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Crisis Management Practices as Predictors of Private Secondary School Sustenance After Controlling for School Characteristics

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Abstract

Private secondary schools increasingly operate in environments characterised by health emergencies, security threats, and other disruptive events that may threaten their long-term sustainability. Despite growing interest in crisis management within education, limited evidence exists on its contribution to school sustenance after accounting for organisational characteristics. This study examined whether crisis management practices predict the sustenance of private secondary schools in the Ikom Education Zone of Cross River State, Nigeria. A quantitative cross-sectional survey design was adopted. Data were collected from 158 principals selected through stratified random sampling from a population of 249 eligible principals. Measures demonstrated satisfactory reliability and construct validity. Hierarchical multiple regression was used to determine the incremental contribution of crisis management

beyond school characteristics, including school size, age, ownership, location, infrastructure, tuition, teacher salary, principal experience, and student–teacher ratio. School sustenance was operationalised using student enrolment, teacher retention, and student completion. School characteristics explained 40.6% of the variance in overall school sustenance, while the addition of crisis management increased the explained variance to 54.3%, indicating a significant incremental contribution ($\Delta R^2 = .137$, $p < .001$). Among the crisis management dimensions, accident management consistently emerged as the strongest predictor of overall school sustenance, student enrolment, teacher retention, and student completion, whereas violence management predicted overall school sustenance and teacher retention only. Disease management was not a significant predictor after controlling for school characteristics. These findings indicate that effective crisis management, particularly emergency and accident preparedness, constitutes an important organisational capability for sustaining private secondary schools.

Keywords: crisis management; school sustenance; accident management; teacher retention; student enrolment; hierarchical multiple regression; private secondary schools.

1. Introduction

Private secondary schools have become an important component of educational provision across many developing countries, complementing government efforts to expand access to quality education amid growing demand and limited public resources. In Nigeria, increased private sector participation has broadened educational opportunities, reduced pressure on public schools, generated employment, and widened parental choice in secondary education (Crawfurd et al., 2024; Chuktu et al., 2024). Beyond increasing access, private schools contribute to human capital development and local economic growth, making their continued operation important to national educational development (Owan & Agunwa, 2019). Consequently, ensuring the long-term viability of private secondary schools has become an important concern for educational managers, school proprietors, and policymakers.

The continued operation of private secondary schools depends on their ability to maintain adequate student enrolment, retain qualified teachers, and support students to successful programme completion. Unlike public schools, most private schools rely heavily on tuition fees and internally generated revenue to finance their activities, making them particularly susceptible to factors that disrupt school operations or reduce stakeholder confidence (Ekaette et al., 2020; Owan & Offu, 2021). Evidence from Nigeria and other developing countries indicates that many private schools continue to experience declining enrolment, increasing teacher turnover, financial instability, and inconsistent educational outcomes that threaten their long-term viability (Antón et al., 2022; Robina-Ramírez & Cotano-Olivera, 2020; World Bank Group, 2021). Regional reports similarly identify declining enrolment, weak institutional capacity, and regulatory challenges as persistent threats to private

school sustainability (OECD, 2022). Within Nigeria, these challenges have also been linked to weaknesses in school leadership, governance, and managerial capacity (Etor et al., 2019; Owan, 2018), suggesting that sustaining private schools requires more than sound financial management alone.

Increasingly, private schools operate in environments characterised by health emergencies, security threats, environmental hazards, and other disruptive events capable of interrupting teaching and learning. The COVID-19 pandemic exposed weaknesses in emergency preparedness and demonstrated how disease outbreaks can interrupt academic calendars, reduce school income, and disrupt instructional delivery (Lawal, 2022; Samawi, 2021). Likewise, insecurity, communal conflicts, kidnappings, and violence continue to threaten the safety of students and school personnel in many parts of Nigeria, including Cross River State (Arop & Owan, 2018). Infrastructure failures, fire incidents, and other emergencies further expose schools to operational disruptions, financial losses, and reputational risks (Opabola et al., 2023). Schools that anticipate such events, prepare appropriate response mechanisms, and recover quickly are more likely to maintain stakeholder confidence and minimise disruptions to educational activities (Dwangu & Mahlangu, 2021; Grissom & Condon, 2021). These developments suggest that crisis management has become an essential component of effective educational leadership and organisational sustainability.

Although previous studies have linked school performance and sustainability to leadership practices, teacher motivation, governance, school climate, discipline, infrastructure, and resource management (Chuktu et al., 2024; Etor et al., 2019; Moulin, 2023), comparatively little attention has been devoted to understanding the contribution of crisis management to the sustenance of private secondary schools. Existing studies have largely examined disease preparedness, school violence, and emergency management as separate research areas or have focused primarily on educational, behavioural, or public health outcomes (Arop & Owan, 2018; Opabola et al., 2023; Samawi, 2021). Moreover, few studies have examined whether crisis management explains organisational outcomes after accounting for important school characteristics such as school size, ownership, infrastructure, principal experience, teacher remuneration, and school location. This gap limits understanding of the organisational value of crisis management within private secondary schools, particularly in resource-constrained settings.

This study addresses these gaps by examining the contribution of crisis management practices to the sustenance of private secondary schools in the Ikom Education Zone of Cross River State, Nigeria. Crisis management is examined through three dimensions, disease

management, violence management, and accident management, while school sustenance is reflected by student enrolment, teacher retention, and student completion. Using hierarchical multiple regression, the study determines whether crisis management practices explain additional variation in school sustenance after controlling for organisational characteristics. By integrating crisis management and educational management perspectives within a single analytical framework, the study contributes evidence on how effective crisis management may strengthen the resilience and long-term sustainability of private secondary schools operating in challenging environments.

2. Literature Review and Hypotheses Development

2.1. School Crisis Management

Schools operate in increasingly uncertain environments characterised by public health emergencies, security challenges, environmental hazards, and other disruptive events capable of interrupting teaching and learning. Evidence from previous studies indicates that disease outbreaks remain a major source of educational disruption worldwide. Investigations conducted in China have documented repeated outbreaks of respiratory and foodborne diseases within schools, while more recent studies reported substantially lower influenza incidence among schools with higher vaccination coverage, emphasising the value of preventive health measures and school-based health promotion (Shi et al., 2024; Wenxuan et al., 2024). Similar concerns have been reported in developing countries, where poor hygiene practices, inadequate sanitation, and limited health awareness continue to facilitate disease transmission among school populations (Ejigu et al., 2019). Within Nigeria, evaluations of school preparedness during the Ebola outbreak revealed that although many schools implemented awareness campaigns, relatively few possessed trained personnel, emergency response protocols, or adequate health facilities to manage major disease outbreaks effectively (Olalekan & Adeola, 2014). Likewise, Sanni et al. (2022) found that many schools lacked basic health services and organised emergency preparedness structures. These studies indicate that effective disease management requires preventive planning, health education, surveillance, and coordinated institutional responses rather than reactive interventions alone. However, existing research has concentrated primarily on disease prevention and public health outcomes, with comparatively

limited attention given to whether effective disease management contributes to the long-term sustenance of private secondary schools.

