

A Structural Equation Model Analysis of Boko-Haram Insurgency and Educational Development in Borno North Senatorial District of Borno State, NigeriaChristian Anyebe¹, Juliana Hussaina Dauda¹, Mohammed Mohammed Ndagi²

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Abstract

The Boko Haram conflict continues to education through school closures, destruction of educational infrastructure, and displacement of teachers and learners. This study examined the effect of Boko Haram insurgency on educational development and literacy rate in Borno North Senatorial District of Borno State, Nigeria. The study was anchored on Social Disorganisation Theory, which explains how prolonged insecurity weakens community institutions, social cohesion, and the capacity to provide essential services such as education. A descriptive cross-sectional survey design was adopted. A sample size of 499 respondents was drawn and respondents were stratified by LGA, gender, and role as teachers, learners, and community leaders. Respondents were selected using multi-stage sampling technique. Data were collected using structured questionnaire and analysed using Partial Least Squares Structural Equation Modelling. The measurement model demonstrated adequate reliability and convergent validity, with composite reliability values ranging from 0.826 to 0.834 and average variance extracted values ranging from 0.532 to 0.582. The structural model revealed that Boko Haram insurgency has a strong and statistically significant negative effect on educational development and literacy rate, measured in terms of school enrollment, completion, and literacy scores ($\beta = -0.733$, $T = 23.092$, $p = 0.000$). The model further showed that Boko Haram insurgency explained 53.7% of the variance in educational development and literacy rate. The study concludes that persistent Boko Haram insurgency significantly undermines educational development and literacy in Borno North Senatorial District. The study recommends strengthened school security and community-based protection, rehabilitation of damaged schools, and educational recovery programmes, among others.

Keywords: Boko Haram insurgency, educational development, literacy rate, Social Disorganisation Theory, Borno North Senatorial District

INTRODUCTION

Education is a fundamental human right and a key driver of human capital development, socio-economic growth, social cohesion, and sustainable national development. A safe, secure, and supportive learning environment free from conflict is central to achieving Sustainable Development Goal 4, which seeks to ensure inclusive and equitable quality education and lifelong learning opportunities for all by 2030 (UN, 2024). However, armed conflict, violent extremism,

and terrorism continue to undermine this goal, particularly in fragile and conflict-affected regions. Across Africa, countries such as Nigeria, Mali, Burkina Faso, Niger, Somalia, Mozambique, Sudan, and the Democratic Republic of Congo are grappling with violent insurgencies that have severely disrupted education. According to UNESCO (2023), Sub-Saharan Africa accounts for over 98 million out-of-school children, with conflict identified as a major driver. UNICEF (2024) further reports that insecurity in conflict-affected African countries has disrupted school access for one-third of all children. In the Sahel, educational institutions have experienced a spike in targeted attacks aimed at discouraging Western education, facilitating recruitment, and weakening state institutions (African Union Commission, 2023).

In Nigeria, the Boko Haram insurgency, which began in 2009, has become one of the most significant threats to educational development, particularly in the North-East geopolitical zone. Beyond the loss of lives and property, the insurgency has directly targeted schools, leading to the displacement of teachers and learners, prolonged school closures, and the destruction of educational infrastructure (Abbas *et al.*, 2023). These disruptions have had far-reaching consequences for key aspects of educational development, including school enrolment, attendance, teacher availability, educational infrastructure, learning outcomes, school completion, and access to quality education (UNESCO, 2024; World Bank, 2024). As a result, many children in conflict-affected communities have been denied schooling, leading to high dropout rates and reduced opportunities for personal and national development. Borno North Senatorial District is among the worst-affected areas, with frequent attacks by Boko Haram and Islamic State West Africa Province (ISWAP). The district comprises Abadam, Bama, Dikwa, Gubio, Guzamala, Kukawa, Marte, Mobbar, Monguno, and Nganzai LGAs, where insurgency activities remain intense. The consequences have been severe: schools destroyed or abandoned, teachers relocated to safer areas, and school enrolment, especially for girls, declining sharply and increasing vulnerability to child marriage, abduction, and gender-based violence (UNICEF, 2024). At the macro level, ACLED (2024) estimates over 40,000 deaths since the conflict began, while UNOCHA (2024) reports that more than 2.3 million people are internally displaced in Borno, Adamawa, and Yobe States, and 7.9 million people require humanitarian assistance in North-East Nigeria. In education specifically, UNICEF (2024) notes that over 1,500 schools were destroyed or rendered unusable, affecting more than 600,000 children.

