CLIMATIC CONDITIONS AND CRIME PATTERNS IN IKA SOUTH LOCAL GOVERNMENT AREA OF DELTA STATE

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Abstract

The study addressed the limited evidence on how climatic conditions shape crime patterns in Ika South Local Government Area of Delta State. The aim was to measure the influence of monthly rainfall and temperature shifts on recorded offences and to assess resident perceptions of victimisation and crime drivers. A cross sectional design supported the use of meteorological records, police statistics and a survey of 400 respondents. The data showed sharp rainfall peaks from April to July, with values between 170.6 mm and 316 mm, and lower temperatures between 25.4°C and 28.1°C across the same period. These shifts aligned with reductions in movement and lower exposure to property offences. Dry months produced higher mobility and increased interpersonal conflict. Drug offences reached 1810 cases, cult activity reached 1141 and agricultural theft reached 575. Correlation tests recorded a strong negative link between rainfall and temperature at r = -0.713 and a moderate negative relationship between rainfall and homicide at r = -0.551. The study contributes to Crime Pattern Theory by demonstrating how climatic stress modifies routine activities within agrarian and commercial zones. The findings show the importance of seasonal variation in structuring offender and victim movement. The results have significance for policing and planning in Delta State. Agencies should adjust patrol timing to cover rainfall peaks and focus surveillance on market corridors during dry months. Local authorities should integrate rainfall projections into early warning systems and prepare seasonal interventions in flood prone zones.

Keywords: climate, crime patterns, rainfall, temperature, routine activities, Delta State

1. Introduction

Communities in Delta State experience climate pressures that shape social interaction, mobility and stress. Ika South Local Government Area presents these conditions in clear form. Earlier research reports operational strain from temperature and weather conditions on security work in the region as noted by Efe and Eyefia (2015). Clear evidence linking these pressures to crime patterns remains limited. Theft and assault dominate local incident records, and security structures rely on fixed patrol schedules that respond after offences occur. International findings differ. Global literature often discusses two broad explanations for this link. One explanation traces aggression to physiological responses during heat exposure. Anderson (1989) reports that heat raises irritability and hostility, which increases interpersonal conflict. Another explanation concentrates on shifts in human activity during warmer periods. Outdoor social and economic interactions rise during warm days, and Stevens et al. (2024) present evidence of higher violent incidents during such periods.

Delta State experiences humidity levels above eighty percent during long parts of the rainy season. These values slow bodily cooling, increase sweating and create sustained discomfort. Residents in Ika South experience fatigue during routine movement, and public encounters in markets and transport points show higher irritability during humid periods. These conditions influence responses to conflict and heighten tensions in crowded areas. The combined effects of temperature, humidity and rainfall introduce

important questions for criminology in Nigeria. Heavy rainfall restricts movement for offenders and law enforcement. Low lying locations in Ika South often experience short term flooding during intense rainfall. Flooding disrupts patrol routes; delays market schedules and shifts crowd movement patterns. Theft and assault levels adjust in response to these disruptions. Evidence from other regions helps explain these trends. Shen et al. (2020) report nonlinear crime responses across rainfall intensities in Chinese provinces, showing that rainfall effects depend on specific conditions rather than simple increases or decreases. Local evidence of this nature remains scarce.

Environmental features shape safety outcomes in measurable ways. Stevens et al. (2024) reports lower violent incidents in shaded or well vegetated spaces because such areas reduce heat exposure. Temperature increases raise aggression. Anderson (1989) documents higher violent incidents during hotter periods. Strong rainfall reduces property related incidents because outdoor movement drops. High humidity contributes to interpersonal tension, which influences assault patterns across communities. These expectations require structured testing in Ika South through detailed comparison between climatic records and crime incidents across daily or weekly intervals. International studies support this direction. Ranson (2014) reports strong temperature crime links in the United States. Burke et al. (2018) report strong associations between heat and conflict across sub-Saharan Africa. Shen et al. (2020) highlight complex behavioural responses across temperature and rainfall ranges. These studies show that climatic variables influence crime in diverse settings and strengthen the argument for a focused Nigerian case.

