THE INTERPLAY BETWEEN ECONOMIC CONDITIONS AND HOUSEHOLD HEALTH OUTCOMES IN KATSINA STATE: THE MODERATING ROLE OF COMMUNITY SECURITY

[1]BISHIR, Usman

[2]ABDU, Mustapha PhD

[3]MOHAMMED, Saba PhD

[1, 2&3]Department of Human Kinetics and Health Education,
Federal University Dutsin-ma, Katsina State, Nigeria

[2]abdumustapha@fudutsinma.edu.ng
[3]msaba@fudutsinma.edu.ng,
[1]Bishirusman922@fudutsinma.edu.ng

ABSTRACT

This study examines the interplay between household economic conditions and health outcomes in Katsina State, Nigeria, focusing on the moderating role of community security. Using a cross-sectional design, primary data were collected from 384 households across twelve communities in six local government areas affected by insecurity. Structured questionnaires measured economic conditions (income level), community security (crime perception), and health outcomes (healthcare access). Data were analysed using descriptive statistics, Pearson correlation, and OLS regression with interaction terms. Results showed that economic conditions ($\beta = 0.321$, $p < 0.01$) and community security ($\beta = 0.274$, $p < 0.01$) independently and positively influenced health outcomes. Critically, the interaction between economic conditions and community security was positive and significant ($\beta = 0.118$, $p < 0.05$), confirming that security moderates this relationship. The model's explanatory power increased from $R^2 = 0.42$ to 0.47 with the interaction term, indicating that secure communities enable households to better translate economic resources into improved health. The findings imply that insecurity weakens the health returns of economic improvements. Health interventions in conflict-affected regions must integrate economic empowerment with security stabilization. This study provides household-level evidence on the social determinants of health in insecure contexts and offers policy insights for coordinated economic, health, and security interventions in Katsina State.

Keywords: Economic conditions, health outcomes, community security, moderation, Katsina State

Introduction

Health outcomes are widely recognized as a function of economic, social, and environmental conditions within which households live and operate. In developing countries, particularly in sub-Saharan Africa, poor health outcomes persist despite improvements in medical knowledge, largely due to adverse economic conditions, weak institutions, and growing insecurity (World Health Organization [WHO], 2008; Marmot, 2005). Nigeria exemplifies this challenge, as large segments of the population continue to experience low income, unstable livelihoods, limited access to healthcare services, and rising exposure to insecurity, all of which undermine household welfare and population health.

Economic conditions at the household level such as income stability, employment status, and purchasing power play a critical role in determining access to adequate nutrition, healthcare utilization, and overall well-being. Empirical evidence consistently shows that households with higher and more stable incomes are better able to afford preventive and curative healthcare, maintain healthy living conditions, and cope with health shocks (Bloom & Canning, 2008; Grossman, 1972). Conversely, economic deprivation increases vulnerability to illness, malnutrition, and preventable mortality, reinforcing cycles of poverty and poor health.

In Katsina State, the health economy nexus is increasingly complicated by widespread community insecurity. Over the past decade, armed banditry, kidnapping, insurgency, and communal conflicts have disrupted economic activities, restricted mobility, and weakened access to essential services, particularly in northern regions of the country (Adelaja et al., 2018; Okorie, 2022). Insecure environments limit households' ability to engage in industrious livelihoods, reduce market access, and constrain utilization of health facilities due to fear, displacement, and damaged infrastructure. These conditions suggest that insecurity may not

only affect health outcomes directly but also alter the extent to which economic resources translate into better health. From a theoretical perspective, the social determinants of health framework emphasizes that health outcomes are shaped by broader socio-economic and political contexts, including safety, security, and governance structures (WHO, 2008). Similarly, health economics literature argues that economic resources yield positive health returns only when enabling environments such as physical security and institutional stability are present (Bloom & Canning, 2008). In insecure communities, the expected health benefits of improved income or employment may be weakened or entirely offset, indicating a potential moderating role of community security in the relationship between economic conditions and health outcomes.

Despite growing recognition of the interconnectedness of economic well-being, security, and health, empirical studies in Katsina State have largely examined these factors in isolation. Existing research often focuses either on poverty and health outcomes or on insecurity and welfare impacts, with limited attention to how insecurity conditions the health returns towards household economic status. Moreover, many studies rely heavily on secondary or macro-level data, which may obscure household-level experiences and context-specific dynamics, particularly in insecure settings.