A critical outcome of this disruption is low literacy. Literacy rate is a key indicator of educational development, reflecting the ability of individuals to read, write, and comprehend basic information. It is also a determinant of socio-economic development, while low literacy often signals poor access to quality education and educational facilities (World Bank, 2023). The North-East region currently records the lowest literacy rate in Nigeria (NBS, 2023), a trend directly linked to prolonged insecurity and poverty. In response, the Federal Government of Nigeria, UBEC, SUBEBs, and development partners such as UNICEF and UNESCO have implemented several interventions. These include the reconstruction of damaged schools, provision of teaching and learning materials, teacher capacity building, psychosocial support for learners, establishment of temporary learning centres, and the Safe Schools Initiative (UBEC, 2024; UNICEF, 2024; UNESCO, 2024). Despite these efforts, full recovery and continuous service delivery remain hindered in many communities due to persistent insecurity, recurrent attacks on schools, population displacement, and limited humanitarian access (UNOCHA, 2024; UNICEF, 2024). However, there is limited empirical evidence on the direct effect of Boko Haram insurgency on educational development in Borno North Senatorial District. While existing studies have examined the impact of insurgency on education across the North-East geopolitical zone generally, limited studies have specifically isolated and measured how insurgency affects the core indicators of education within the ten LGAs of Borno North. This gap makes it difficult to design targeted interventions that address the peculiar educational challenges in Abadam, Bama, Dikwa, Gubio, Guzamala, Kukawa, Marte, Mobbar, Monguno, and Nganzai.

Therefore, this study examines the effect of Boko Haram Insurgency on Educational Development and Literacy Rate in Borno North Senatorial District. For the purpose of this study, Educational Development is measured in terms of school infrastructure, enrolment rates, attendance levels, teacher availability, access to education, and learning outcomes. Literacy Rate is measured as the ability of individuals to read, write, and comprehend basic information. By focusing on these specific indicators, the study provides empirical evidence on how insurgency directly undermines education in the most affected district of the North-East.

Objective of the Study

- i. To examine the extent to which Boko Haram insurgency has affected educational development and literacy rate in Borno North Senatorial District of Borno State, Nigeria.

Research Hypothesis

H₀: Boko Haram insurgency has no significant effect on educational development and literacy rate in Borno North Senatorial District of Borno State, Nigeria.

LITERATURE REVIEW

Boko Haram

Boko Haram is widely described as a jihadist insurgent group operating primarily in North-Eastern Nigeria and the Lake Chad Basin. According to Thurston (2021), the group emerged as a radical Islamist movement rejecting Western education and secular governance. Zenn (2022) explains that Boko Haram evolved into a violent extremist organisation seeking to establish an Islamic state through armed struggle. The International Crisis Group (2023) classifies Boko Haram as one of the most significant terrorist threats in West Africa due to its sustained attacks on civilians and security forces. Campbell (2024) notes that ideological fragmentation within the group has led to splinter factions such as ISWAP, increasing its operational complexity. Bernard (2021) further describes Boko Haram as a violent extremist group that represents a major internal security threat to Nigeria, characterised by ideological radicalization and persistent attacks on state institutions. Similarly, Balogun (2024) defines it as an insurgent organisation that evolved from religious fundamentalism into a terrorist network engaging in coordinated violence against civilians and security forces. For the purpose of this study, Boko Haram Insurgency is operationally defined as the persistent campaign of violent attacks and intimidation by armed non-state actors in Borno North Senatorial District, manifested through the frequency of insurgent attacks on communities and schools, deliberate destruction of educational infrastructure, forced closure of schools, displacement of teachers and pupils, abduction of students and teachers, acute shortage of teaching personnel, and the psychological trauma inflicted on learners. These dimensions collectively represent the mechanisms through which the insurgency undermines educational delivery in the study area.

Educational Development

Concept of Educational Development Numerous literature has described education development as a multidimensional phenomenon comprising access, quality, equity and outcome improvement in education systems. Modern scholars and international organisations have highlighted, among other issues, that education development cannot be only expanded in schools but also strengthen

them, reform curricula, train educators, and establish good governance systems to improve learning outcomes and human capital formation (UNESCO, 2021; World Bank, 2021). UNESCO (2021; 2023) defines education development as a transformative process with the aim of challenging and imagining education systems to address current and future society needs. It emphasises the need for lifelong learning, inclusivity, and sustainable development, proposing that education systems need to be flexible and adaptable to promote social cohesion and global citizenship. Likewise, UNICEF (2021; 2022; 2023) considers education development to be a way of achieving equitable access to quality education and tackling all barriers to learning, including systemic ones, especially for vulnerable populations. It is from this point of view that education development is tightly connected to the dimension of inequality reduction and foundation learning skills. Becker (2021) offers a human capital approach, suggesting that the development of human capital is critical for skill acquisition and economic productivity. Likewise, Sen (2021) views development of education in the broader context of freedom and empowerment and sees education as an instrument that would boost the capacity of individuals to engage meaningfully in society and make choices about their life. Educational development within the content of this study can be define as School enrolment, School attendance, Teacher availability, Educational infrastructure and Academic performance