Local scholars support further examination of these relationships. Efe and Eyefia (2015) describe performance challenges for law enforcement during strong heat and heavy rainfall, which confirms that climate pressures influence security operations. The present study extends such work by linking detailed climatic data with crime outcomes. This approach strengthens environmental criminology in Delta State and informs local planning. Climatic variation influences market activity, night movement and social interaction in Ika South. Crime outcomes shift in response to these patterns. A detailed academic investigation that integrates environmental science, criminology and development planning supports targeted prevention and contributes to policy formation within the locality.

The study has a clear purpose. The aim is to determine whether a significant correlation exists between weather variables and crime occurrences in Ika South Local Government Area of Delta State in the Niger Delta region of Nigeria. This objective guides the analytical framework and supports the development of evidence-based interventions. The study follows a testable proposition. The hypothesis states that no significant correlation exists between weather variables and crime occurrences in the study area. Testing this proposition through matched climatic and crime records supports rigorous academic evaluation and produces knowledge relevant for local authorities. A structured investigation grounded in continuous meteorological data and detailed crime reports strengthens academic understanding of climate related behavioural responses in Ika South. Such work contributes to regional safety strategies and supports long term development planning for communities within Delta State.

2. Theoretical Issues

Crime pattern theory, developed by Paul L. Brantingham and Patricia J. Brantingham, posits that crime is not random but occurs where offenders' routine movements intersect with environmental opportunities (Brantingham & Brantingham, 1993). By examining how climate affects crime in Ika South Local Government Area, this theory highlights the role of activity spaces and awareness spaces shaped by

the built environment and human mobility. The framework integrates elements of routine activity theory and emphasizes spatial structures, enriching environmental criminology through the analysis of how these factors influence offender decision-making (Brantingham & Brantingham, 2008).

The theory posits that offenders learn their environment through repeated movement, developing mental maps that include nodes (frequent places), paths (routes between nodes), and edges (boundaries of activity zones). This creates an awareness space, critical when it overlaps with suitable targets for crime, indicating that crime is not random but a rational choice based on spatial familiarity (Jonescu et al., 2024). Key components include activity nodes (e.g., markets, homes), paths (e.g., roads, footpaths), and edges (e.g., boundaries between residential and commercial zones), which offenders utilize to navigate and select their targets. The text examines the dynamics of crime distribution through a crime pattern theory lens. It suggests that familiarity with spatial nodes and paths influences crime opportunities, with crime clustering resulting from routine mobility. However, there are theoretical concerns regarding the relative importance of spatial versus social factors, particularly in Ika South's tropical context, where traditional applications of the theory may not hold due to unique environmental conditions and informal transport. Critics question the stability of routines in the face of climatic changes, impacting the applicability of the theory.

These theoretical gaps are significant for understanding the interplay between climatic conditions and crime in Ika South. Changes in rainfall, temperature, and humidity can alter movement patterns, affecting awareness spaces and shifting crime occurrences. While crime pattern theory is pertinent, it often overlooks the impact of environmental disruptions from weather. The theory can be employed to explain how climatic variations influence offenders' and victims' spatial routines and can inform law enforcement strategies and community planning regarding crime prevention. The crime pattern theory has notable limitations, as it does not address the origins of criminal behaviour and assumes rational decision-making, which may not align with impulsive crimes. Its reliance on detailed spatial data may be problematic in low-resource areas, and the concept of stable activity spaces is challenged by frequent environmental disruptions. Therefore, it is suggested that crime pattern theory be supplemented with additional perspectives, such as psychological stress, to effectively analyse climate-crime dynamics, particularly in regions with variable weather. While this theory provides valuable insights into how environmental factors can influence crime opportunities, a more comprehensive understanding requires the integration of other theoretical frameworks.