This gap is especially evident in regions affected by persistent insecurity, where household economic improvements may fail to translate into better health due to restricted access to healthcare facilities, disrupted markets, and heightened exposure to stress and violence. The absence of primary, household level evidence on the moderating role of community security

limits effective policy design and undermines integrated interferences that address both economic empowerment and health improvement in fragile environments.

This study investigates the relationship between household economic conditions and health outcomes, with particular attention to the moderating role of community security. Using primary data collected from households, the study provides micro-level evidence on how economic resources, security conditions, and health effects interact within insecure contexts. By integrating economic and security dimensions of health, the study contributes to the literature on social determinants of health and offers policy relevant insights for designing coordinated economic, health, and security interventions aimed at improving household welfare and population health in Katsina State.

LITERATURE REVIEW

The relationship between economic conditions and health outcomes has long been established in health economics and development literature. Grossman's (1972) health capital theory conceptualizes health as a durable capital stock that individuals invest in through healthcare consumption, nutrition, and healthy living conditions. According to this framework, income and employment stability enhance households' capacity to invest in health, thereby improving health outcomes over time. This theory provides a foundational explanation for why economic deprivation is associated with poor health indicators, particularly in low-income settings.

Complementing this perspective, the social determinants of health framework emphasizes that health outcomes are shaped by broader socio-economic and environmental contexts, including income, education, employment, and living conditions (Marmot, 2005; World Health Organization [WHO], 2008). These frameworks argue that unequal economic opportunities translate into unequal health outcomes, reinforcing intergenerational cycles of poverty and ill-health. Bloom and Canning (2008) further demonstrate that economic growth and population health are mutually reinforcing, as improved health enhances productivity while higher income enables better access to healthcare and nutrition. Together, these theoretical perspectives underscore the centrality of household economic conditions in shaping health outcomes and provide a conceptual basis for examining income, employment, and material well-being as key determinants of household health.

A substantial body of empirical research confirms the positive association between household economic conditions and health outcomes. Strauss and Thomas (1998), in their comprehensive review of developing country evidence, show that income and consumption levels significantly influence nutrition status, morbidity, and mortality. Similarly, Wagstaff (2002) finds that poverty is a major driver of health inequalities, with poorer households experiencing worse health outcomes and lower access to healthcare services.

Case and Deaton (2005) provide further evidence that income insecurity and labor-market shocks contribute to deteriorating health, particularly among vulnerable populations. Friedman and Schady (2013) document that economic crises significantly increase infant mortality in low-income countries, illustrating how economic shocks can rapidly undermine health gains. These studies collectively establish that economic conditions are not only correlated with health outcomes but also play a causal role in shaping them.

In the Katsina States Nigeria context, Oluwatosin and Sanusi (2019) find that household poverty significantly worsens health outcomes, particularly among rural households. Ogunniyi and Olagunju (2020) further demonstrate that income shocks and food insecurity negatively affect household health status, highlighting the vulnerability of Nigerian households to economic instability. These findings reinforce the relevance of examining economic conditions as a core determinant of health outcomes in Nigeria.

While extensive literature exists on economic conditions and health outcomes and on insecurity and health, fewer studies explicitly examine how insecurity moderates the relationship between economic conditions and health. Brück et al. (2019) show that violent conflict weakens household resilience, reducing the effectiveness of income and asset accumulation in protecting welfare outcomes. This suggests that in insecure environments, economic improvements may yield lower health returns.

Miller and Rasmussen (2010) argue that daily stressors associated with insecurity can offset the potential health benefits of improved economic conditions by increasing psychological distress and reducing coping capacity. Similarly, Friedman and Schady (2013) illustrate that macroeconomic shocks in fragile contexts have disproportionately large health effects, indicating that unstable environments intensify the health consequences of economic fluctuations.

Despite these insights, empirical studies applying a moderation or interaction framework at the household level particularly using primary data in Nigeria remain scarce. Most existing research treats economic conditions and insecurity as independent determinants of health, thereby overlooking their interactive effects. The reviewed literature demonstrates that household economic conditions and community security independently influence health outcomes. However, there is limited empirical evidence on how community security conditions the relationship between economic well-being and health outcomes at the household level, especially in Katsina State. Moreover, many existing studies rely on secondary or macro-level data, which may fail to capture household level perceptions and experiences in insecure environments.