Literacy Rate

As per the definition of UNESCO Institute for Statistics (UIS, 2024), the literacy rate is the proportion of the population 15 years of age and older that can read and write a short, simple statement about their daily lives. Likewise, UNESCO (2023) defines literacy as the ability to read, write and understand basic texts that serve people in everyday life, allowing them to continue their education and to contribute to socioeconomic development. The World Bank (2023) describes literacy as basic reading and writing skills needed for productive work, informed decision making, and improved quality of life. UNDP (2022) and OECD (2021) further expand literacy to include the ability to comprehend, evaluate, and use written information to participate effectively in society. Hanushek and Woessmann (2020) emphasise that literacy develops the basic cognitive abilities that drive individual productivity and national development. For the purpose of this study, Literacy Rate is operationally defined as the proportion of individuals aged 15 years and above in Borno North Senatorial District who possess basic reading and writing proficiency that enables

them to function in daily life. In the context of this study, it is measured across four dimensions: 1) Reading proficiency - the ability to read and understand simple written texts, 2) Writing proficiency - the ability to write a short, simple statement about daily activities, 3) Functional literacy - the ability to use reading and writing skills for practical purposes such as filling forms, reading instructions, and making informed decisions, and 4) Disaggregated literacy levels - adult literacy rate for persons 15 years and above, and youth literacy rate for persons 15-24 years. These dimensions capture the direct effect of insurgency on the foundational literacy skills of the population in the study area.

Empirical Review

Several studies have examined the impact of Boko Haram insurgency on education in North-East Nigeria, but most have been broad in scope and limited in methodological rigor. Babagana *et al.* (2024) investigated the effects of Boko Haram insurgency on educational performance indicators in senior secondary schools in Borno State. Using ex post facto design and paired sample t-test on 48 affected schools, they found significant differences in enrollment, attendance, dropout and completion rates before and during insurgency. The study attributed instability to insecurity, destruction of facilities and displacement. However, the study was limited in three ways: 1) Conceptual: It focused only on 4 performance indicators in senior secondary schools and excluded core indicators like school infrastructure, teacher availability, access, and learning outcomes, 2) Methodological: Ex post facto design cannot establish causal relationships between insurgency and education, and 3), Geographical: The study covered Borno State broadly, without isolating Borno North Senatorial District which has the highest concentration of attacks.

Oluwatoyin (2020) assessed the impact of Boko Haram insurgency on educational development in the North-East geopolitical zone using descriptive survey of teachers and administrators in Borno, Yobe and Adamawa. Findings showed destruction of infrastructure, school closures, teacher displacement and reduced enrollment. The study provided useful descriptive evidence but had methodological and geographical limitations. Methodologically, it relied on descriptive statistics and thematic analysis, which do not test the strength and direction of relationships between variables. Geographically, lumping 3 states together masks district-level variations. Borno North has unique characteristics of border proximity and repeated attacks that differ from Southern Borno.

Mshelizah *et al.*, (2021) examined the impact of insurgency on socioeconomic development of Borno State using survey of 400 military and civilian respondents. While education was part of the variables, the study treated it as a sub-component of socioeconomic development. The results confirmed destruction of infrastructure and decline in enrollment. The critique here is conceptual: the study did not operationalize "educational development" into measurable indicators. It also used general inferential statistics without a structural model, making it difficult to isolate the direct effect of insurgency on education. Geographically, the statewide focus does not allow policy targeting for Borno North.

Muhammad *et al.*, (2020) adopted historical method to analyse the influence of insurgency on Islamic and western education in Borno State. Through documentary evidence, they documented destruction of schools, killing of teachers and conversion of schools to IDP camps. While rich qualitatively, the study is methodologically weak or this research because it lacked empirical measurement and statistical testing of relationships. Conceptually, it mixed Islamic and western education without clear indicators. Geographically, it was Borno-wide.

UNICEF (2024) provided a humanitarian assessment of education in North-East Nigeria. The report highlighted damaged facilities, teacher displacement and psychosocial trauma. However, as a humanitarian report, it is methodologically descriptive and not inferential. It does not test hypotheses or model causal paths. Geographically, it aggregates Borno, Yobe and Adamawa, leaving Borno North unexamined as a distinct unit. From the foregoing review, three critical gaps emerge that justify the present study.

Conceptually, none of the reviewed studies measured educational development using a comprehensive set of indicators. Previous works focused narrowly on isolated aspects such as enrolment, dropout rates, or school infrastructure, without capturing the broader dimensions of the education system. To address this, the present study expands the dependent variable to include six indicators of educational development: school infrastructure, enrolment, attendance, teacher availability, access to education, and learning outcomes. In addition, literacy rate is examined as a separate dependent variable, measured across four indicators: reading proficiency, writing proficiency, functional literacy, and disaggregated adult and youth literacy levels. Methodologically, the existing studies relied predominantly on descriptive survey, ex post facto, historical, and humanitarian assessment approaches. While these provided useful insights, they did

not employ advanced multivariate techniques to test direct causal relationships between insurgency and educational outcomes. To bridge this gap, the present study adopts Partial Least Squares Structural Equation Modeling (PLS-SEM) using SmartPLS 4. This approach enables both measurement model validation and structural model testing of the direct effect of Boko Haram insurgency on educational development and literacy rate in the study area. Geographically, all the reviewed studies covered Borno State in general or the entire North-East geopolitical zone. None of them specifically focused on Borno North Senatorial District, which comprises Abadam, Bama, Dikwa, Gubio, Guzamala, Kukawa, Marte, Mobbar, Monguno, and Nganzai Local Government Areas. This district represents the epicenter of insurgency activities and has suffered the most severe disruptions to education. By situating the investigation within Borno North, this study generates district-specific empirical evidence that can inform targeted policy and intervention strategies.