3. Materials and Methods

Ika South Local Government Area of Delta State occupies a land mass of 436 km^2 and located in Delta North Senatorial district between Latitude 6^0N and 6.17^0N and its Longitude is between 5^0E and 6^0E (Figure 1). It is bounded to North-Western parts by Edo State, and to the East, by Ika-North East Local Government Area of Delta State, and to the southern part by Ndokwa West Local Government Area (Okoh & Efe, 2021). Ika South Local Government Area in Delta State, Nigeria, features a unique physical and socio-economic environment that is important for understanding climatic conditions and crime patterns. The region is geologically characterized by a low-lying deltaic plain, with soils that have undergone significant weathering, resulting in red and yellowish-brown profiles rich in iron oxides, but lacking in lateritic iron pan layers (Okpiliya et al., 2017).

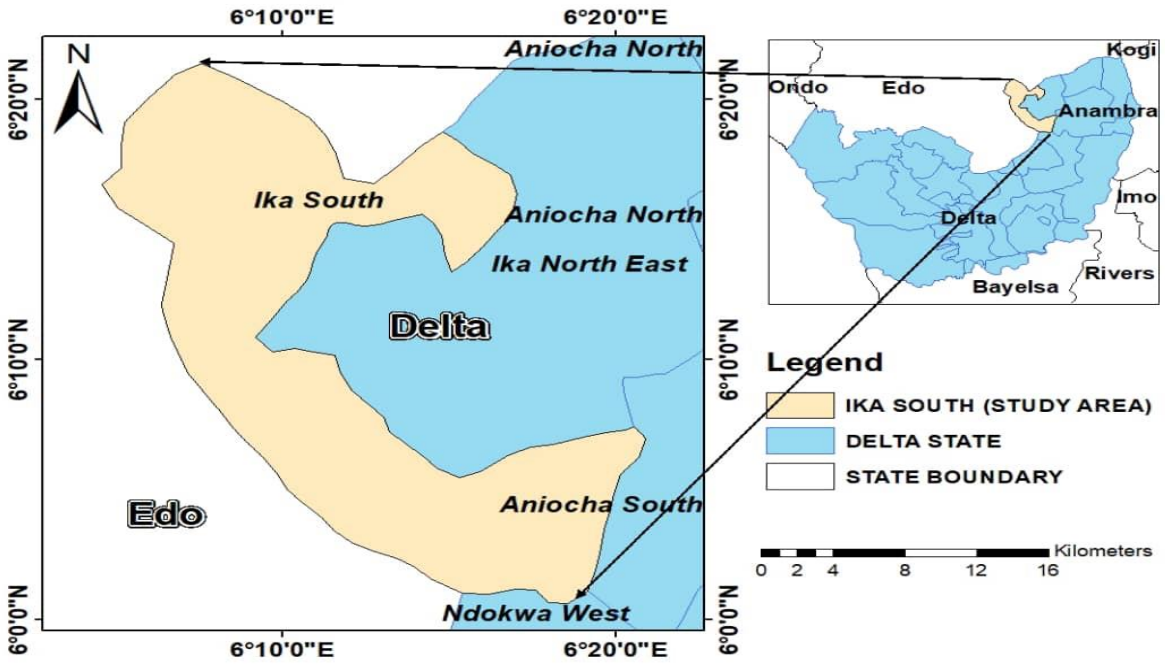

Figure 1: Study area's location in Delta State. Source: Okoh and Efe (2021).

Research indicates that rainfall aggressivity combined with topography and soil erodibility contributes to substantial soil loss in areas with moderate to steep slopes (Jackson & Okwere, 2025). This risk of erosion impacts water flow, flood-prone areas, and drainage routes, which are significant for movement, particularly during heavy rainfall events. The population of Ika South is approximately 185,613 according to recent estimates, up from 167,060 per the 2006 census (Manpower Nigeria, 2025). The area includes towns such as Agbor, Omumu, Alizormo, Emuhu, and Oki. This population density impacts crime studies due to increased interaction points, influenced by climatic conditions. Ika South experiences a rainy and dry season, with annual precipitation around 2,400 mm, often leading to flooding in certain areas (Jackson & Okwere, 2025).