Violence and security threats constitute another important dimension of school crisis management because they compromise safety, reduce instructional effectiveness, and weaken organisational stability. Previous studies consistently report that bullying, physical aggression, vandalism, sexual violence, and other security incidents remain common within school environments. For example, Erol and Karsantik (2018) found that the overwhelming majority of schools had experienced at least one crisis, most of which involved student behaviour or school management challenges. Similar evidence from Kenya and Nigeria indicates that bullying, peer aggression, and school violence continue to affect students' psychological wellbeing and academic performance while increasing disciplinary problems and absenteeism (Evans et al., 2023; Ighaede-Edwards et al., 2023). These findings suggest that comprehensive violence management requires clearly defined school safety policies, counselling services, early intervention mechanisms, and strong collaboration between schools, families, and community agencies. Despite extensive documentation of violence within educational settings, most previous studies have examined behavioural or psychosocial outcomes among students, with considerably less attention devoted to whether effective violence management strengthens broader organisational outcomes such as institutional continuity and teacher retention.

Accidents and emergencies similarly threaten the continuity of educational services by damaging infrastructure, disrupting school operations, and exposing students and staff to avoidable risks. Evidence from Nigeria indicates that many schools remain inadequately prepared to manage emergencies because they lack disaster committees, emergency response plans, routine safety inspections, and essential safety equipment (Ayeni & Orhewere, 2021; Omoyemiju, 2022). Flood-related disasters have also been associated with prolonged school closures, declining enrolment, infrastructure damage, and increased dropout rates, particularly in vulnerable communities (Lawanson et al., 2023; Umeji, 2024). These findings reinforce growing calls for improved emergency preparedness, stronger school infrastructure, and continuous leadership training in school safety management. Nevertheless, most existing studies have examined accident management from disaster preparedness or infrastructure perspectives rather than investigating its contribution to institutional sustainability. Consequently, empirical evidence linking accident management directly to school sustenance remains limited, particularly within privately owned secondary schools operating in resource-constrained environments.

2.2. School Sustenance

School sustenance refers to the capacity of an educational institution to maintain stable operations and achieve its core educational objectives over time despite internal and external challenges (Owan & Offu, 2021). For private secondary schools, sustenance extends beyond financial survival to encompass the ability to attract and retain students, maintain a stable and competent workforce, and support learners to successful programme completion. Previous studies consistently indicate that enrolment decisions are influenced by a combination of security, economic, institutional, and social factors. In Nigeria, insecurity and conflict have been associated with declining enrolment and increasing school dropout because parents become reluctant to send their children to unsafe learning environments (Sani et al., 2022). Similarly, poverty, school conditions, and gender-related barriers continue to restrict access to education in several parts of the country, particularly among girls and learners from disadvantaged households (Asante, 2024; Laraba et al., 2024). Other studies suggest that institutional characteristics, including school resources, location, and programme quality, also influence enrolment by affecting parental confidence and students' perceptions of educational quality (Michael & Modebelu, 2020). Collectively, these findings indicate that sustaining enrolment requires schools to provide learning environments that are safe, stable, and capable of meeting stakeholder expectations.

Teacher retention represents another critical dimension of school sustenance because organisational effectiveness depends heavily on maintaining experienced and committed teaching staff. Studies conducted in Nigerian private secondary schools have reported that job security, supportive leadership, mentoring, and opportunities for professional growth contribute positively to teacher retention, whereas poor working conditions and limited career advancement increase staff turnover (Anachuna et al., 2023; Hassan et al., 2023; Ohamobi & Onwuaso, 2024). Similar findings from other Sub-Saharan African countries reinforce the importance of school leadership, recognition, and professional support in maintaining a stable teaching workforce (Mrisho et al., 2023). These studies suggest that retaining competent teachers is fundamental to organisational continuity because frequent staff turnover disrupts instructional quality, weakens institutional memory, and increases recruitment costs.

Student completion provides an important indication of the extent to which schools successfully support learners throughout their educational programmes. Previous research suggests that completion rates are influenced by multiple school and community factors, including poverty, school climate, peer relationships, institutional policies, and resource availability. In Nigeria, poverty, early marriage, and limited parental support continue to

contribute to school dropout, particularly among vulnerable student populations (Oyeyipo, 2024). School environments characterised by supportive teacher–student relationships, effective student management, and adequate learning resources are generally associated with improved student persistence and completion (Sakirudeen & Akinloye, 2020). Likewise, evidence indicates that effective utilisation of school resources contributes to improved institutional efficiency and reduced student attrition (Owan & Ekpenyong, 2022). These findings suggest that student completion reflects not only learners' individual characteristics but also the organisational capacity of schools to create supportive conditions that enable students to progress successfully to graduation.

2.3. Summary and gaps

Although previous studies have examined crisis management practices and the indicators of school sustenance, these constructs have largely been investigated independently. Research on crisis management has focused primarily on educational, behavioural, disaster preparedness, or public health outcomes, whereas studies of school sustenance have emphasised economic, demographic, leadership, and organisational determinants of student enrolment, teacher retention, and student completion. Consequently, limited empirical evidence exists on whether disease management, violence management, and accident management contribute to school sustenance after accounting for organisational characteristics such as school size, ownership, infrastructure, and location. This gap is particularly evident among private secondary schools operating in resource-constrained settings, where effective crisis management may be essential for maintaining organisational continuity. The present study addresses this gap by examining the individual contributions of disease management, violence management, and accident management, as well as the incremental contribution of crisis management practices to school sustenance beyond the influence of selected school characteristics.

H1: Disease management is positively associated with school sustenance among private secondary schools.

H2: Violence management is positively associated with school sustenance among private secondary schools.

H3: Accident management is positively associated with school sustenance among private secondary schools.

H4: After controlling for school characteristics, crisis management practices explain significant additional variance in school sustenance among private secondary schools.