THEORETICAL FRAMEWORK

This study is based on Social Disorganisation Theory which was first conceptualised by Shaw and McKay (1942). The theory posits that criminal behavior, violence, and other social deviance are likely to increase when social organisations and institutions within a community are weakened or disorganized. Shaw and McKay (1942) found that communities that suffer from chronic poverty, migration, lack social bonding and social control have a greater risk of engaging in criminal activity and social deviance. The theory suggests that families, schools, religious and social institutions, and community leaders have a critical function of maintaining a sense of social order and encouraging community development. These institutions, however, cannot function in the way they were originally designed to when they are weakened or are displaced by prolonged violence or insecurity which impacts their ability to control behaviour, deliver critical services, and keep community members safe. Insurgencies can lead to disruption of educational activities, loss of public infrastructure, forced displacement of people and a weakening of community cohesion in conflict-affected areas. As a result, schools are being destroyed and closed, teachers and learners are moved, overall school enrolment decreases, attendance drops, and there is a severe restriction in accessing quality education. Social Disorganisation Theory, therefore, offers an adequate explanation as to how the Boko Haram insurgency negatively affects the social environment essential for sustainable educational development.

The principle of Social Disorganisation Theory is based on the notion that the more effective the functioning of communities, the stronger the social cohesion, collective responsibility and social control mechanisms are. The theory also states, that in communities, where social institutions and community structures have become weak or ineffective, crime, violence and insecurity are more common. It also assumes that armed conflict and insurgency undermine the capacity of families, schools, religious institutions and community leadership to keep things running smoothly, and to foster development. Moreover, it is assumed that educational development can only flourish in a peaceful environment with adequate security and a socially organized one in which schools, educators, students, and educational materials can function well. As a result, ongoing insecurity and social disorganisation negatively impacts educational progress, with schools being destroyed, teachers and students being displaced, school enrollment and attendance rates dropping, and failing educational infrastructure.

Social Disorganisation Theory provides a useful framework for explaining how Boko Haram insurgency has affected educational development and literacy rate in Borno North Senatorial District. First, the theory explains how persistent attacks, destruction of schools, killing and displacement of teachers, and forced migration have weakened the core social institutions in Borno North. When families are displaced, schools are closed, and community leadership is disrupted, the capacity of the community to maintain order and deliver essential services is greatly reduced. This creates an environment where education cannot function effectively. Second, the theory accounts for the observed decline in educational development. The disorganisation of schools and communities has resulted in the destruction of school infrastructure, reduction in student enrolment and attendance, shortage of qualified teachers, limited access to schools, and poor learning outcomes. In the same way, the breakdown of home and community support systems has contributed to low reading proficiency, low writing proficiency, poor functional literacy, and declining youth and adult literacy levels across the district. Third, the theory justifies the focus on Borno North Senatorial District. With its border communities, high rate of displacement, and repeated insurgent attacks, the area represents a clear case of social disorganisation where traditional mechanisms of social control and community support have collapsed. Therefore, Social Disorganisation Theory is appropriate for this study because it explains how insurgency-induced breakdown of social institutions translates into poor educational development and low literacy rates in Borno North Senatorial District.

METHODOLOGY

This study adopted a descriptive cross-sectional survey methodology. Primary data were collected through a structured questionnaire administered to respondents, while secondary data were obtained from textbooks, journal articles, government publications, and other credible documentary sources. The target population of the study comprised adult residents aged 18 years and above in Borno North Senatorial District, Borno State. According to the National Population Commission (2022) projected figures, the total population of the district is 1,225,773 persons. The district comprises ten Local Government Areas, namely: Abadam, Bama, Dikwa, Gubio, Guzamala, Kukawa, Marte, Mobbar, Monguno and Nganzai. A sample size of 384 was determined using Krejcie and Morgan (1970) table. To account for possible non-response, an additional 30% was added in line with Israel (2013), resulting in a final sample size of 499 respondents. The study employed a stratified proportionate random sampling technique. The population was stratified into ten strata based on the ten Local Government Areas. This stratification was adopted because the LGAs vary in population size and exposure to insurgency. Using Bowley's proportionate allocation formula, the total sample of 499 was distributed to each LGA based on its population proportion. Within each LGA, respondents were selected using simple random sampling to ensure equal chance of selection for all eligible members of the population. Quantitative data were analysed using both descriptive and inferential statistics. Descriptive statistics such as frequencies, percentages, mean and standard deviation were used to summarize the demographic characteristics of respondents. For inferential analysis, Partial Least Squares Structural Equation Modeling (PLS-SEM) was used to test the hypotheses. The measurement model was assessed for reliability and validity, while the structural model was evaluated using path coefficients, t-values, p-values, coefficient of determination (R^2), effect size (f^2), and predictive relevance (Q^2). Bootstrapping with 5,000 resamples was conducted using SmartPLS 4 to determine the statistical significance of the relationships at 0.05 level.