Vegetation in Ika South is characterized by tropical rainforest ecosystems (Okpiliya et al., 2017). This vegetation plays a crucial role in land cover, flood management, and spatial crime patterns, particularly influenced by weather conditions. The local economy is heavily based on subsistence agriculture, with key crops being cassava, yam, and oil palm, alongside significant market activities centered in Nkwor Market (Okpiliya et al., 2017; Manpower Nigeria, 2025). Economic practices are intimately linked to climate, affecting farming, trade, and wood harvesting activities, all vulnerable to flooding and soil erosion. Understanding the interplay between contextual factors such as geology, population density, climate variables, vegetation, and economic activities illustrates how climate affects crime. These factors influence risk areas, the movement of offenders and victims, and adapt social interactions and routines under environmental stress. This knowledge helps map the relationship between climate fluctuations and crime opportunities, particularly in flood-prone zones.

The study adopted a cross sectional design to establish statistical connections between climatic variables and crime categories across months. This design supports seasonal comparison, correlation testing and pattern identification within a single unified analytical frame. A cross sectional structure supports a detailed examination of these links and provides a consistent basis for combining primary and

secondary evidence across the same time window. Data collection involved both primary and secondary sources. Secondary datasets included rainfall and temperature records from the Nigerian Meteorological Agency and monthly crime statistics from the Nigerian Police Force at Agbor Area Command. These datasets allowed longitudinal description, seasonal comparison and correlation analysis. Primary evidence involved field administration of structured questionnaires to residents across five communities to gather perceptions regarding victimisation, crime drivers and seasonal changes in fear and exposure. The sample size of 400 respondents was deducted using Yamane Taro Digital Calculator.

The sampling framework followed a systematic approach. Every fourth household in each community received one questionnaire. This approach provided spatial coverage and reduced selection bias by ensuring a fixed interval between sampled households. The choice of 400 respondents supported descriptive and inferential testing because larger samples produce stronger representation and narrower confidence intervals. The distribution of 50 questionnaire each across five communities provided proportional exposure to agrarian, commercial and mixed-activity zones, all of which experience seasonal climate stress. Primary data collection occurred through direct contact by the researcher with support from trained volunteers. The structured questionnaire covered socio-demographic features, seasonal exposure to victimisation, perceptions of crime levels and opinion on weather-driven stress. Responses reflected community-level trends. Each questionnaire was retrieved, screened for completeness and assigned a numeric code. Completed forms were stored in sealed envelopes and later transferred into a password-protected digital database. Climate and crime records from institutional sources were downloaded from official repositories and processed within a dedicated folder structure containing separate directories for rainfall, temperature and crime categories. All entries were cleaned, labelled and converted to SPSS formats. This process supported clarity, retrieval and audit compliance. Processing steps included data entry verification, checks for duplicate values and comparison with source documents. The statistical procedure followed a structured workflow to ensure transparent progression from data retrieval to analysis.

Validation steps included Shapiro-Wilk tests for normality, Levene tests for homogeneity of variance and scatterplot review for linearity between climatic and crime variables. No extreme outliers were found within climate records due to consistent monitoring by the meteorological agency. Crime records presented minor anomaly cases which were reviewed manually and corrected after cross-checks with station logs. Descriptive analysis summarised temperature, rainfall and monthly crime values. Quantitative analysis relied on Pearson correlation to examine linear associations between rainfall, temperature and monthly crime categories. This technique measured the size and direction of climate crime links. Reliability procedures involved internal consistency tests for questionnaire responses through Cronbach's alpha. Values above 0.70 supported stability of constructs. Validity relied on expert review, theoretical grounding in Routine Activity Theory and convergence with secondary crime records. Triangulation across datasets strengthened interpretive confidence. Comparing questionnaire responses with police records provided cross-evidence for perceived and recorded crime patterns. Climate records came from an accredited national meteorological authority with long-term monitoring experience, which further strengthened data legitimacy. The methodology aligns with the research problem by linking measurable climatic variables with observable crime patterns across monthly cycles. Cross sectional design, systematic sampling, structured questionnaires and multi-source datasets provided a robust foundation for empirical testing. Statistical procedures identified points of seasonal vulnerability and supplied evidence for understanding environmental influences on crime within Ika South.

