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Risk Management and Student Enrolment at Universities in Rural Areas of Nigeria

Anthony Abiodun Eniola

Great Zimbabwe University

aeniola@gzu.ac.zw

Zhaxat Kenzhin

Academy of Physical Education and Mass Sport, Astana, Kazakhstan

info@apems.edu.kz

Menslu Sultanova

West Kazakhstan Agrarian Technical University, Uralsk, Kazakhstan

zapkazatu@wkau.kz

Abstract

This study sought to determine whether students' perceptions of health, security, and environmental risks influence student enrolment at private universities in rural areas of Nigeria, as well as whether security risks mediate the correlations between the variables in the study. The research utilised multistage sampling approaches to ascertain and analyse scientific knowledge on the impact of the perceptions of the three risk management variables on students from three different universities situated in the north central and southwest regions and across six academic branches of learning. To analyse the study, the generalised structured component analysis method was used. The findings reveal that perceptions about environmental and health risks are very important and vital for university enrolment as well as performance. Although security is crucial, the results show that enrolment performance is notably moderate. This study concludes that examining risk linkages and correlations is a critical consideration for ensuring the sustainability and development of Nigeria's higher education sector, as well as its strategic management.

Keywords: *risk management, universities, health risks, student enrolment, security risks, environmental risks, rural education*

Introduction

Nigeria is mostly a rural society, with most of its population residing in rural areas (Bolaji et al., 2019). Even though Nigeria's rural residents are not usually included in government development projects, the country's wealth comes from its rural areas (Olawale, 2016). Prioritising the development of urban centres at the time, rural areas were excluded. In response to the call for development in rural areas, universities are designed to meet the requirements of host small towns and have been recently built in these places (Uleanya et al., 2020), primarily by private education investors. One of the factors that can contribute to local economic development in rural regions is the establishment and development of quality university education, which can also aid rural communities in coping with a rapidly changing environment (Organisation for Economic Cooperation and Development, 2021). However, establishing universities in rural areas

to meet economic development is a risk that affects students' enrolment and profitability (Deloitte, 2018) among private institutions.

Individuals frequently consider a location rural rather than urban based on their personal experiences, such as the number of people who live there or how far it is from cities (Nelson et al., 2021). Even though many scholars have tried to define what it means to be rural, researchers cannot agree on how to define rurality (Nelson et al., 2021; Olatunji & Ajayi, 2016).

Notwithstanding that, there is no one definition of a rural region that everyone agrees on.

According to the report by the National Bureau of Statistics (2020), the average household size in Nigeria is 5.06 people. Rural households are somewhat larger than urban households, with a ratio of 5.42 to 4.5 people. While educational attainment is possibly the most essential attribute of family members, it is higher in urban regions than in rural areas. As indicated by Bolaji et al. (2019), students attending institutions in rural regions have fewer educational possibilities than those in urban areas. This leads to rural vulnerability. Similarly, according to the *TheGlobalEconomy* (2021), as reported by the World Bank, 47.25% of Nigerians live in rural regions. This is higher than the global average of 39.21% reported in 2021. Moreover, as of February 2023, Nigeria had 221 universities (National Universities Commission, 2022), with private universities accounting for half of the universities, with the bulk of them located in rural areas.

The present world growth and changing business climate lead businesses to look further than profitability (National Bureau of Statistics, 2020; Opute et al., 2022; Schwartz, 2007). The chain reaction of occurrences around the globe contributes to a future that is challenging and uncertain. Factors including social, political, and economic complexities and constant environmental confusion, fierce competition, rapid technological advancements and operational shifts in the value chain are among other concerns that encourage businesses to build solid risk management strategies (Mohammed & Knapkova, 2016).

Risk is a challenge that affects the capacity of an organisation to achieve its goals. Every organisation is subject to risks, and the management of risks plays a role in helping companies to consider and handle the risks involved in the overall corporate objectives being accomplished. This lets companies define necessary risk management techniques, so they can use their resources well and build a culture that encourages change and openness.

Risks are inherent and apparent across all activities and processes of tertiary institutions in today's demanding world economy. Therefore, to take the most appropriate decision, universities must continually define, analyse, control, and track their risks. Barton et al. (2002) warned how risk mismanagement would put an extremely high price on any company. Management of risk at all tiers of universities' activities and processes ought to be a top concern for policymakers. Efficient risk management provides institutions with a way to enhance their strategic, organisational, and financial management. In addition, it helps to minimise financial losses.

Risk management has been introduced in several organisations, including private corporations and public universities across the globe (Priyarsono et al., 2019). Given that most companies adopting risk management are steadily growing, it suggests that they have profited from its adoption, or they at least anticipate profiting. In Nigeria, risk management was adopted even later than it was in progressive, developed nations. It was first introduced in the private sector in financial industries such as insurance and capital markets. These are regarded as high-risk industries and are thus highly supervised by state bodies such as the Central Bank of Nigeria. Lately, risk management has been introduced in non-financial industries, such as manufacturing, transportation, and other high-risk industries. Risk management is hardly ever applied in the public sector or by federal and state agencies in Nigeria.