RESULTS

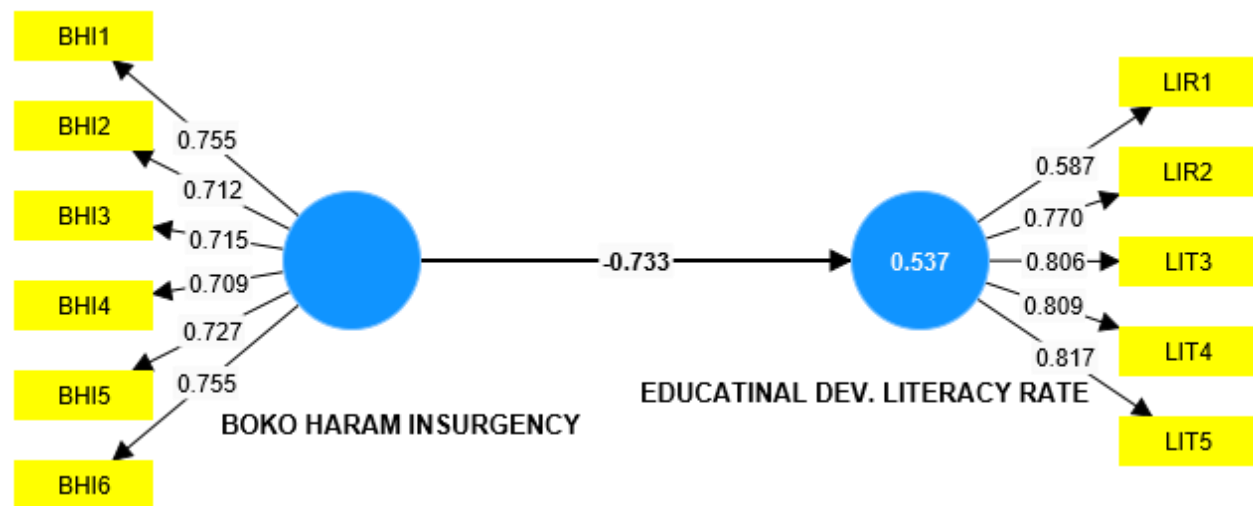
Structural Equation Model (SMART PLS4) and Test of Hypotheses

Measurement of Variables

The boko-haram insurgency was measured using seven items derived from a standardized measurement scale, with responses rated on a five-point Likert scale. Likewise, the educational development and literacy rate was assessed using five items, also rated on a five-point Likert scale.

The structural model assessed individual item reliability, internal consistency reliability, and discriminant validity. Firstly, the individual item reliability was assessed by examining the outer loadings of each construct's measure (Hair *et al.*, 2017). This is depicted in the figure 1 below:

Figure 1: Measurement Model



In Figure 1, the loadings of the respective constructs meet the threshold of individual item reliability. Secondly, this study employs composite reliability to assess the internal consistency of the constructs. Hair *et al.*, (2019) recommended that internal consistency reliability of 0.60 and above is significant. As can be seen in Table 1, the internal consistency reliability is adequate because the CR ranges from 0.826-0.834, which is beyond the threshold. Thirdly, this study employed AVE to measure the convergent validity of the constructs. The recommended value of the AVE should be 0.50 or higher (Hair *et al.*, 2017). As can be seen from Table 1 below, the constructs achieved both convergent validity because the values are above the threshold.

Table 1: Construct reliability and validity

Construct	Composite reliability	Average variance extracted
BHI	0.826	0.532
ED/LIT	0.834	0.582

Table 1 shows that both Boko Haram Insurgency (BHI) **and** Educational Development and Literacy Rate (ED/LR) demonstrate strong reliability and convergent validity, as their composite

reliability and average variance extracted values exceed the recommended thresholds, confirming the consistency and validity of the measurement model.

Table 2: Measurement Model: Discriminant Validity (Fornell and Larcker)

Construct	BHI	ED/LR
Boko Haram Insurgency	0.729	
Educational Development and Literacy Rate	-0.733	0.763

Table 2 shows the discriminant validity of the constructs using the Fornell and Larcker criterion. The square root of the AVE for Boko Haram Insurgency (0.729) and Educational Development and Literacy Rate (0.763) were compared with their correlation value (-0.733). The result indicates a strong negative relationship between the two constructs, meaning that increased Boko Haram insurgency reduces educational development and literacy rate. However, because the correlation value is slightly higher than the AVE square root of Boko Haram Insurgency, discriminant validity was only partially achieved, suggesting some overlap between the constructs.

Table 3 Heterotrait-Monotrait Ratio (HTMT)

Construct	BHI	ED/LR
Boko Haram Insurgency		
Educational Development and Literacy Rate	0.881	

Table 3 presents the discriminant validity results using the Heterotrait-Monotrait Ratio (HTMT) for the study variables. The diagonal bold figures represent the square root of the AVE, all of which fall within the acceptable threshold. This confirms that the study meets the required criterion for discriminant validity.