2.4. Theoretical Foundation

This study is anchored on General Systems Theory and Crisis Management Theory. General Systems Theory, proposed by von Bertalanffy (1968) and later applied to educational organisations by Hoy and Miskel (2013), conceptualises schools as open systems comprising interdependent components that interact with one another and the external environment. Inputs such as students, teachers, leadership, infrastructure, and financial resources are transformed through educational and administrative processes into organisational outcomes. Because these components are interdependent, crises such as disease outbreaks, violence, and accidents may disrupt school operations, reduce organisational effectiveness, and threaten institutional continuity. The theory therefore suggests that school sustenance depends not only on educational processes but also on the institution's ability to minimise disruptions and maintain stable operations. Crisis Management Theory, developed by Fink (1986) and expanded by Coombs (2015), explains how organisations reduce the impact of crises through preparedness, prevention, response, recovery, and organisational learning. Schools that invest in emergency planning, risk assessment, communication systems, staff training, and post-crisis evaluation are better positioned to protect educational continuity and restore normal operations following disruptive events. Within educational settings, these principles imply that effective management of disease outbreaks, violence, and accidents strengthens organisational resilience and stakeholder confidence. The two theories provide the conceptual basis for the present study. General Systems Theory explains why crises affect school functioning, whereas Crisis Management Theory explains the mechanisms through which their effects can be prevented or mitigated. Guided by these complementary perspectives, the study proposes that stronger crisis management practices contribute to greater school sustenance after controlling for school characteristics.

2.4. Conceptual Framework

Figure 1 presents the conceptual framework for the study. School sustenance is conceptualised as a multidimensional outcome comprising student enrolment, teacher retention, and student completion. Crisis management, represented by disease management, violence management, and accident management, serves as the principal explanatory variable. School characteristics, including school size, school age, annual tuition, teacher salary, student–teacher ratio, infrastructure, principal experience, ownership, and location, were included as control variables because they may independently influence school sustenance. Guided by General

Systems Theory and Crisis Management Theory, the framework proposes that crisis management contributes to school sustenance beyond the effects of these organisational characteristics.

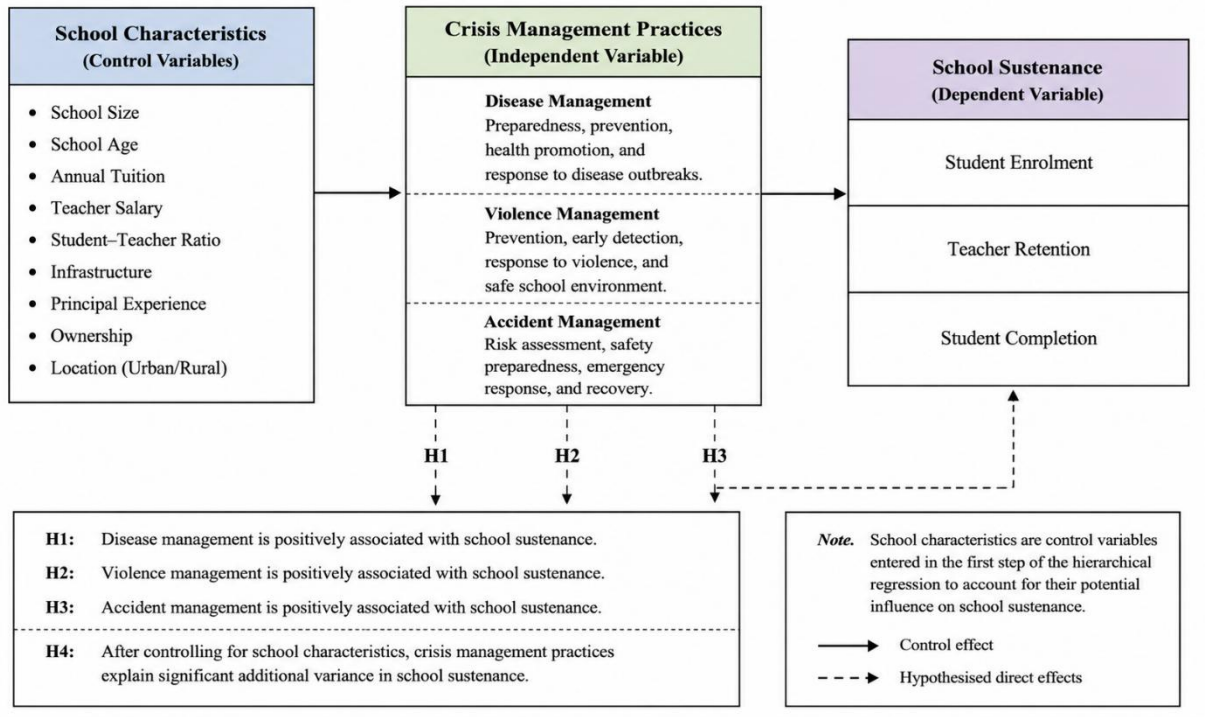


Figure 1. Proposed conceptual framework linking school characteristics, crisis management practices, and school sustenance.

3. Methods

3.1. Study Design and Participants

This study employed a cross-sectional predictive survey design to examine the extent to which crisis management practices predict school sustenance among private secondary schools after accounting for selected school characteristics. The design was appropriate because the study sought to explain variation in organisational outcomes rather than establish causal relationships. The study was conducted among registered private secondary schools in the Ikom Education Zone of Cross River State, Nigeria, comprising six Local Government Areas: Abi, Boki, Etung, Ikom, Obubra, and Yakurr. The target population comprised principals of registered private secondary schools in the Ikom Education Zone of Cross River State who had served in their current schools for at least three years. The three-year minimum was adopted to ensure that participants had adequate familiarity with their schools' characteristics, crisis management practices, and organisational outcomes. According to records obtained from the Cross River State Secondary Education Board, 249 principals met the inclusion criteria and constituted the study population.

Taro Yamane's formula for finite populations was used to determine the minimum sample size required for generalisation to the study population. The computation indicated that a minimum of 153 principals was adequate. To minimise the potential effects of non-response, the estimated sample size was increased by approximately 15%, resulting in a target sample of 176 principals. A stratified random sampling technique was employed to ensure proportional representation across the six Local Government Areas. Each Local Government Area constituted a sampling stratum, after which proportional allocation was applied according to the number of eligible principals within each stratum. Participants were subsequently selected using computer-generated random numbers from an alphabetically arranged sampling frame obtained from the Cross River State Secondary Education Board.

3.2. Measures

Data were collected using a structured questionnaire. The instrument was developed through an extensive review of the literature on crisis management, educational leadership, and organisational sustainability. It incorporated both adapted questionnaire items and objective school-level indicators to ensure comprehensive measurement of the study constructs.