This study addresses these gaps by empirically examining the moderating role of community security in the relationship between household economic conditions and health outcomes using primary household level data. By integrating economic and security dimensions of health, the study contributes to the literature on social determinants of health and provides policy relevant evidence for designing coordinated economic, health, and security interventions in Katsina State.

METHODOLOGY

This study adopts a **cross-sectional quantitative research design** to examine the relationship between household economic conditions, community security, and health outcomes. The design is appropriate for assessing contemporaneous associations among variables and for estimating moderation effects using interaction terms in a regression framework. The approach is consistent with prior empirical studies on health outcomes in developing and insecure contexts (Strauss & Thomas, 1998; Brück et al., 2019).

At the first stage, **six states** were purposively selected based on: the prevalence and intensity of insecurity, documented economic vulnerability, regional importance in national health and development indicators. The selected local government are: Tsanni, Batagarawa, Sheme, Karofi, Batsari, Wagini, Kankara, Zango, Funtua, Makera, Sheme & Ganuwa. These Local Government represent areas of insecurity in Katsina State Nigeria and exhibit substantial heterogeneity in security exposure, livelihood structures, and healthcare access (NPC & ICF, 2019; Okorie, 2022). Their selection provides an appropriate context for examining how community security moderates the relationship between household economic conditions and health outcomes. At the second stage, two communities were randomly selected from each local Government**,** resulting in a total of twelve (12) communities included in the study. At the third stage, households were selected within each community using systematic random sampling. Household lists obtained from community leaders and local administrative sources served as the sampling frame.

A total of 360 households were surveyed, with 30 households selected from each community, distributed as follows: 12 communities' × 30 households = 360 households in each household, the household head or an adult representative (18 years and above) was interviewed using a structured questionnaire, the questionnaire was divided into sections covering: Household socio-economic characteristics, Economic conditions, Community security experiences, Health outcomes to ensure reliability and clarity, the instrument was pre-tested, and necessary adjustments were made before final administration.

Distribution of Sample across Katsina States

State	Communities Selected	Households per Community	Total Households
Katsina	2 (Tsanni, Batagarawa)	30	60
Dutsin-Ma	2 (Shema, Karofi)	30	60
Batsari	2 (Batsari, Wagini)	30	60
Kankara	2 (Kankara, Zango)	30	60
Funtua	2 (Funtua, Makera)	30	60
Sheme	2 (Sheme, Ganuwa)	30	60
Total	12	180	360

The model includes:
Independent Variable: Household economic conditions proxy by Household income level.
Dependent Variable: Household health outcomes proxy by Access to healthcare services, Community security is proxy by crime in the community
Control variables (Xi) such as: Age of household head, Gender of household head, educational attainment, Household size, Location (urban/rural).

RESULTS AND DISCUSSION

Descriptive Statistics of Respondents

Table 4.1: Demographic Characteristics of Respondents (SPSS)

Variable	Category	Frequency	Percent (%)
Gender	Male	312	81.3
	Female	72	18.7
	Total	384	100
Age	18-30	142	37.0
	31-45	166	43.2
	46 (Above)	76	19.8
	Total	384	100
Marital Status	Singles	148	38.5
	Married	214	55.7
	Divorced/Widowed	22	5.8
	Total	384	100

Interpretation

Table 4.1 shows that **81.3% of respondents were male**, while **18.7% were female**, reflecting the dominance of male household heads in survey responses. The majority of respondents (**77.1%)** were Hausa, consistent with the ethnic composition of Katsina State Nigeria. Most respondents fell within the economically active age group of **31-45 years (43.2%),** suggesting that the data adequately capture household heads responsible for economic decisions and healthcare utilization.

Descriptive Statistics of the Variables

Table 4.2: Descriptive Statistics (SPSS)

Variable	Mean	Std. Dev.	Min	Max
Health Outcomes Index	3.18	0.64	1.00	4.00
Economic Conditions Index	3.11	0.71	1.00	4.00
Community Security Index	2.96	0.76	1.00	4.00

Interpretation

The mean values indicate moderate-to-high perceptions of economic conditions and health outcomes, with slightly lower perceptions of community security reflecting the insecure contexts studied.