R-Squared, the coefficient of determination (R^2) illustrates the amount of variance in the endogenous constructs. It indicates that the threshold value of 0.25 (as weak), 0.5 (as moderate) and 0.7 (as substantial respectively) (Chin 1998). Thus, below is the R square value for the study.

Table 4: Coefficient of Determination

R Square	R -Square	R-Square Adjusted
Educational Development and Literacy Rate	0.537	0.536

Table 4 shows that the R^2 value of 0.537 indicates that Boko Haram Insurgency explains 53.7% of the variation in Educational Development and Literacy Rate, while the remaining 46.3% is influenced by other factors not included in the model. The adjusted R^2 value of 0.536 confirms the reliability of the model with minimal overfitting. Based on Chin's (1998) classification, the model demonstrates moderate explanatory power.

4.1.3 Structural Model

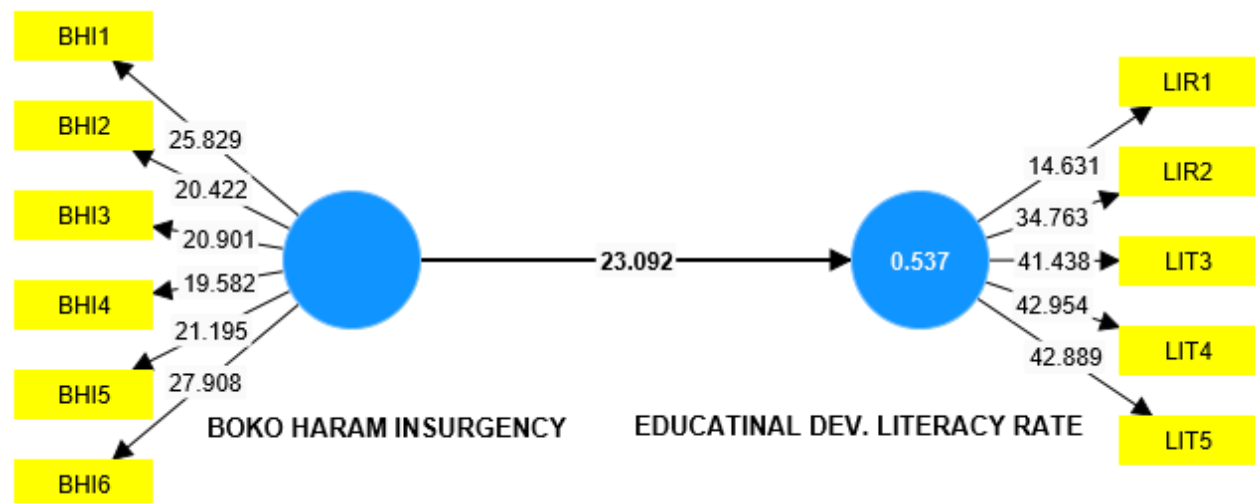


Table 5 Hypotheses test

Hyp	Construct	Beta	Standard deviation	T statistics	P values	Decision
HO	BHI-> ED/LR	-0.733	0.032	23.092	0.000	Rejected

Table 5 presents the results of the hypothesis test on the effect of Boko Haram Insurgency (BHI) on Educational Development and Literacy Rate (ED/LR). The findings indicate that Boko Haram insurgency has a strong and statistically significant negative effect on educational development and literacy rate, as evidenced by the standardized path coefficient ($\beta = -0.733$). This negative coefficient implies that increases in the intensity of Boko Haram insurgency are associated with corresponding decreases in educational development and literacy levels within the study area. The relationship is statistically significant, with a T-statistic of 23.092, which is substantially higher than the critical value of 1.96, and a P-value of 0.000, which is below the 0.05 level of significance. These statistics confirm that the observed relationship is unlikely to have occurred by chance. The standard deviation of 0.032 further indicates that the estimated path coefficient is stable and reliable.

Based on these findings, the null hypothesis (H_0), which states that Boko Haram insurgency has no significant effect on educational development and literacy rate, is rejected. The study therefore concludes that Boko Haram insurgency significantly undermines educational development and literacy rate in Borno North Senatorial District of Borno State. This finding suggests that the persistent insurgency has contributed to school closures, destruction of educational infrastructure, displacement of students and teachers, reduced access to learning opportunities, and increased school dropout rates, all of which have adversely affected educational development and literacy outcomes in the area.

DISCUSSION OF FINDINGS

The findings of this study revealed that Boko Haram insurgency has a strong and statistically significant negative effect on educational development and literacy rate in Borno North Senatorial District of Borno State. The structural model produced a standardized path coefficient of $\beta = -0.733$. The T-statistic value of 23.092 and P-value of 0.000 confirmed that the relationship is statistically significant at 0.05 level. This result indicates that increased insurgent activities have directly contributed to the destruction of school infrastructure, decline in student enrolment and attendance, shortage of qualified teachers, restricted access to schools, poor teaching and learning conditions, and consequently low educational outcomes. In terms of literacy, the findings show that the insurgency has led to reduced reading proficiency, low writing proficiency, limited functional literacy, and declining youth and adult literacy rates across the affected communities in

Borno North. The findings support Social Disorganisation Theory which posits that prolonged violence and instability weaken core community institutions such as family, school, religious bodies, and community leadership. When these institutions are disrupted, their capacity to maintain social order, provide security, and deliver essential services including education is compromised. This theoretical explanation accounts for the observed decline in educational development and literacy rate in Borno North Senatorial District.