The concept of risk management has been of great interest in both the academic and business worlds for years. Universities have long faced risks, but it was not until the 1980s that they began to actively manage these risks (Wu et al., 2017). The popular controversy as to whether risk management is required in higher institutions has been rather substantial. There has been an opinion that, although risk management has been taught in tertiary institutions, very little of these teachings have been applied to the institutions themselves.

Nevertheless, the meagre studies on risk management per se and its actual implementation, are in the context of tertiary education institutions (Tamrat & Teferra, 2020), but not in rural areas. Although top universities in established, advanced economies introduce risk management policies, there is a dearth of studies on the universities in developing countries that have implemented them, including Nigeria (Priyarsono et al., 2019), most especially in rural areas. In addition, most companies in Nigeria do not practise risk management as a recurring activity (Fadun, 2013). Accessible risk management research has been based primarily on the Nigerian banking sector (Njogo, 2012). Umar's (2016) study that was carried out within university settings in Nigeria is on information resources and services provision in university libraries. Our research provides one of the few papers to focus on the application of risk management experiences in institutions of higher education in rural areas in the context of Nigeria.

The practical essence of universities is the subject of education and research. Estimations about the standard of research prove to be especially difficult (Huber, 2011). It is not surprising, then, that risk experts associate teaching risks with contextual elements other than the teaching and learning processes, such as student expectations of teaching, teaching environments, and student security and health. Unsatisfactory student experiences regarding regional and global competitors can result in a loss of reputation. It is instantly understandable that the student experience will adversely affect the market niche, but it also poses several problems. Hence, this study considers research from the students' perspective. The purpose of this study, therefore, is to bring risk management to the academic world to see how it affects student enrolment. Moreover, even though the relationship between student enrolment and health risk management has been proven (Ong et al., 2021), the role of security risk management, as a mediating factor, has not been tested. This study aims to enhance knowledge and understanding of perceptions about risks and risk management in the higher education context. It also aims to deepen understanding of the concept of risk management against the current narrative of bureaucracy, especially regarding student enrolment and universities' abilities to meet strategic goals in rural areas.

Theory and Hypothesis Formation

The theory of systems was not initially a theory of business. Although scientist Ludwig von Bertalanffy created systems theory in the 1940s (Bertalanffy, 1968), the emergence of the theory of systems was centred in the USA. Nonetheless, the concept was initiated from the USA in the 1960s and 1970s, mainly through *The Limits to Growth* (Meadows et al., 1972). The early supporters regarded organisations as collections of multiple and interdependent components called subsystems, and as transparent structures.

Bertalanffy (1968) argued for open systems rather than closed systems, which are more typical in conventional science. Open systems are those that communicate with other systems or with the environment. Closed systems are those that do not interact with other systems or with the environment. Most biological and social systems are open systems, whereas mechanical systems are often closed systems. Open system boundaries are more malleable than closed system borders, which are stiff and, for the most part, impenetrable (Wilkinson, 2011). The principles of systems theory have been used in a variety of domains, including the social sciences and business management (Wilkinson, 2011). However, systems theory is not a single, unified theory, but

rather a technique for conceptualising the structure and features of an organisation in terms of the interactions and interdependence among its components (Leveson, 2015).

The use of systems theory in risk management is relatively uncommon (Hatfield & Hipel, 2002; Renn et al., 2022). Yet, research has revealed that it is relevant to risk management (Hatfield & Hipel, 2002; Renn et al., 2022; Skoko, 2013). According to systems theory, an educational organisation is a social system composed of integrated elements; a system is a unit composed of a succession of interacting and interdependent parts, the interactions of which influences the whole. Risk management is concerned with humans; it is handled from a human perspective and is associated with both the limited ability to anticipate the future and the repercussions of certain occurrences.

In the higher education context, systems theory is important because it teaches university management to be careful and to remember that a problem in one subsystem could hurt the whole system. The reason for this is that the function of education in risk management and prevention, as well as the production of risk-taking, must be conceptualised within sociocultural theories and risk perspectives (Elujekwute et al., 2022). Reintegrating risk management analysis into the university management system is critical because the risk narratives generated affect student enrolment. Similarly, researchers have examined and deconstructed the racial and social class educational and policy consequences of at-risk categories (Bialostok, 2015). Systems theory, according to Vancouver (1996), contends that rather than addressing the various parts separately, university leaders and managers should approach the educational system. This was on the assumption that every activity in the system has an immediate influence on every other part of the educational system. This is based on the idea that separate sections perform diverse responsibilities in all systems, such as students' wellbeing, the university environment, and classroom security; they interact and are interdependent with each other and with the system, which is the risk environment that surrounds them. Chand (2018) stated that, in the systems approach, most people are concerned with the total performance of the system rather than the performance of the subsystems. Systems theory can be applied to the administrative level of rural education development. Instead of considering only the objectives and performance of various functional departments (i.e., subsystems), the overall corporations are considered while implementing system concepts.

Systems theory views organisations as transparent systems that must interact with their environment to survive. A system's relationship with an issue considers the interlinked, evolving, and volatile existence of the climate organisations face. Considering that threats cannot be easily and accurately predicted in advance, every organisation must be vigilant, prepare for the unpredictable, and respond appropriately as new risks emerge. If every organisation is seen as an open system, it may suggest that organisations must interact with their surrounding environments to better serve them. Organisations must be transparent with their affairs, ensuring that both their internal and external environments are carried along. If they successfully achieve this, their risk management process could be easily accomplished, as everyone would be made aware of the risks they face and the steps to take—moving forward—in curbing these risks, which would then have a significant impact on organisational performance (Valentinov et al., 2020).