School Characteristics

School characteristics were included as control variables because organisational attributes may influence school sustenance independently of crisis management practices. Information was collected on school size, school age, annual tuition, average monthly teacher salary, student–teacher ratio, infrastructure, principal experience, school ownership, and school location. School size was measured as the total student enrolment. School age represented the number of years since the establishment of the school. Annual tuition referred to the average tuition charged per student during the academic year, while teacher salary represented the average monthly salary paid to teaching staff. The student–teacher ratio was calculated as the average number of students per teacher. Infrastructure was measured using a composite rating of the adequacy of instructional and physical facilities available within each school. Principal experience represented the number of years the respondent had served as a school principal. School ownership was categorised as community-owned, mission-owned, or privately owned, whereas school location was classified as rural or urban.

Crisis Management Practices

Crisis management constituted the principal explanatory variable and was conceptualised as the administrative capacity of a school to prepare for, prevent, respond to, and recover from events capable of disrupting teaching and learning. Items were adapted primarily from the School Crisis Management Scale developed by Moslehi and Ebrahim (2019). To improve its applicability to private secondary schools in Nigeria, selected items were reworded, contextualised, and reorganised while retaining the conceptual meaning of the original scale. The adapted instrument comprised three dimensions: disease management, violence management, and accident management, with each dimension represented by five items. Disease management assessed institutional practices relating to the prevention, detection, and management of infectious disease outbreaks. Violence management measured administrative strategies for preventing and responding to bullying, student unrest, vandalism, and other security-related incidents. Accident management assessed emergency preparedness through school safety policies, emergency response procedures, staff preparedness, and the availability of safety facilities. Responses to all crisis management items were recorded on a four-point Likert scale ranging from 1 (Strongly Disagree) to 4 (Strongly Agree). A forced-choice response format was adopted to encourage respondents to express a definite opinion while reducing the tendency to select a neutral midpoint.

School Sustenance

School sustenance was conceptualised as the capacity of a private secondary school to maintain organisational continuity through sustained student enrolment, teacher retention, and successful student completion. Rather than relying on perceptual ratings, the construct was operationalised using objective institutional indicators extracted from school records. Student enrolment was measured as the total number of students enrolled during the study period. Teacher retention represented the proportion of teachers who remained employed in the school over the preceding three academic years relative to the total number employed during the same period. Student completion represented the proportion of students who successfully completed their secondary education within the expected programme duration during the corresponding period. To improve reporting accuracy, principals were instructed to consult official school records when completing this section of the questionnaire.

3.3. Instrument Validation and Reliability

Before administration, the questionnaire underwent face and content validation by three experts comprising two specialists in Educational Management and one specialist in

Measurement and Evaluation. The experts independently assessed the relevance, clarity, representativeness, and contextual suitability of the questionnaire items in relation to the study objectives and the Nigerian private school environment. Their recommendations informed revisions to item wording, sequencing, and language prior to pilot testing. A pilot test involving 20 principals from private secondary schools outside the study area was subsequently conducted to evaluate the reliability of the instrument and the practicality of the data collection procedure. The pilot participants did not participate in the main study. Internal consistency reliability was assessed using Cronbach's alpha. The overall Crisis Management Scale yielded a reliability coefficient of .776, while the School Sustenance Scale produced a coefficient of .647, indicating satisfactory internal consistency for field administration. Following the pilot study, minor editorial revisions were made to improve the clarity of selected questionnaire items without altering their substantive content.

3.4. Data Collection Procedure

Approval to conduct the study was obtained from the Cross River State Secondary Education Board before data collection commenced. Contact information for eligible principals was obtained from the Board, after which selected participants were invited to participate through email and WhatsApp. The questionnaire was administered electronically using Google Forms to facilitate efficient data collection across the six Local Government Areas within the education zone. The introductory page of the questionnaire explained the purpose of the study, the voluntary nature of participation, and the confidentiality of responses. Electronic informed consent was obtained before respondents proceeded to the questionnaire. Principals were requested to consult official school records when reporting information on student enrolment, teacher retention, and student completion to improve the accuracy of institutional data. Periodic reminders were sent to non-respondents during the data collection period to maximise participation. Of the 176 questionnaires distributed, 158 were correctly completed and returned, representing a response rate of 89.8%. The achieved sample exceeded the minimum required for the study and was retained for analysis.

3.5. Data Analysis

Data were downloaded from Google Forms in comma-separated values (CSV) format and screened for completeness, coding errors, outliers, and inconsistencies. No missing data were identified. Composite scores for disease management, violence management, accident management, and overall crisis management were computed by averaging the corresponding

questionnaire items. A composite School Sustenance index was created by standardising student enrolment, teacher retention, and student completion using z-scores before averaging the standardised values. The psychometric properties of the study measures were evaluated using the main study sample. Internal consistency reliability was assessed using Cronbach's alpha, while construct validity was examined using the Kaiser–Meyer–Olkin measure of sampling adequacy, Bartlett's test of sphericity, and principal component analysis. Descriptive statistics and Pearson product-moment correlation were used to summarise the data and examine bivariate relationships among the study variables.

The hypotheses were tested using hierarchical multiple regression. School characteristics (school size, school age, annual tuition, teacher salary, student–teacher ratio, infrastructure, principal experience, ownership, and location) were entered as control variables in Step 1, followed by disease management, violence management, and accident management in Step 2. Separate models were estimated for the composite School Sustenance index and its three dimensions: student enrolment, teacher retention, and student completion. Model performance was evaluated using R^2, adjusted R^2, ΔR^2, F-change, and Cohen's f^2. Regression assumptions, including multicollinearity, normality of residuals, and homoscedasticity, were assessed and satisfied. All analyses were conducted in R version 4.5.2 (R Foundation for Statistical Computing, Vienna, Austria), with statistical significance set at $p < .05$.

4. RESULTS

4.1. Sample Characteristics of Participating Private Secondary Schools

Table 1 summarises the characteristics of the 158 participating private secondary schools. Most of the schools were privately owned (71.52%), while 22.15% were mission-owned and 6.33% were community-owned. The distribution by location indicated that 57.59% of the schools were situated in rural areas, whereas 42.41% were located in urban areas. The participating private secondary schools had a mean enrolment of 561.75 students (SD = 148.09) and had been in operation for an average of 18.27 years (SD = 7.73). The average annual tuition fee was ₦176,120.05 (SD = ₦49,229.64), while teachers earned an average monthly salary of ₦76,046.22 (SD = ₦11,551.05). The mean student–teacher ratio was 25.53 (SD = 4.33), the average infrastructure score was 7.18 (SD = 0.97), and school principals had an average of 10.22 years of administrative experience (SD = 4.54). These characteristics indicate that the study included private secondary schools with varying ownership structures, geographical locations, and organisational profiles.