The findings are also consistent with reports by UNESCO (2023), UNICEF (2024), GCPEA (2024), and UNDP (2023), which documented that armed conflict and violent extremism have resulted in school closures, displacement of learners and teachers, destruction of educational facilities, and declining literacy across conflict-affected regions globally. Furthermore, the result aligns with the empirical studies of Adesoji (2020) and Okoli and Philip (2021), who found that Boko Haram insurgency significantly reduced school enrolment, attendance, retention, and overall educational outcomes in northeastern Nigeria. Therefore, the study concludes that Boko Haram insurgency is a major factor responsible for the poor state of educational development and low literacy rate in Borno North Senatorial District. The breakdown of social institutions occasioned by the insurgency has created an environment that is not conducive for teaching, learning, and literacy acquisition.

CONCLUSION

Based on the findings of this study, it is concluded that Boko Haram insurgency has a significant negative effect on educational development and literacy rate in Borno North Senatorial District of Borno State. The structural model results ($\beta = -0.733$, $T = 23.092$, $p < 0.05$) led to the rejection of the null hypothesis. This implies that increased insurgent activities have resulted in the destruction of school infrastructure, reduction in student enrolment and attendance, shortage of teachers, restricted access to schools, and a consequent decline in reading proficiency, writing proficiency, and overall literacy levels in the study area. The findings support Social Disorganisation Theory, which explains that prolonged insecurity and violence weaken core community institutions, reduce social cohesion, and undermine the capacity of schools and communities to deliver and access education. Therefore, the study concludes that the persistence of Boko Haram insurgency is a major factor responsible for the poor state of educational development and low literacy rate in Borno North Senatorial District.

RECOMMENDATIONS

Based on the findings of this study, the following recommendations are made:

- i. The Federal Government, Borno State Government, and security agencies should strengthen school security and implement community-based protection measures to safeguard educational institutions in conflict-affected areas. This includes deploying safe school initiatives, intelligence gathering, and collaboration with vigilante groups. This recommendation is supported by the study findings, Social Disorganisation Theory, and the reports of UNESCO (2023), UNICEF (2024), and GCPEA (2024), which highlight insecurity as a major obstacle to educational development.
- ii. The Borno State Ministry of Education, State Universal Basic Education Board (SUBEB), and development partners should rehabilitate damaged school infrastructure and implement educational recovery programmes for affected learners and teachers. Such programmes should include accelerated learning, psychosocial support, and teacher training and incentives. This recommendation is consistent with the study findings and the empirical evidence of Adesoji (2020), Okoli and Philip (2021), and UNDP (2023), which emphasise school reconstruction and learning recovery as key strategies for restoring educational development.
- iii. The Borno State Government, in collaboration with traditional rulers, religious leaders, and community-based organisations, should strengthen community institutions and promote social cohesion to improve school safety and restore educational activities in conflict-affected areas. This can be achieved through community sensitization, peace-building, and involvement of local leaders in school governance. This recommendation is based on Social Disorganisation Theory and is supported by UNICEF (2024) and UNDP (2023), which emphasise that strong community institutions are essential for educational stability in conflict contexts.

References

- Abbas, A. I., Wakılı, S. G., & Raji, R. B. (2023). The impacts of Boko Haram insurgency on educational infrastructure and facilities in North-East Nigeria. *Global Journal of Arts, Humanities and Social Sciences*, 11(8), 1–9.
- African Union Commission. (2023). *African Union education and violent extremism: Protecting education in conflict-affected areas*. African Union.
- Armed Conflict Location & Event Data Project. (2024). *Nigeria: Conflict and political violence data*. <https://acleddata.com/>