Luhmann's (2013) contributions to systems thinking were frequently regarded as fitting within a "system environment model" (p. 121) which serves as an alternative to what they called the "whole part model" (Luhmann, 2013, p. 1–16). Though the latter model is about the structured and tranquil relationships of the parts inside the evolving whole, the preceding model begins with the principle of distinctions of complexity and emphasises the precarious existence of the social structures' relationship with the predominantly dynamic and tumultuous environment.

Even though systems theory aligns with risk management standards, particularly in educational institutions, it has been criticised for having a mechanical view of humans. Meadows (2008) criticised the theory for seeing social systems as conforming to or being annexed to scientific principles of biology, geology, and planetary science. Meadows goes on to claim that social groupings and psychological beings are fundamentally different from natural realities, in that they are social creations that may be altered by participants' will and intent.

The application of systems theory to the current study is that a positive higher institution environment, that is devoid of health risk, security risk and environmental risk, provides a stable environment for increased student enrolment. The higher institution is a psychologically and educationally unifying influence for young adults, especially if they are undergoing change or conflicts (Ileuma, 2015). Tuition-dependent universities cannot maintain their financial stability and finance operational activities in the absence of substantial, continuous university student enrolments. Discrepancies between projections and total student enrolments restrict the capacity of universities to predict turnover of staff, use of resources and the demands on facilities to sustain the population of students.

According to Deloitte (2018), there is no need for entities to have explanations for all risks they face. Yet, they ought to be more mindful of the growing range of risks that impacts them, taking measures to prevent what they can, but still planning for worst case situations to mitigate the harm of out-of-control events. Looking at the classification of risks, Deloitte, in its report on the significant risks facing higher education, classified risk into five major components: business model risks, brand or reputation risks, operating model risks, supply risks for enrolment and regulation risks. As an example, the risk description presented by Huber (2011) addresses problems based on duty or functionality. Therefore, the most likely forms of risk universities encounter include strategic risk (risks influencing the ability to attain objectives), financial risk (that may result in a loss of assets), operational risk (affecting an active management process), enforcement risk (affecting compliance with laws and regulations implemented externally or with policies and procedures implemented from within), and reputation risk (affecting public image, brand, or both). Moreover, some authors recognise risks primarily on a wider scale. Brewer and Walker (2011) examine risks as two key aspects: strategic risk (related to the macro risk context) and operational risk (at the implementation phase). Our study investigates the classification of risk by Brewer and Walker (2011) from this angle. Helsloot and Jong (2006) stated that tertiary education is a societal microcosm, and that the issues affecting an educational institution are not different from those affecting any other enterprise. Simply put, they likened educational institutions to enterprises. As a result, careful consideration should be given to the increasing levels of hostility and abuse, often involving weapons, both in society at large and in higher institutions.

Sum and Saad (2017) carried out a research study to examine the need for risk management in Malaysian universities. Their study examined risks to which the university environment seems vulnerable, the forces that influence the development of risks, and the benefits obtained when those risks are managed. The findings of their study revealed that risk is not confined to big companies or financial institutions. Non-profit government entities and academic institutions are now facing several threats. In Malaysia, risk management strategies are less established in non-profit organisations, particularly universities and research schools, than in most business fields. Hommel and King (2013) studied the possible effects risk-based policy reforms have on business school behaviour. To gain common concepts for risk management in business schools, the paper refers to the financial context of organisational performance and appeals to corporate risk management writings. Tamrat and Teferra (2020) conducted a study to review the scope and level of risk confronted by private universities in Ethiopia. The study further concluded that comprehending risk dynamics and developments is key to securing the sustainability and growth of private universities in Ethiopia. Similarly, Shanahan and McParlane (2005) focused on risks to

Australian universities' attempts to create sections or additions abroad. They explored how these universities attempted to grow as companies abroad, and they analysed the associated risks in such undertakings along with their influence on academia.

The tertiary institution environment refers to the feelings and attitudes evoked by its security and safety management. The concept of safety or security risk, or the safe tertiary institution environment, is closely related to an institution's climate, and the terms *safety* and *safe learning environment* are frequently used interchangeably (Kutsyuruba et al., 2015). If the settings of tertiary institutions were safe and supportive, there would be a high percentage of students enrolled. This would help the enrolled students thrive emotionally and socially (Kutsyuruba et al., 2015). There are some tertiary institutions where the atmosphere is warm and inclusive, while others are hostile and intimidating. Economic, social, psychological, and interpersonal health, as well as behavioural health, have been identified as potential mediators between student enrolment (education) and health outcomes (Kutsyuruba et al., 2015; Raghupathi & Raghupathi, 2020). While the relationship between student enrolment and health risk management has been proven, the mediating role of security risk management has not been tested. As a result, it has been discovered that security risk management in tertiary institutions can have a positive influence on student health management and enrolment surge, yielding favourable educational and psychological outcomes for students and authorities. However, it can also be a problem for learning, because it stops students from learning and developing to their potential.