Table 1

Sample characteristics of participating schools (N = 158)

Characteristic	Statistic
Ownership, n (%)	
Community	10 (6.33)
Mission	35 (22.15)
Private	113 (71.52)
Location, n (%)	
Rural	91 (57.59)
Urban	67 (42.41)
School size	561.75 ± 148.09
School age (years)	18.27 ± 7.73
Annual tuition (₦)	176,120.05 ± 49,229.64
Teacher salary (₦)	76,046.22 ± 11,551.05
Student–teacher ratio	25.53 ± 4.33
Infrastructure score	7.18 ± 0.97
Principal experience (years)	10.22 ± 4.54

Note. Categorical variables are presented as frequencies and percentages. Continuous variables are presented as mean ± standard deviation (SD).

4.2. Reliability and Factorial Validity of the Study Measures

The internal consistency reliability and construct validity of the study measures were assessed before the hierarchical regression analyses. As shown in Table 2, Cronbach's alpha coefficients ranged from 0.611 to 0.690 for the three crisis management dimensions, indicating acceptable internal consistency for exploratory research. The overall Crisis Management construct yielded a higher reliability coefficient ($\alpha = 0.704$), while the School Sustenance construct produced an alpha coefficient of 0.620, indicating acceptable reliability for both composite measures. Construct validity was evaluated using the Kaiser–Meyer–Olkin (KMO) measure of sampling adequacy, Bartlett's test of sphericity, and principal component analysis. As presented in Table 3, KMO values ranged from 0.557 to 0.765, exceeding the recommended minimum of 0.50, whereas Bartlett's test was significant for all constructs ($p < .001$), indicating that the data were suitable for factor analysis. Principal component analysis supported the unidimensionality of the study measures. The first principal component produced eigenvalues

greater than 1.00 for all constructs, explaining 19.56% to 57.12% of the total variance, with factor loadings ranging from 0.33 to 0.86. Overall, the psychometric analyses indicated that the study measures were suitable for the subsequent regression analyses.

Table 2

Internal consistency reliability and descriptive statistics of the study measures

Construct	Items	Mean	SD	Cronbach's α
Disease Management	5	2.73	0.32	0.611
Violence Management	5	2.84	0.34	0.690
Accident Management	5	2.83	0.34	0.666
Overall Crisis Management	15	2.80	0.23	0.704
School Sustenance	3	—	—	0.620

Note. School Sustenance is a z-score composite; M and SD are not reported.

Table 3

Construct validity of the study measures

Construct	KMO	Bartlett's χ^2(df), p	Eigen-value	Variance Explained (%)	Factor Loading Range
Disease Management	0.731	69.52 (10), .000	1.97	39.33	0.53–0.68
Violence Management	0.765	111.29 (10), .000	2.24	44.86	0.59–0.73
Accident Management	0.764	95.36 (10), .000	2.16	43.11	0.60–0.72
Overall Crisis Mgt.	0.665	378.52 (105), .000	2.93	19.56	0.33–0.51
School Sustenance	0.557	74.32 (3), .000	1.71	57.12	0.51–0.86

4.3. Descriptive Statistics of the Study Variables

Table 4 presents the descriptive statistics for the continuous variables included in the analyses. The distributions approximated normality, with skewness ranging from −0.32 to 0.27 and kurtosis from −0.50 to 0.37, indicating no substantial departures from the assumptions of parametric analyses.

Table 4

Descriptive statistics for continuous variables included in the hierarchical regression analyses

Variable	M	SD	Skew.	Kurt.
School size	561.75	148.09	0.09	−0.20
School age	18.27	7.73	−0.09	0.02
Annual tuition (₦)	176,120.05	49,229.64	0.25	−0.02
Teacher salary (₦)	76,046.22	11,551.05	0.13	0.07
Student teacher ratio	25.53	4.33	−0.32	−0.50
Infrastructure	7.18	0.97	0.22	−0.50
Principal experience	10.22	4.54	0.27	0.20
Disease management	2.73	0.32	−0.30	−0.22
Violence mgt.	2.84	0.34	−0.31	0.37
Accident mgt.	2.83	0.34	−0.15	0.29
School sustenance	0.00	0.75	−0.26	−0.20

4.4. Bivariate Correlations among the Study Variables

Table 5 presents the means, standard deviations, and Pearson correlation coefficients among the study variables. School sustenance was positively associated with school size, school age, annual tuition, teacher salary, infrastructure, and all three crisis management dimensions, whereas student–teacher ratio and principal experience were not significantly related to school sustenance. Among the predictors, school age, annual tuition, teacher salary, and infrastructure exhibited moderate positive associations. The three crisis management dimensions were positively interrelated, and infrastructure was also positively associated with each crisis management dimension. None of the correlations approached the conventional threshold for severe multicollinearity ($|r| \geq .80$), supporting the inclusion of all predictor variables in the regression analyses.

Table 5

Pearson correlation matrix for the study variables

Variable	1	2	3	4	5	6	7	8	9	10	11
1. School size	—										
2. School Age	.53[a]	—									
3. Tuition	.37[a]	.68[a]	—								
4. Salary	.21[b]	.31[a]	.49[a]	—							
5. STR	.05	.03	−.14	−.02	—						
6. Infrastructure	.13	.42[a]	.46[a]	.16[c]	−.16	—					
7. PrinExp	.17[c]	.01	.06	.05	−.01	.03	—				
8. DisMgt	.20[c]	.15	.19[c]	.12	−.06	.17[c]	.00	—			
9. ViolMgt	.20[c]	.21[b]	.15	.01	−.08	.28[a]	.05	.14	—		
10. AccMgt	.19[c]	.18[c]	.23[b]	.26[b]	.06	.32[a]	−.02	.23[b]	.19[c]	—	
11. Sustain	.40[a]	.49[a]	.50[a]	.32[a]	−.01	.43[a]	.01	.22[b]	.36[a]	.52[a]	—

Note. STR = Student teacher ratio; PrinExp = Principal experience; DisMgt = Disease management; ViolMgt = Violence management; AccMgt = Accident management; Sustain = School sustenance. [a] $p < .001$; [b] $p < .01$; [c] $p < .05$.

4.5. Hierarchical Regression Predicting School Sustenance

Table 6 presents the hierarchical multiple regression results for school sustenance. In Model 1, school characteristics explained 40.6% of the variance in school sustenance. School size, infrastructure, private ownership, and urban location were significant predictors, whereas school age, annual tuition, teacher salary, student–teacher ratio, principal experience, and mission ownership were not. After the crisis management variables were entered in Model 2, the explanatory power of the model increased to 54.3% (R^2 = .543, adjusted R^2 = .502), representing an additional 13.7% of the variance in school sustenance (ΔR^2 = .137). This improvement was statistically significant (ΔF = 14.37, $p < .001$) and corresponded to a large effect size (Cohen's f^2 = .299). In the final model, school age, private ownership, and urban location remained significant school-level predictors of school sustenance. Among the crisis management dimensions, violence management and accident management were significant positive predictors, whereas disease management was not significantly associated with school sustenance. Among all predictors in the final model, accident management exhibited the strongest standardized effect, indicating that schools with stronger accident management practices tended to report higher levels of school sustenance after controlling for school characteristics.