- Balogun, W. A. (2024). Dynamics of illicit arms trade and regional security challenges in West Africa: A focus on Nigeria. *Africa Review*, 17(1), 1–21.
- Becker, G. S. (2021). *Human capital: A theoretical and empirical analysis, with special reference to education* (3rd ed.). University of Chicago Press.
- Bernard, S. H. (2021). Assessment of the impact of ungoverned spaces on insurgency in Borno State, Nigeria. *Ghana Journal of Geography*.
- Campbell, J. (2024). *Boko Haram and the future of Nigeria's security*. Council on Foreign Relations. <https://www.cfr.org/>
- Chin, W. W. (1998). The partial least squares approach to structural equation modeling. In G. A. Marcoulides (Ed.), *Modern methods for business research* (pp. 295–336). Lawrence Erlbaum Associates.
- Global Coalition to Protect Education from Attack. (2024). *Education under attack 2024*. Global Coalition to Protect Education from Attack. <https://protectingeducation.org/>
- Hair, J. F., Hult, G. T. M., Ringle, C. M., & Sarstedt, M. (2017). *A primer on partial least squares structural equation modeling (PLS-SEM)* (2nd ed.). Sage.
- Hair, J. F., Risher, J. J., Sarstedt, M., & Ringle, C. M. (2019). When to use and how to report the results of PLS-SEM. *European Business Review*, 31(1), 2–24. <https://doi.org/10.1108/EBR-11-2018-0203>
- Hanushek, E. A., & Woessmann, L. (2020). *The economic impacts of learning losses*. OECD Publishing. <https://doi.org/10.1787/21908d74-en>
- Habib, F. M. (2025). *Boko Haram and the global war on terror: A case study of Nigeria's counter-terrorism operations in North East region* [Doctoral dissertation, Baze University].
- International Crisis Group. (2023). *Watchmen of Lake Chad: Vigilante groups fighting Boko Haram*. <https://www.crisisgroup.org/>
- Israel, G. D. (2013). *Determining sample size*. University of Florida, Institute of Food and Agricultural Sciences.
- Krejcie, R. V., & Morgan, D. W. (1970). Determining sample size for research activities. *Educational and Psychological Measurement*, 30(3), 607–610. <https://doi.org/10.1177/001316447003000308>
- Mshelizah, S. S., Lezuya, S. B., & Jimoh, K. O. (2021). Impact of Boko Haram insurgency on the socioeconomic development of Borno State, Northern Nigeria. *African Journal of Law, Political Research and Administration*, 4(1), 36–51.
- Muhammad, M. U., Kolo, B., & Isa, B. (2020). The impact of Boko Harām insurgency on Islamic and Western education in North-East Nigeria: Focus on Borno State. *African Journal of Humanities and Social Science*, 18(6), 303–320.
- National Bureau of Statistics. (2023). *Nigeria multidimensional poverty index 2023*. <https://www.nigerianstat.gov.ng/>

- National Population Commission. (2022). *2022 projected population figures for Nigeria*. National Population Commission.
- Organisation for Economic Co-operation and Development. (2021). *21st-century readers: Developing literacy skills in a digital world*. OECD Publishing. <https://doi.org/10.1787/a83d84cb-en>
- Oluwatoyin, O. A. (2020). *Impact of Boko Haram insurgency on educational development in North-East Nigeria*. [Publication details to be verified].
- Sen, A. (2021). *Development as freedom*. Oxford University Press.
- Shaw, C. R., & McKay, H. D. (1942). *Juvenile delinquency and urban areas: A study of rates of delinquents in relation to differential characteristics of local communities in American cities*. University of Chicago Press.
- Thurston, A. (2021). *Boko Haram: The history of an African jihadist movement*. Princeton University Press.
- United Nations. (2024). *Sustainable Development Goal 4: Quality education*. <https://sdgs.un.org/goals/goal4>
- United Nations Children's Fund. (2021). *Education*. <https://www.unicef.org/education>
- United Nations Children's Fund. (2022). *Education*. <https://www.unicef.org/education>
- United Nations Children's Fund. (2023). *Education in emergencies*. <https://www.unicef.org/education/emergencies>
- United Nations Children's Fund. (2024). *Education in emergencies: Nigeria*. <https://www.unicef.org/nigeria/education>
- United Nations Development Programme. (2022). *Human development report 2021/2022: Uncertain times, unsettled lives: Shaping our future in a transforming world*. <https://hdr.undp.org/content/human-development-report-2021-22>
- United Nations Development Programme. (2023). *2023 global multidimensional poverty index: Unstacking global poverty*. <https://hdr.undp.org/>
- United Nations Educational, Scientific and Cultural Organisation. (2021). *Reimagining our futures together: A new social contract for education*. <https://unesdoc.unesco.org/>
- United Nations Educational, Scientific and Cultural Organisation. (2023). *Global education monitoring report 2023: Technology in education: A tool on whose terms?* <https://www.unesco.org/gem-report/>
- United Nations Educational, Scientific and Cultural Organisation. (2024). *Global education monitoring report*. <https://www.unesco.org/gem-report/>
- United Nations Office for the Coordination of Humanitarian Affairs. (2024). *Nigeria: Humanitarian needs and response plan 2024*. <https://www.unocha.org/>

- Universal Basic Education Commission. (2024). *Education sector reports and interventions in conflict-affected states*. UBEC.
- World Bank. (2021). *The state of the global education crisis: A path to recovery*. World Bank, UNESCO, & UNICEF. <https://www.worldbank.org/>
- World Bank. (2023). *Literacy rate, adult total (% of people ages 15 and above)*. World Bank Data. <https://data.worldbank.org/indicator/SE.ADT.LITR.ZS>
- World Bank. (2024). *Education finance watch 2024*. <https://www.worldbank.org/>
- Zenn, J. (2022). *Unmasking Boko Haram: Exploring global jihad in Nigeria*. Lynne Rienner Publishers.