Based on the above, the study proposes hypotheses that:

Hypothesis 1: *The relationship between students' perceptions of the management of health risks and student enrolment is not significant.*

Hypothesis 2: *The relationship between students' perceptions of the management of security risks and student enrolment is not significant.*

Hypothesis 3: *The relationship between students' perceptions of the management of environmental risks and student enrolment is not significant.*

Hypothesis 4: *Perceptions of security risk do not mediate the relationship between students' perceptions of the management of health risks and student enrolment.*

Hypothesis 5: *Perceptions of security risk do not mediate the relationship between students' perceptions of the management of environmental risks and student enrolment.*

Method

This research utilised multistage sampling approaches to ascertain and analyse the impact of the three risk management variables (students' perceptions about health, security, and environmental risks) from November 2019 to August 2020 in three universities in Nigeria (Landmark University, Omu-Aran, Kwara State; Elisade University, Ilara-mokin, Ondo State; and Bowen University, Iwo, Osun State) on student enrolments. The justifications for selecting private institutions for the study were: first, that the institutions were proprietor-based; second, they were self-financing institutions; and third, they were established in rural regions. These institutions relied on student enrolment for continuing to exist and for expanding. This is different from public institutions that rely on government subventions. The selection of institutions for the study was also based on the consistency of the variables under examination across campuses, as well as the country's geography and tertiary educational demands. Hence, the results can be generalised across the private universities in Nigeria.

The study applied a quota sampling technique. A total of 2,684 students from the three universities were examined across six academic branches of learning: the graduate college (n = 400), science (n = 250), business (n = 700), humanities (n = 600), engineering (n = 434), and

law (n = 300). The purpose was to ascertain and examine risk elements of concern to university students through a stakeholder participatory process.

This study proposed to survey 10% of the target population. Cochran's sample size formula was applied at the 95% confidence level and a 5% margin of error, to arrive at 336 from the target population. Therefore, a sample size of 336 was used for the study. Ethical consent was sought and obtained from the three universities before distributing surveys to respondents. A pilot study involving 35 students was conducted prior to the survey's wider distribution, and some small phrasing adjustments were made based on the students' responses, to further enhance face validity.

Surveys were distributed to the research participants through both paper and online surveys. A total of 336 surveys were sent out, and 219 were returned, a response rate of 65.2%. According to Eniola (2020), samples of about 10% of a population can provide excellent reliability if well selected. With research of this kind, a 65.2% response rate is relatively high. The survey was constructed with 12 popular statements that related to environmental, security and health risks, using a four-point Likert Scale for the research participants' responses: Strongly Agree (SA), Agree (A), Disagree (D), and Strongly Disagree (SD). The environmental risk factors were adapted from Nunoo et al. (2018) and Ratnapradipa et al. (2011), the security risk factors from Johnson et al. (2009), the health risk factors from Johnson et al. (2009), and the student enrolment factors from Johnson et al. (2009) and Nunoo et al. (2018). The respondents recorded their agreement/disagreement to each statement in the survey, thus recording their attitudes, perceptions or beliefs.

The data were analysed with the use of the Statistical Package for the Social Sciences (SPSS version 25) and Generalised Structured Component Analysis software. For analysis, the descriptive Likert Scale (SA, A, D, SD) was converted to the corresponding values of 4 through to 1 respectively. The research applied a Spearman Rank Correlation (commonly known as Spearman rho), to test the relationship between the dependent variable (student enrolment) and the independent variables (students' perceptions of the management of health risks, security risks and environmental risks). In a Spearman rho, the strength of correlation is measured, providing a correlation coefficient between 1 and -1: 1 represents a perfect positive correlation; -1 represents a positive negative correlation, and 0 represents no relationship between the variables. In addition, a linear regression analysis was used to test the research hypotheses for the linear relationship between the dependent and independent variables. Subsequently, this allowed us to compare results with the Spearman rho. Further details about data analysis are provided in the Results section.

Results

Likert Scale Results

As can be seen from Table 1, items 1, 2, and 3 have means of 3.40, 3.01, and 2.80, above the criterion mean of 2.50, which is an indication that the entire items are agreed upon. Also, the aggregate mean of 3.07 is greater than the criterion mean of 2.50. The results confirm that a majority of participants agree with the popular statement. The popular remark about student enrolment is confirmed.

Table 1. Numbers of Responses and Means for the Student Enrolment Items

Item Number	Item Statement	Number of Responses (Sentiment Level Score) ^a				Mean
		Strongly Agree	Agree	Disagree	Strongly Disagree	
1.	Student enrolment is important for the university.	131 (524)	47 (141)	28 (56)	13 (13)	3.40
2.	My enrolment to the university is impacted by the risk control in the university system.	60 (240)	123 (369)	15 (30)	21 (21)	3.01
3.	I am happy with my enrolment.	43 (172)	98 (294)	70 (140)	8 (8)	2.80
Aggregate Mean						3.07

^a The sentiment level score = the number of respondents for the level x the numerical value of that level.