Table 6

Hierarchical multiple regression predicting school sustenance

Predictor	Model 1 *B* (SE)	Model 2 *B* (SE)	β	*t*	*p*
School Size (100 students)	.093 (.041)[c]	.048 (.037)	.095	1.30	.197
School Age	.017 (.011)	.021 (.009)[c]	.215	2.19	.030
Tuition (₦'000)	.001 (.002)	.001 (.002)	.090	0.86	.391
Salary (₦'000)	.006 (.005)	.002 (.004)	.030	0.45	.653
Student-teacher ratio	.015 (.012)	.010 (.010)	.057	0.94	.348
Infrastructure	.169 (.060)[b]	.047 (.056)	.061	0.84	.402
Principal's experience	−.013 (.011)	−.009 (.010)	−.057	−0.98	.330
Mission schools	−.273 (.219)	−.361 (.195)	−.201	−1.85	.066
Private schools	−.330 (.203)	−.371 (.180)[c]	−.225	−2.06	.041
Urban location	.277 (.141)	.262 (.126)[c]	.174	2.08	.039
Disease management	—	.004 (.139)	.002	0.03	.979
Violence management	—	.380 (.133)[b]	.175	2.86	.005
Accident management	—	.758 (.139)[a]	.347	5.45	.000
R^2	.406	.543			
Adjusted R^2	.366	.502			
ΔR^2	—	.137			
ΔF	—	14.37[a]			
Cohen's f^2	—	.299			

Note. Model 1 included school characteristics, whereas Model 2 additionally included the crisis management variables. [a] $p < .001$; [b] $p < .01$; [c] $p < .05$.

4.6. Hierarchical Regression Predicting Student Enrolment

Table 7 presents the results of the hierarchical multiple regression analysis predicting student enrolment among private secondary schools. In Model 1, the school characteristics explained 41.6% of the variance in student enrolment. School size, infrastructure, mission ownership, private ownership, and urban location significantly predicted student enrolment, whereas the remaining school characteristics did not. Following the inclusion of the crisis management variables in Model 2, the proportion of explained variance increased to 46.6% (R^2 = .466, adjusted R^2 = .418). The crisis management variables explained an additional 5.0% of the variance in student enrolment (ΔR^2 = .050), representing a statistically significant

improvement in model fit ($\Delta F = 4.52$, $p = .004$) with a small-to-moderate effect size (Cohen's $f^2 = .094$). In the final model, school size, mission ownership, private ownership, and urban location remained significant predictors of student enrolment. Among the crisis management dimensions, only accident management significantly predicted student enrolment, whereas disease management and violence management were not significant predictors. Among all variables in the final model, private ownership and mission ownership had the strongest standardized negative effects on student enrolment, while accident management was the strongest crisis management predictor, indicating that schools with stronger accident management practices tended to record higher student enrolment after controlling for school characteristics.

Table 7

Hierarchical multiple regression predicting student enrolment

Predictor	Model 1 *B* (SE)	Model 2 *B* (SE)	β	*t*	*p*
School Size (100 students)	1.350 (0.420)[b]	1.050 (0.410)[c]	.202	2.55	.012
School Age	.088 (.108)	.111 (.105)	.111	1.05	.295
Tuition (₦'000)	.031 (.018)	.031 (.018)	.200	1.77	.080
Salary (₦'000)	−.064 (.049)	−.087 (.048)	−.130	−1.79	.075
Student-teacher ratio	.048 (.120)	.017 (.117)	.009	0.14	.888
Infrastructure	1.507 (.611)[c]	.743 (.626)	.093	1.19	.237
Principal's experience	.051 (.110)	.072 (.107)	.043	0.68	.499
Mission schools	−4.965 (2.241)[c]	−5.539 (2.174)[c]	−.299	−2.55	.012
Private schools	−4.903 (2.076)[c]	−5.149 (2.007)[c]	−.302	−2.57	.011
Urban location	2.972 (1.443)[c]	2.823 (1.402)[c]	.181	2.01	.046
Disease management	—	.746 (1.553)	.031	0.48	.632
Violence management	—	2.398 (1.480)	.107	1.62	.107
Accident management	—	4.549 (1.551)[b]	.201	2.93	.004
R^2	.416	.466			
Adjusted R^2	.376	.418			
ΔR^2	—	.050			
ΔF	—	4.52[b]			
Cohen's f^2	—	.094			

Note. [a] $p < .001$; [b] $p < .01$; [c] $p < .05$.

4.7. Hierarchical Regression Predicting Teacher Retention

Table 8 presents the results of the hierarchical multiple regression analysis predicting teacher retention among private secondary schools. In Model 1, the school characteristics explained 17.1% of the variance in teacher retention (R^2 = .171, adjusted R^2 = .115). Among the school characteristics, only teacher salary significantly predicted teacher retention, while the remaining variables were not statistically significant. Following the inclusion of the crisis management variables in Model 2, the explained variance increased to 25.2% (R^2 = .252, adjusted R^2 = .185). The crisis management variables accounted for an additional 8.1% of the variance in teacher retention (ΔR^2 = .081). This increase was statistically significant (ΔF = 5.20, p = .003) and corresponded to a small-to-moderate effect size (Cohen's f^2 = .108).

Table 8

Hierarchical multiple regression predicting teacher retention

Predictor	Model 1 *B* (SE)	Model 2 *B* (SE)	β	*t*	*p*
School Size (100 students)	−.040 (.380)	−.280 (.370)	−.071	−0.76	.449
School Age	.055 (.099)	.057 (.096)	.075	0.60	.552
Tuition (₦'000)	.009 (.017)	.012 (.016)	.097	0.72	.471
Salary (₦'000)	.153 (.045)[a]	.144 (.044)[b]	.280	3.27	.001
Student-teacher ratio	.099 (.110)	.082 (.106)	.060	0.78	.439
Infrastructure	.165 (.558)	−.517 (.568)	−.085	−0.91	.364
Principal's experience	−.119 (.101)	−.112 (.097)	−.086	−1.16	.249
Mission schools	−3.439 (2.046)	−4.094 (1.972)[c]	−.288	−2.08	.040
Private schools	−3.439 (1.895)	−3.722 (1.820)[c]	−.285	−2.05	.043
Urban location	.281 (1.317)	.060 (1.272)	.005	0.05	.962
Disease management	—	−.572 (1.408)	−.031	−0.41	.685
Violence management	—	4.022 (1.343)[b]	.234	3.00	.003
Accident management	—	3.136 (1.407)[c]	.181	2.23	.027
R^2	.171	.252			
Adjusted R^2	.115	.185			
ΔR^2	—	.081			
ΔF	—	5.20[b]			
Cohen's f^2	—	.108			

Note. [a] $p < .001$; [b] $p < .01$; [c] $p < .05$.