4. Results and discussion

Table 1 outlines the monthly shifts in temperature and rainfall in Ika South Local Government Area, revealing a consistent temperature decline and a significant rise in rainfall from March to August. This environmental shift impacts movement, market activities, and daily routines. January starts with a moderate temperature of 27.4°C and low rainfall, resulting in active mobility and economic activities. April to July experiences the highest rainfall, which restricts travel and affects road conditions, leading to increased spatial isolation in flood-prone areas and altering crime patterns. Despite a temporary reduction in rainfall in August, high rainfall persists in September, influencing household routines and market attendance. November and December signal the onset of the dry season, returning to earlier conditions associated with higher risks of interpersonal aggression due to increased social interactions.

Table 1: Seasonal Temperature and Rainfall Patterns in Ika South

Months	Mean Temp (^{0}C)	Average Rainfall (mm)
Jan	27.4	24.6
Feb	28.7	55
Mar	28.8	117
Apr	28.1	170.6
May	27.3	228.2
Jun	26.2	290.3
Jul	25.4	316
Aug	25.3	203.4
Sep	25.8	294
Oct	26.4	250.6
Nov	27.4	82.9
Dec	27.4	32.2

Source: Field Measurements (2024)

Figure 2 displays a clear rainfall surge from April to July, where rainfall moves from 170.6 mm to 316 mm. Temperature during the same period drops from 28.1°C to 25.4°C. This opposite movement produces wetter but cooler months. These months restrict mobility, limit outdoor social interaction and reduce the hours available for large public gatherings. Such restrictions often reduce property-related incidents due to low movement volumes. This outcome aligns with global findings showing reduced property offences during intense rainfall periods because movement drops in affected communities (Gibson & Krohn, 2012). August sees a decrease in rainfall to 203.4 mm, which increases to 294 mm in September, indicating significant shifts in the rainy season that disrupt daily activities and increase the risk of disorder. Routine activities theory explains these changes as they affect public exposure and guardianship.

In October, rainfall remains high at 250.6 mm with temperatures rising to 26.4°C, leading to humid conditions that cause discomfort and stress, impacting interpersonal behaviour and elevating irritability. Heat stress and increased aggression, emphasizing the importance of monitoring assaults during these humid months in Ika South. Rainfall decreases significantly in November and December, dropping from 82.9 mm to 32.2 mm, while temperatures rise to 27.4°C, creating dry and warm conditions. These favourable conditions result in increased movement due to clear roads and active markets, leading to more opportunities for interpersonal disputes and minor property crimes, particularly in market areas. Research by Trujillo and Howley (2021) supports a link between temperature and crime during similarly warm months, underscoring the importance of monitoring temperature during the late dry season. Overall, the

figure and Table show a predictable seasonal cycle in Ika South. The sharp rainfall rises during mid-year, paired with reduced temperature, produces movement restrictions that lower property-related incidents. The warm and dry opening and closing months present higher activity levels with increased opportunities for interpersonal conflict. These results align with previous empirical studies but supply localised environmental context needed for policy and operational planning in Delta State.