To What Extent do Perceptions About the Management of Health Risks Associate with Student Enrolment? From Table 2, items 4, 5, and 6 with respective means of 2.50, 2.90, and 2.70, are at or above the criterion mean. This indicates that the item set is agreed upon. Also, the aggregate mean of 2.70 is greater than the criterion mean for rejection which is at 2.5. This shows that most participants regarded the management of health risks as associated with student enrolment to an extent.

Table 2. Numbers of Responses and Means for the Items About the Management of Health Risks

Item Number	Item Statement	Number of Responses (Sentiment Level Score) ^a				Mean
		Strongly Agree	Agree	Disagree	Strongly Disagree	
4.	I have faced health risks as a student at the university.	8 (32)	113 (339)	71 (142)	27 (27)	2.50
5.	Health risks are managed in the university.	53 (212)	112 (336)	33 (66)	21 (21)	2.90
6.	The management of health risks influenced my enrolment to the university.	18 (72)	140 (420)	34 (68)	27 (27)	2.70
Aggregate Mean						2.70

^a The sentiment level score = the number of respondents for the level x the numerical value of that level.

To What Extent Do Perceptions About the Management of Security Risks Associate With Student Enrolment? Considering Table 3, items 7, 8, and 9 have respective means of 2.65, 3.10, and 2.72. All are above the criterion mean for rejection, which is an indication that the entire items are agreed upon. Also, the aggregate mean of 2.82 is greater than the criterion mean for rejection. This shows that most participants regarded the management of security risks as associated with student enrolment.

Table 3. Numbers of Responses and Means for the Items About the Management of Security Risks

Item Number	Item Statement	Number of Responses (Sentiment Level Score) ^a				Mean
		Strongly Agree	Agree	Disagree	Strongly Disagree	
7.	There have been Security risks since I enrolled in the university.	88 (352)	44 (132)	9 (18)	78 (78)	2.65
8.	Security risks are managed in the university.	94 (376)	81 (243)	16 (32)	28 (28)	3.10
9.	Management of Security risks has contributed to my enrolment in the university.	25 (100)	108 (324)	86 (172)	0 (0)	2.72
Aggregate Mean						2.82

^a The sentiment level score was calculated by multiplying the number of respondents for the level by the numerical value of that level.

To What Extent do Perceptions About the Management of Environmental Risks Associate with Student Enrolment? As can be seen in Table 4, items 10 and 12 have means of 3.70 and 2.53 respectively, which are above the criterion mean for rejection (2.50). Also, the aggregate mean of 2.88 is higher than the criterion mean for rejection. This is an indication that the participants perceived that environmental risks are within the universities, and that the extent to which perceptions about the management of environmental risks associate with student enrolment is above the criterion. However, item 11 with 2.40 was rejected for having a mean below the criterion mean for acceptance. This means that it is not largely or highly agreed that environmental risks are managed in the university.

Table 4. Numbers of Responses and Means for the Items About the Management of Environmental Risks

Item Number	Item Statement	Number of Responses (Sentiment Level Score) ^a				Mean
		Strongly Agree	Agree	Disagree	Strongly Disagree	
10.	I have faced environmental risks since my enrolment.	186 (744)	0 (0)	33 (66)	0 (0)	3.70
11.	Environmental risks are managed in the university.	33 (132)	98 (294)	4 (8)	84 (84)	2.40
12.	The management of environmental risks influenced my enrolment in the university.	0 (0)	134 (402)	66 (132)	19 (19)	2.53
Aggregate Mean						2.88

^a The sentiment level score was calculated by multiplying the number of respondents for the level by the numerical value of that level.

Inferential Analysis

Table 5 shows the summary of the Spearman rho on the correlation between perceptions about the management of health risks and student enrolment. It shows that this relationship was positive and strong ($\rho = .518$). The p-value of .000 showed that the management of health risks and student enrolment had a strong correlation ($\rho = .518, p < .05$). The null hypothesis was

rejected at .05 alpha level and the alternate hypothesis was accepted. Therefore, perceptions about the management of health risks and student enrolment are strongly related.

Table 6 shows the summary of a Spearman rho on the relationship between perceptions about the management of security risks and student enrolment. It shows that the relationship between perceptions about the management of security risks and student enrolment is strong ($\rho = .470$). The p-value of .008 showed that perceptions about the management of security risks and student enrolment have no correlation ($\rho = .470, p > .05$). The null hypothesis was rejected at .05 alpha level, and the alternate hypothesis accepted, which means that perceptions about the management of security risks and student enrolment are significantly related.

Table 5. Summary of the Spearman Rho Analysis on the Relationship Between Perceptions About the Management of Health Risks and Student Enrolment

		Perceptions About the Management of Health Risks	Student Enrolment
Perceptions About the Management of Health Risks	Correlation Coefficient	1.000	.518**
	Sig. (2-tailed)	.	.000
	N	219	219
Student Enrolment	Correlation Coefficient	.509**	1.000
	Sig. (2-tailed)	.000	.
	N	219	219

Note: ** represents statistical significance.

Table 6. Summary of the Spearman Rho Analysis on the Relationship Between Perceptions About the Management of Security Risks and Student Enrolment

		Perceptions About the Management of Security Risks	Student Enrolment
Perceptions About the Management of Security Risks	Correlation Coefficient	1.000	.470**
	Sig. (2-tailed)	.	.162
	N	219	219
Student Enrolment	Correlation Coefficient	.330	1.000
	Sig. (2-tailed)	.008	.
	N	219	219

Note: ** represents statistical significance.