In the final model, teacher salary, mission ownership, and private ownership remained significant school-level predictors of teacher retention. Among the crisis management dimensions, violence management and accident management significantly and positively predicted teacher retention, whereas disease management was not a significant predictor. Among all predictors retained in the final model, mission ownership, private ownership, and teacher salary had the largest standardized effects. Of the crisis management dimensions, violence management was the strongest predictor of teacher retention, indicating that schools with stronger violence management practices tended to retain more teachers after controlling for school characteristics.

3.8. Hierarchical Regression Predicting Student Completion

Table 9 presents the results of the hierarchical multiple regression analysis predicting student completion among private secondary schools. In Model 1, the school characteristics explained 33.3% of the variance in student completion ($R^2 = .333$, adjusted $R^2 = .287$). School age, infrastructure, and urban location significantly predicted student completion, whereas the remaining school characteristics were not statistically significant. After the crisis management variables were entered in Model 2, the proportion of explained variance increased to 46.7% ($R^2 = .467$, adjusted $R^2 = .418$). The crisis management variables explained an additional 13.4% of the variance in student completion ($\Delta R^2 = .134$). This increase in explanatory power was statistically significant ($\Delta F = 12.04$, $p < .001$) and corresponded to a medium-to-large effect size (Cohen's $f^2 = .251$). In the final model, school age and urban location remained significant school-level predictors of student completion. Among the crisis management dimensions, only accident management significantly predicted student completion, whereas disease management and violence management were not significant predictors. Among all predictors retained in the final model, accident management had the largest standardized effect, making it the strongest predictor of student completion. This finding indicates that private secondary schools with stronger accident management practices were more likely to achieve higher levels of student completion after controlling for school characteristics. School age ($\beta = .296$) and urban location ($\beta = .203$) also made significant positive contributions to student completion.

Table 9

Hierarchical multiple regression predicting student completion

Predictor	Model 1 *B* (SE)	Model 2 *B* (SE)	β	*t*	*p*
School Size (100 students)	.810 (.420)	.400 (.390)	.082	1.04	.302
School Age	.225 (.110)[c]	.280 (.100)[b]	.296	2.80	.006
Tuition (₦'000)	−.012 (.019)	−.014 (.017)	−.094	−0.83	.405
Salary (₦'000)	−.004 (.050)	−.053 (.046)	−.083	−1.15	.251
Student-teacher ratio	.167 (.122)	.099 (.111)	.059	0.90	.372
Infrastructure	2.074 (.619)[b]	.972 (.593)	.129	1.64	.104
Principal's experience	−.175 (.112)	−.136 (.101)	−.084	−1.34	.183
Mission schools	2.970 (2.271)	2.399 (2.060)	.137	1.16	.246
Private schools	1.671 (2.103)	1.346 (1.901)	.083	0.71	.480
Urban location	2.918 (1.462)[c]	2.992 (1.329)[c]	.203	2.25	.026
Disease management	—	.082 (1.471)	.004	0.06	.955
Violence management	—	1.089 (1.403)	.051	0.78	.439
Accident management	—	8.448 (1.470)[a]	.395	5.75	.000
R^2	.333	.467			
Adjusted R^2	.287	.418			
ΔR^2	—	.134			
ΔF	—	12.04[a]			
Cohen's f^2	—	.251			

Note. [a] $p < .001$; [b] $p < .01$; [c] $p < .05$.

5. Discussion

The present study examined whether crisis management practices predict school sustenance among private secondary schools after controlling for selected school characteristics. The findings indicate that crisis management contributes to school sustenance beyond the influence of school characteristics, highlighting the importance of school leaders' capacity to anticipate, manage, and recover from crises. These findings support Crisis Management Theory (Fink, 1986; Coombs, 2015), which posits that preparedness and effective crisis response promote organisational continuity, and General Systems Theory, which views schools as interdependent systems in which disruptions to one component affect overall functioning. Accordingly, crisis management should be regarded as a strategic leadership function that strengthens organisational resilience.

The most notable finding of the study is the consistent role of accident management as the strongest predictor of school sustenance. Accident management was the only crisis management dimension that significantly predicted overall school sustenance, student enrolment, teacher retention, and student completion. Schools with well-developed accident management systems are more likely to minimise instructional interruptions, maintain stakeholder confidence, and sustain normal academic activities during emergencies. This finding agrees with earlier studies that identified serious deficiencies in emergency preparedness within Nigerian schools. Omoyemiju (2022) reported that many schools lacked adequate emergency preparedness measures, while Ayeni and Orhewere (2021) found that disaster management committees, emergency plans, and routine safety inspections were absent in many secondary schools. Likewise, Ezeonu et al. (2017) observed inadequate safety facilities and weak emergency response mechanisms in public primary schools. Whereas previous studies documented deficiencies in emergency preparedness, the present findings show that effective accident management is associated with improved organisational sustainability.

The positive association between accident management and student enrolment is also consistent with evidence that school safety influences parental confidence and educational participation. Umeji (2024) reported that flooding disrupted school attendance, reduced enrolment, and increased dropout in affected communities, while Lawanson et al. (2023) similarly found that environmental disasters interfered with educational access and continuity. These studies indicate that unsafe school environments discourage participation, whereas the present findings suggest the converse: schools that are prepared to manage emergencies are more likely to maintain public confidence and sustain enrolment. This relationship is particularly important for private secondary schools, whose continued existence depends largely on their ability to attract and retain students.

Accident management also predicted teacher retention and student completion, suggesting that effective emergency preparedness supports workforce stability and educational continuity. Previous research has largely attributed teacher retention to remuneration, leadership practices, and opportunities for professional development (Hassan et al., 2023). The present findings extend this literature by indicating that emergency preparedness constitutes another important dimension of a supportive work environment, where clear procedures for protecting staff and students may strengthen teachers' commitment to their schools. Likewise, by minimising disruptions to teaching and learning, effective accident management may support students' progression to programme completion. Collectively, these findings identify accident

management as a key component of strategic school leadership that strengthens organisational stability and long-term school sustenance.