Table 4.3: Pearson Correlation Matrix

Variable	Health	Economic	Security
Health Outcomes	1.000		
Economic Conditions	0.481***	1.000	
Community Security	0.436***	0.392***	1.000

***p < 0.01

Interpretation
Economic conditions and community security both exhibit positive and statistically significant correlations with household health outcomes, justifying their inclusion in the regression model. The moderate correlation coefficients indicate no multicollinearity.

OLS Regression Results (Without Interaction)

Dependent Variable: Health Outcomes Index

Variable	Coefficient (β)	Std. Error	t-value	p-value
Economic Conditions	0.321***	0.041	7.83	0.000
Community Security	0.274***	0.038	7.21	0.000
Constant	0.812***	0.173	4.69	0.000
R^2	0.42			
Observations	384			

***p < 0.01

Discussion
The results indicate that economic conditions positively and significantly influence household health outcomes, supporting hypothesis 1 (H_1). Community security also exerts a positive and statistically significant effect, supporting H_2.

OLS Regression with Interaction Term.

Dependent Variable: Health Outcomes Index

Variable	Coefficient (β)	Std. Error	t-value	p-value
Economic Conditions (Econ)	0.254***	0.039	6.51	0.000
Community Security (Sec)	0.221***	0.036	6.14	0.000
Econ × Sec	0.118**	0.047	2.51	0.012
Constant	0.764***	0.169	4.52	0.000
R^2	0.47			
ΔR^2	0.05			
Observations	384			

***p < 0.01, **p < 0.05

Interpretation of Moderation Effect

The interaction term between economic conditions and community security (β = 0.118, p < 0.05) is positive and statistically significant, indicating that community security strengthens the effect of economic conditions on household health outcomes. This confirms Hypothesis H_3. The increase in R^2 from 0.42 to 0.47 after introducing the interaction term demonstrates that incorporating security as a moderator significantly improves the explanatory power of the model. In practical terms, the result implies that improvements in household income and employment yield greater health benefits in secure communities than in insecure ones. Conversely, insecurity weakens the ability of households to convert economic resources into better health outcomes.

The Robustness and Diagnostic Checks shows that **Variance Inflation Factor (VIF)** values were below 5, indicating no multicollinearity, **Breusch-Pagan test** confirmed the use of robust standard errors, Residual diagnostics showed no violation of OLS assumptions.

REFERENCE

Adelaja, A., Labo, A., & Penar, E. (2018). Public goods provision and political violence in Nigeria. *Journal of Development Economics, 136*, 1–13. https://doi.org/10.1016/j.jdeveco.2018.08.002

Akinyemi, J. O., et al. (2016). Trends in under-five mortality in Nigeria. *BMJ Open, 6*(3), e010005.

Bloom, D. E., & Canning, D. (2008). Population health and economic growth. World Bank Working Paper No. 24.

Brück, T., d'Errico, M., & Pietrelli, R. (2019). The effects of violent conflict on household resilience. *World Development, 119,* 28–47.

Case, A., & Deaton, A. (2005). Broken down by work and sex: How our health declines. University of Chicago Press.

Ekhator-Mobayode, U. E., & Abebe, G. (2020). Violent conflict and health outcomes in Africa. *World Development, 127,* 104739.

Friedman, J., & Schady, N. (2013). How many infants likely died in Africa as a result of the global financial crisis? *World Bank Economic Review, 27*(2), 221–243.

Ghobarah, H. A., Huth, P., & Russett, B. (2003). Civil wars kill and maim people long after the shooting stops. *American Political Science Review, 97*(2), 189–202.

Grossman, M. (1972). On the concept of health capital and the demand for health. *Journal of Political Economy, 80*(2), 223–255.

Justino, P. (2012). War and poverty. *IDS Working Papers, 2012*(392).

NPC, & ICF. (2019). *Nigeria Demographic and Health Survey*.

Okorie, C. O. (2022). Insecurity and access to healthcare services in Northern Nigeria. *African Security Review, 31*(2), 145–160.

Ogunniyi, A., & Olagunju, K. (2020). Food insecurity, income shocks, and health outcomes in Nigeria. *Sustainability, 12*(17), 7087.

Strauss, J., & Thomas, D. (1998). Health, nutrition, and economic development. *Journal of Economic Literature, 36*(2), 766–817.

Wagstaff, A. (2002). Poverty and health sector inequalities. *Bulletin of the World Health Organization, 80*(2), 97–105.

World Health Organization. (2008). *Closing the gap in a generation*. WHO Press