Table 7 shows the summary of Spearman's rho on the relationship between perceptions about the management of environmental risks and student enrolment. It showed that this relationship was positive ($\rho = .671$). The p-value of .000 showed that perceptions about the management of environmental risks and student enrolment have a strong correlation ($\rho = .671, p > .05$). The null hypothesis three was rejected at .05 alpha level and the alternate hypothesis was accepted. Thus, perceptions about the management of environmental risks and student enrolment are positively related.

Table 7. Summary of the Spearman Rho Analysis on the Relationship Between Perceptions About the Management of Environmental Risks and Student Enrolment

		Perceptions About the Management of Environmental Risks	Student Enrolment
Perceptions About the Management of Environmental Risks	Correlation Coefficient	1.000	.671**
	Sig. (2-tailed)	.	.162
	N	219	219
Student Enrolment	Correlation Coefficient	4.70	1.000
	Sig. (2-tailed)	.000	.
	N	219	219

Note: ** represents statistical significance.

Testing of the Hypotheses Using Regression Analysis

Two regression models were used to analyse the relationship between the dependent variable (student enrolment) and the independent variables (perceptions about health risk, security risk, and environmental risk). Model 1 is the regression model without mediation and Model 2 is the model with mediation. Table 8 shows the estimated weights and loadings for the models' indicators, as well as their standard errors and 95% confidence intervals. The standard errors and 95% confidence intervals were estimated using 100 bootstrap samples in the study. All estimated weights and loadings were statistically significant.

The variable models were thoroughly assessed using a range of measures, including FIT (Henseler, 2012), adjusted FIT (AFIT) (Hwang et al., 2007), the Goodness of Fit Index (GFI) (Jöreskog & Sörbom, 1986), and the Standardised Root Mean Squared Residual (SRMR) (Hwang, 2008). FIT displays the percentage of the overall variation of all indicators and latent variables that a single model specification can explain and has values between 0 and 1. The greater the value, the more the model specification accounts for the variance in the variables. AFIT should take the model's complexity into account. The variance of the data described by a model specification is considered when determining the degrees of freedom for the model being tested, using both FIT and AFIT. For the model without a mediator, FIT = 0.297 and AFIT = 0.29. It indicates that the model explains around 29% of the total variance of all variables. For the model with a mediator, FIT = 0.298 and AFIT = 0.291. This suggests that around 30% of the variance in the data was explained by the model.

Table 8. Metrics for Regression Models 1 (Original Model Without Mediation) and 2 (With Mediation)

Variables	Model 1						Model 2					
	Weight			Loading			Weight			Loading		
	SE	95% CI	VIF	SE	95% CI	VIF	SE	95% CI	VIF	SE	95% CI	VIF
Health Risk (Hypothesis 1)	VIF = 1.01						VIF = 1.001					
HRM1	0.115	0.327	0.115	0.124	0.263	0.825	0.094	0.321	0.681	0.104	0.436	0.825
HRM2	0.243	-0.276	0.243	0.283	-0.391	0.729	0.201	-0.208	0.585	0.248	-0.264	0.721
HRM3	0.055	0.502	0.055	0.051	0.629	0.834	0.058	0.473	0.712	0.064	0.583	0.835
Security Risk (Hypothesis 2)	VIF = 1.019						VIF = 1.02					
SRM1	0.179	0.072	0.179	0.16	0.157	0.806	0.109	0.28	0.68	0.131	0.303	0.824
SRM2	0.054	0.5	0.054	0.08	0.647	0.84	0.079	0.468	0.698	0.092	0.567	0.837
SRM3	0.221	-0.64	0.221	0.257	-0.749	0.175	0.261	-0.608	0.419	0.313	-0.754	0.43
Environmental Risk (Hypothesis 3)	VIF = 1.013						VIF = 1.012					
ERM1	0.165	-0.324	0.259	0.233	-0.47	0.394	0.173	-0.4	0.31	0.237	-0.531	0.437
ERM2	0.158	-0.187	0.419	0.249	-0.309	0.589	0.173	-0.25	0.439	0.245	-0.33	0.597
ERM3	0.046	0.435	0.634	0.057	0.652	0.854	0.052	0.435	0.652	0.068	0.615	0.857
Student Enrolment (Dependent Variable)												
STE1	0.065	-0.448	-0.206	0.087	-0.683	-0.34	0.088	-0.464	-0.08	0.135	-0.698	-0.125
STE2	0.129	-0.183	0.289	0.178	-0.148	0.508	0.133	-0.163	0.353	0.201	-0.219	0.521
STE3	0.04	0.413	0.557	0.044	0.631	0.812	0.049	0.395	0.601	0.05	0.613	0.824
FIT	0.297						0.298					
AFIT	0.29						0.291					
GFI	0.943						0.943					
SRMR	0.066						0.066					
R-squared	0.23						0.19					

Notes: SE – Standard Error; CI – Confidence Interval; VIF – Variance Inflation Factors; HRM – ...; SRM – ...; ERM – ...; FIT – ...; AFIT – Adjusted FIT; GFI – Goodness of Fit Index; SMSR – Standardised Root Mean Squared Residual.