Another important finding is that violence management positively predicted school sustenance and teacher retention but did not significantly predict student enrolment or student completion after controlling for school characteristics and the other crisis management dimensions. This suggests that maintaining a safe and orderly school environment contributes primarily to organisational stability and workforce continuity. Schools that effectively prevent or respond to bullying, aggression, vandalism, and other security threats are more likely to create supportive working conditions that encourage teachers to remain in service while strengthening the overall stability of the institution. This interpretation agrees with Erol and Karsantik (2018), who reported that crisis situations involving students and school personnel require proactive administrative responses, and with Bundotich and Sarah (2020), who found that effective management of bullying and school violence improves the learning environment. Similarly, Omisore et al. (2013) observed that violence directed at school personnel undermines staff wellbeing and organisational effectiveness. The absence of significant effects on student enrolment and completion suggests that these outcomes depend more on broader institutional and socioeconomic factors. Nevertheless, maintaining a secure school climate remains an important strategy for strengthening organisational stability and teacher retention.

Unlike accident and violence management, disease management did not independently predict school sustenance or any of its individual components. Although this finding appears inconsistent with studies documenting the disruptive effects of infectious disease outbreaks on education, it is not entirely unexpected. Disease outbreaks are relatively infrequent events compared with accidents and security challenges, and many schools have adopted similar preventive health measures following recent public health emergencies. Consequently, variation in disease management across schools may have been insufficient to produce meaningful differences in organisational outcomes. Similar observations were reported by Sanni et al. (2022), who noted improvements in basic health preparedness despite persistent resource limitations, and by Shi et al. (2024), who found that disease prevention measures reduced school outbreaks but required broader institutional support to sustain their effectiveness. The present findings therefore suggest that while disease preparedness remains essential for protecting the health of school communities, it does not independently distinguish schools with higher levels of organisational sustainability once other organisational characteristics and crisis management practices are considered.

Beyond crisis management, several school characteristics also influenced school sustenance and its components. School age positively predicted overall school sustenance and student completion, suggesting that older schools benefit from accumulated institutional experience, stronger community trust, and more established administrative systems. Institutional Theory argues that organisations acquire legitimacy over time through consistent performance and adherence to accepted practices, and the present findings support this proposition within the context of private secondary schools. Urban location also positively predicted school sustenance, student enrolment, and student completion, indicating that schools operating in urban communities benefit from favourable conditions such as improved accessibility, larger catchment populations, and better infrastructure. This finding is consistent with Ekaette et al. (2020), who reported higher enrolment among urban schools, although the present study further demonstrates that these advantages extend to broader indicators of institutional sustainability.

Ownership structure produced a different pattern. Mission-owned and privately owned schools recorded lower student enrolment than community-owned schools, while private ownership also predicted lower school sustenance and teacher retention. These findings may reflect differences in financial capacity, employment conditions, and organisational priorities across ownership categories. Since many private schools depend almost exclusively on internally generated revenue, financial pressures may constrain investments in staff welfare and school improvement, thereby affecting both enrolment and teacher stability. Consistent with previous studies (Hassan et al., 2023), teacher salary emerged as a significant positive predictor of teacher retention, reinforcing the importance of adequate remuneration in maintaining a stable workforce. School size, however, significantly predicted only student enrolment, suggesting that although larger schools may attract more students because of greater visibility and programme diversity, size alone is insufficient to sustain broader organisational outcomes. These findings indicate that school sustenance depends on both favourable organisational characteristics and effective crisis management, with the latter complementing rather than replacing sound institutional management.

Collectively, the findings extend current understanding of school sustenance by showing that crisis management contributes to organisational sustainability beyond conventional school characteristics. The consistent influence of accident management across all outcome measures identifies emergency preparedness as a strategic leadership capability that strengthens enrolment, teacher retention, student completion, and overall school sustenance. The findings also support Crisis Management Theory by showing that effective crisis management promotes

organisational continuity alongside post-crisis recovery, while reinforcing General Systems Theory by demonstrating that school sustenance depends on the interaction between organisational characteristics and administrative practices. The findings have practical implications for school leadership. Proprietors and administrators should integrate crisis management into routine school management, with particular emphasis on accident preparedness through regular safety audits, emergency response planning, staff training, and adequate safety equipment. Violence prevention should also be strengthened through clear safety policies, counselling services, and collaboration with parents and community agencies to foster safer learning environments and improve teacher retention. Because school sustenance was also influenced by school age, ownership, urban location, and teacher remuneration, crisis preparedness should complement broader investments in staff welfare, infrastructure, organisational capacity, and leadership development. Overall, sustaining private secondary schools requires proactive leadership that anticipates risks and maintains continuity of teaching and learning during periods of uncertainty.

6. Strengths and Limitations

This study has several strengths. It is among the few studies that simultaneously examined the contribution of school characteristics and multiple dimensions of crisis management to school sustenance within the context of private secondary schools. The use of hierarchical regression enabled the incremental contribution of crisis management practices to be assessed after controlling for relevant organisational characteristics. Furthermore, the operationalisation of school sustenance using a composite measure comprising student enrolment, teacher retention, and student completion provides a broader assessment of institutional sustainability than studies focusing on a single organisational outcome.

Notwithstanding these strengths, several limitations should be acknowledged. The cross-sectional design limits causal inference because the observed relationships represent statistical associations measured at a single point in time. The study was also restricted to private secondary schools in one education zone, which may limit the generalisability of the findings to other geographical settings or public schools. In addition, the reliance on questionnaire data may have introduced response bias despite the satisfactory psychometric properties of the study measures. Future research should employ longitudinal or mixed-method designs involving schools from multiple states or regions to examine whether the observed relationships remain stable across different educational contexts and over time.

7. Conclusion

This study examined the extent to which school characteristics and crisis management practices predict school sustenance among private secondary schools. The findings indicate that although institutional characteristics remain important determinants of school sustenance, crisis management contributes additional explanatory value beyond these structural factors. Among the crisis management dimensions, accident management emerged as the most consistent predictor, while violence management influenced organisational stability primarily through its association with school sustenance and teacher retention. By contrast, disease management did not independently predict school sustenance after other organisational factors were taken into account. The study contributes to the growing literature on educational leadership by demonstrating that crisis management represents a strategic organisational capability that supports the long-term sustainability of private secondary schools. Accordingly, strengthening emergency preparedness, improving school safety, and integrating crisis management into strategic planning should become central priorities for school leaders and policymakers seeking to enhance institutional resilience and sustain educational outcomes in increasingly uncertain environments.

Ethical Approval and accordance

The study protocol was approved by the Research Ethics Committee of the University of Calabar (Ref. UC/IRB/2024/028). The research was conducted in accordance with the ethical principles of the Declaration of Helsinki, the requirements of the approving committee, and applicable institutional guidelines. Informed consent was obtained electronically from all participants before they completed the questionnaire. Participation was voluntary, and responses were collected anonymously.

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