 16(1), Article e12838. <https://doi.org/10.1111/jfr3.12838>
- Matas, A. (2018). Design of Likert-type scale formats: A state of the art. *Revista Electrónica de Investigación Educativa*, 20(1), 38–47. <https://doi.org/10.24320/redie.2018.20.1.1347>
- Meyer, J. W., & Rowan, B. (1977). Institutionalized organizations: Formal structure as myth and ceremony. *American Journal of Sociology*, 83(2), 340–363. <https://doi.org/10.1086/226550>
- Nadler, J. T., Weston, R., & Voyles, E. C. (2015). Stuck in the Middle: The Use and Interpretation of Mid-Points in Items on Questionnaires. *The Journal of General Psychology*, 142(2), 71–89. <https://doi.org/10.1080/00221309.2014.994590>
- Nanjundeswaraswamy, T. S., & Divakar, S. (2021). Determination of sample size and sampling methods in applied research. *Proceedings on Engineering Sciences*, 3(1), 25–32. <https://doi.org/10.24874/PES03.01.003>
- Obilor, E. I., & Ikpa, A. I. (2021). Assessment of the effects of violence on students' academic performance in public senior secondary schools in Rivers State. *International Journal of Innovative Psychology & Social Development*, 9(1), 147–158.

- Ohamobi, I. N., & Onwuaso, V. E. (2024). Retention factors as correlates of teachers' attrition among private secondary school teachers in Awka Education Zone, Anambra State. *Journal of Educational Research and Development*, 7(1), 177–187.
- Okoi, I. I., Omini, E. E., & Ameh, E. (2024). Analysis of students completion rates based on school location in secondary schools, Ikom Education Zone of Cross River State, Nigeria. *Trends in Educational Studies Journal (TRESJ)*, 16(2), 203–219.
- Omoyemiju, A. M. (2022). Phenomenology of COVID-19 and school preparedness for emergency management in Osun State, Nigeria. In H. Ajayi, E. Grupper, S. Fowowe, T. Cassidy, & E. Ashton (Eds.), *Preparing early childhood teachers for managing emergencies* (pp. 17–32). IGI Global. <https://doi.org/10.4018/978-1-7998-7020-3.ch002>
- Opabola, E. A., Galasso, C., Rossetto, T., Meilianda, E., Idris, Y., & Nurdin, S. (2023). Investing in disaster preparedness and effective recovery of school physical infrastructure. *International Journal of Disaster Risk Reduction*, 90, 103623. <https://doi.org/10.1016/j.ijdr.2023.103623>
- Owan, V. J. (2018). Management of educational support services and attainment of universal basic education goals in primary schools in Cross River State. *Humanities and Social Sciences Letters*, 6(4), 203–210. <https://doi.org/10.18488/journal.73.2018.64.203.210>
- Owan, V. J., & Agunwa, J. N. (2019). Principals' administrative competence and teachers' work performance in secondary schools in Calabar Education Zone of Cross River State, Nigeria. *Humanities and Social Sciences Letters*, 7(1), 20–28. <https://doi.org/10.18488/journal.73.2019.71.20.28>
- Owan, V. J., & Ekpenyong, J. A. (2022). Usage of electronic infrastructures and students' learning effectiveness in Nigerian universities: A polytomous logistic prediction. *Ubiquitous Learning: An International Journal*, 15(2), 87–104. <https://doi.org/10.18848/1835-9795/CGP/v15i02/87-104>
- Owan, V. J., & Offu, O. E. (2021). Standardised predictive linear models of managerial processes and the sustainability of graduate programmes (SGPs) in universities: A case study. *Contemporary Mathematics and Science Education*, 2(1), Article ep21006. <https://doi.org/10.30935/conmaths/9681>
- Owan, V. J., Odigwe, F. N., Okon, A. E., Duruamaku-dim, J. U., Ubi, I. O., Emanghe, E. E., Owan, M. V., & Bassey, B. A. (2022). Contributions of placement, retraining and motivation to teachers' job commitment: Structural equation modelling of the linkages. *Heliyon*, 8(4), Article e09334. <https://doi.org/10.1016/j.heliyon.2022.e09334>
- Oyeyipo, O. M. (2024). Girl child early marriage and its impact on education: A case study of Cross River State. *Global Journal of Educational Research*, 23(3), 309–319. <https://doi.org/10.4314/gjedr.v23i3.7>
- Sani, A. M., Babi, B. A., & Bello, I. (2022). Thematic assessment of impact of insurgency on secondary school enrolment and drop-out rates in Mubi Educational Zone, Adamawa State: Focus on the absence of violence. *International Journal of Research and Innovation in Social Science*, 6(12), 689–695. <https://ideas.repec.org/a/bcp/journal/v6y2022i12p689-695.html>
- Scott, W. R. (1995). *Institutions and organizations*. SAGE Publications.
- Shi, Y., Xu, L., Jiang, H., Cai, Y., Bao, C., & Liu, W. (2024). Analysis of factors influencing influenza outbreaks in schools in Taicang City, China. *Frontiers in Public Health*, 12, Article 1409004. <https://doi.org/10.3389/fpubh.2024.1409004>

- Walker, B., Holling, C. S., Carpenter, S. R., & Kinzig, A. (2004). Resilience, adaptability and transformability in social-ecological systems. *Ecology and Society*, 9(2), Article 5. <https://doi.org/10.5751/ES-00650-090205>
- Weick, K. E., & Sutcliffe, K. M. (2007). *Managing the unexpected: Resilient performance in the age of uncertainty* (2nd ed.). Jossey-Bass.
- Wenxuan, L., Xiaocheng, L., Yan, C., Xianglai, S., & Huihui, L. (2024). Analysis on the characteristics of foodborne disease outbreaks in schools in Gansu Province from 2010 to 2022. *Journal of Tropical Diseases and Parasitology*, 21(6), 330–334. <https://doi.org/10.3969/j.issn.1672-2302.2023.06.006>