The gap between the sample covariances and the covariances represented by the parameter estimations is also proportional to the GFI and SRMR. Hu and Bentler (1999) proposed the following cut-off parameters for GFI and SRMR as rules-of-thumb: a GFI value greater than 0.90 and a SRMR value of less than 0.08. These may both be regarded as a good fit, because a GFI value near 1 and a SRMR value near 0 are typically regarded as being indicative of a good match. The study's GFI and SRMR values (0.943 and 0.066 respectively) indicate that the model fits the data reasonably well.

When the predictor variables are not linearly connected, the variance of the estimated regression coefficients is inflated to a certain extent, and may be measured by the variance inflation factors (VIF). There is no association between the independent variable and the other variables when the VIF is equal to one. The findings indicated that there is no multicollinearity in this study. The results of the R-square test are shown in Table 8, implying that 23% of the variation in student enrolment is explained by variations in the predictor variables (perceptions about the management of health risk, the management of security risk, and the management of environmental risk). Moreover, the R-square of the mediator test, as shown in Table 8, indicates that 19% of the variation in perceptions about the management of security risk is explained by variations in the predictor variables (perceptions about the management of health risk and the management of environmental risk).

As shown in Table 9, the first hypothesis was tested to determine the relationship that exists between perceptions about health risk management and student enrolment. The results showed that the coefficient of perceptions of the management of health risks was SE = 0.095, 95% CI = -0.266 ~0.155. It indicates that a change in perceptions about the management of health risk should result in a change in student enrolment. Accordingly, this means that the test was significant at the 5% level, since 0.05% is less than 5%. With a 95% level of confidence, this means that perceptions about health risk management have a large positive effect on student enrolment. The decision rule, therefore, is to reject the null hypothesis (Hypothesis 1) and accept the alternate hypothesis.

Table 9. Path Coefficient Estimates

Paths	Estimate	Standard Error (SE)	95% Confidence interval (CI)	
Hypothesis 1: HRM→STE	-0.07	0.095	-0.266	0.155
Hypothesis 2: SRM→STE	-0.022	0.076	-0.156	0.145
Hypothesis 3: ERM→STE	0.133	0.084	-0.055	0.303
Hypothesis 4: HRM → SRM → STE	-0.002	0.009	-0.016	0.027
Hypothesis 5: ERM → SRM → STE	0.002	0.010	-0.020	0.023

Note. HRM, SRM, ERM, and SET refer to perceptions about health risk management, security risk management, environmental risk management, and stability and equilibrium data respectively.

The result is in line with the Spearman rho ($\rho = .518, p < .05$) which also rejects the null hypothesis and accepts the alternate hypothesis. It is evident that perceptions about health risk management affect organisational performance in terms of university enrolment. This study is in line with the Deloitte's (2018) observation that organisations that embrace risk management are competitive, while those that do not undertake this operation have proven to be ineffective. The study shows that embracing risk management in a university shapes its performance. This

analysis has proved that with better perceptions of health risk management, the university should increase its student enrolment and positively affect it as well.

The second hypothesis was tested to find the correlation between perceptions about the management of security risks and student enrolment. Results show that the coefficient of perceptions about the management of security risks was $SE = 0.076$, $95\% CI = -0.156 \sim 0.145$. This indicates that a change in the perceptions of the management of security risk should result in a change in student enrolment. As a result of being more than 0.05%, the test was not significant at the 5% level. At a 95% level of confidence, it is implied that perceptions about reducing security threats does not significantly increase student enrolment. Therefore, the decision rule is to reject the null hypothesis two (Hypothesis 2) and accept the alternate hypothesis. The result is in line with the Spearman rho ($\rho = .470$, $p > .05$) which rejects the null hypothesis and accepts the alternate. This portrayed the fact that, despite security being the most crucial element of our society in these recent times, perceptions about it do not, however, have full impact on the enrolment of students into private universities. This finding is in line with the research of Helsloot and Jong (2006), and it suggests that careful consideration should be given to the increasing levels of hostility and abuse, often involving weapons, that are occurring both in society at large and in higher education institutions. Universities should make security a top issue if they wish to be rated as a feasible option for students. Departments and staff need to be equipped to deal with a broad variety of risks, such as sexual assault, physical security, laboratory safety, and drug-related violence, to list a few. Moreover, while this research was performed in private universities where the level of security is top notch, like can be said for public universities in terms of the risks mentioned.

The third hypothesis was tested to indicate the relationship between perceptions about the management of environmental risks and student enrolment. The result shows that the coefficient of the perceptions about the management of environmental risk was $SE = 0.084$, $95\% CI = -0.055 \sim 0.303$. This indicated that the test was significant at the 5% level because it was lower than 0.05%. Therefore, the implication at a 95% confidence level is that the perceptions about the management of environmental risks does have a significant positive influence on student enrolment. Therefore, the decision rule is that the null hypothesis three (Hypothesis 3) be rejected and the alternate hypothesis be accepted. The result is in line with the spearman rho ($\rho = .671$, $p > .05$) which rejected the null hypothesis and accepted the alternate hypothesis. Hypothesis three indicated that a strong relationship existed between perceptions about the management of environmental risks and student enrolment. From this finding, the environment is seen to have a highly positive influence on the registration and admission of students to the university. The terrains of the university and how they are controlled has been tested to find that it plays a part in impacting the enrolment of students in a university. This means that perceptions about good environmentally secured terrains where there are good road networks, a constant power supply, good hostel facilities, good pipe-borne water, no insect infestation and so on, majorly affect the intake of students. All these make the environment student friendly.

The testing of the mediating effect of perceptions about security risk management on perceptions about health risk management and student enrolment was $SE = 0.009$, $95\% CI = -0.016 \sim 0.027$. When compared to the significance threshold of 0.05%, this suggests that the test is significant at the 5% level. As a result, with 95% certainty, perceptions of security risk management mediated the association between perceptions of health risk management and student enrolment. The result does have a significant negative influence on student enrolment. Therefore, the decision rule is that the null hypothesis four (Hypothesis 4) be accepted and the alternate hypothesis be rejected.

The mediating effect of perceptions about security risk management on perceptions about environmental risk management and student enrolment. The result was: $SE = 0.010$, $95\% CI = -0.020 \sim 0.023$. This suggests that the test was significant at the 5% level since it is less than

0.05%. As a result, the implication is that, at a 95% confidence level, perceptions of security risk management mediate the association between perceptions of environmental risk management and student enrolment. The result does have a significant negative influence on student enrolment. Therefore, the decision rule is that the null hypothesis four (Hypothesis 4) be accepted and the alternate hypothesis not confirmed.

Discussion and Conclusion

It was determined that perceptions about the management of health risks is related to student enrolment. This suggests that high levels of health and safety risk mitigation activities should not just be about meeting the legal requirements of the nation. Since maintaining health and safety risk mitigation policies is at the core of running an institution, a resourceful outlook on this says quite a lot of the institution's fundamentals. The findings also suggest that any university devoid of health risk management is bound to lack student intake. A resourced approach to health risk assessment may very well serve as a motive for all shareholders in the university to improve their performance, and it could also offer a forum to educate and urge them to remain healthy.

The findings showed that perceptions about the management of security risks do not significantly associate with student enrolment. However, because security an important element of our society and is lacking even in our country, Nigeria, it is still an important measure of risk management in universities. According to various studies (e.g., Sum & Saad, 2017; Tamrat & Teferra, 2020), a university campus devoid of security risk management will not particularly lack student intake, but it is likely to suffer in other areas such as development risk, strategic risk, and operational risk. Universities must understand that, with encouragement and sponsorship from the university's board, a successful risk management process should improve the probability of a university achieving its objectives and goals, increase accountability, and permit limited resources to be properly allocated. Overall, security risk management should help a university to sustain competitive advantage, strengthen its image, and establish a significant response when a major risk event happens.

Lastly, the findings showed that perceptions about the management of environmental risks is associated with student enrolment. The environment is seen as the surroundings of a university campus, either in an urban or rural setting (see Kutsyuruba et al., 2015; Raghupathi & Raghupathi, 2020). It is obvious that the universities in the urban cities are increasing students' enrolment compared with those in the rural settings. This is because most urban universities have effective environmentally secured terrains, where there are good road networks, a constant power supply and pipe-borne water, unlike those in the rural cities. Therefore, it is extremely important that universities consider their surrounding environment as a major factor in admitting and registering students. All these make the environment student friendly. It is on this note many universities understand that, with encouragement and sponsorship from the university's board, a successful risk management curriculum would improve the probability of a objectives and goals, increase accountability, and permit limited resources to be properly allocated. Environmental risk management essentially helps a university to sustain competitive advantage, strengthen its image, and an effective registration and admission of students.

Limitations and Further Study

The work has limitations. The study was carried out within private institutions in rural communities, which makes it difficult to generalise results across all universities in Nigeria. For instance, this study found no statistically significant association between perceptions about security and student enrolment. However, the study established that perceptions about security are one of the major risks that make most students patronise private institutions in Nigeria. As detailed in this study's literature, most students believe that institutions with a decent, accommodating, and student-friendly environment will buffer deficient security. Another bias of

the study is that the surveys only cover students who reside on campus, based on the selected universities' disallowance of off-campus housing. The off-campus housing students could be researched in the future to draw comparisons.

Further study should investigate public universities in rural areas in the country. Furthermore, the variables should be expanded to capture both the perceptions and behaviours of universities' management as well as students. In addition, future research could examine the distinctions in opinion expressed by students from different universities and the six academic disciplines.

Likewise, with the COVID-19 pandemic, which included lockdowns and other barriers, which helped to limit and prevent the spread of the virus, it was difficult to get respondents to comply and respond to the questionnaire because of the online means of administration, so it took months to obtain responses. Therefore, the gathering of data was spread out over several months until the researcher was able to access the respondents in person. Future studies should address the issue that the online survey population must be precisely characterised and as representative of the target demographic as feasible. This would be conceivable if an online survey had a credible sample frame and participants were chosen using a randomised or probability sampling procedure.

Authorship Statement

We confirm that the submitted work is original and the authors' own work, and the work is not currently under review by any other journal.

Conflicting Interest

The authors have indicated that there are no controversies about the authorship and publication of this work.

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