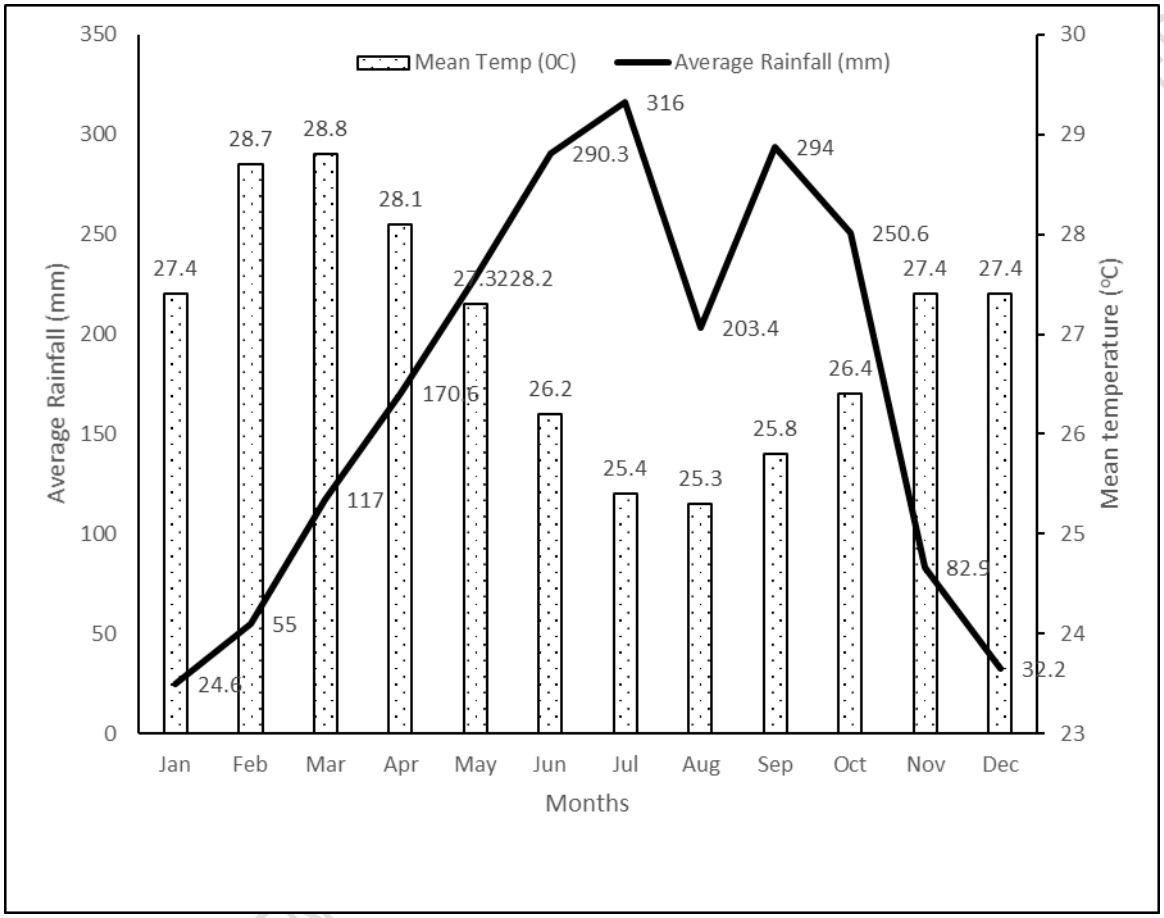

Figure 2: Trend of rainfall and temperature in Ika South Local Government Area

Figure 3 outlines the monthly crime distribution in Ika South, revealing significant variations across the year. April sees the highest incidents, peaking at 826 cases, associated with the onset of the rainy season that begins in March. This increase in crime is attributed to changes in routine activities, heightened mobility, and congestion during this transitional climate. From May to August, crime remains stable at roughly 550 to 610 incidents, attributed to high rainfall and reduced night-time mobility. The later months, particularly September to December, see an uptick to near 640 incidents in November, paralleling dry months and increased social activities linked to festive periods. Additional reasons for the three crime clusters in Ika South centre on social, economic, and institutional factors that impact routine activities. Financial strain from December expenditures leads to increased tension and property offences between January and March, consistent with Jones and Pridemore (2012) findings on property crime spikes during economic stress. The April surge in crime aligns with local administrative cycles, specifically as public offices finalize first-quarter audits. This period consequently leads to increased foot traffic, which enhances

opportunities for theft. This phenomenon echoes findings from Malleson and Andresen (2016) research, which explored the relationship between population movement and exposure to crime. Additionally, school calendars, notably the Easter break, result in more young people being in public spaces unsupervised, elevating crime risk, as noted by Brantingham and Brantingham (1993). Overall, these explanations illustrate that factor beyond climate, such as economic cycles, administrative routines, and school schedules, significantly influence crime levels throughout the year.

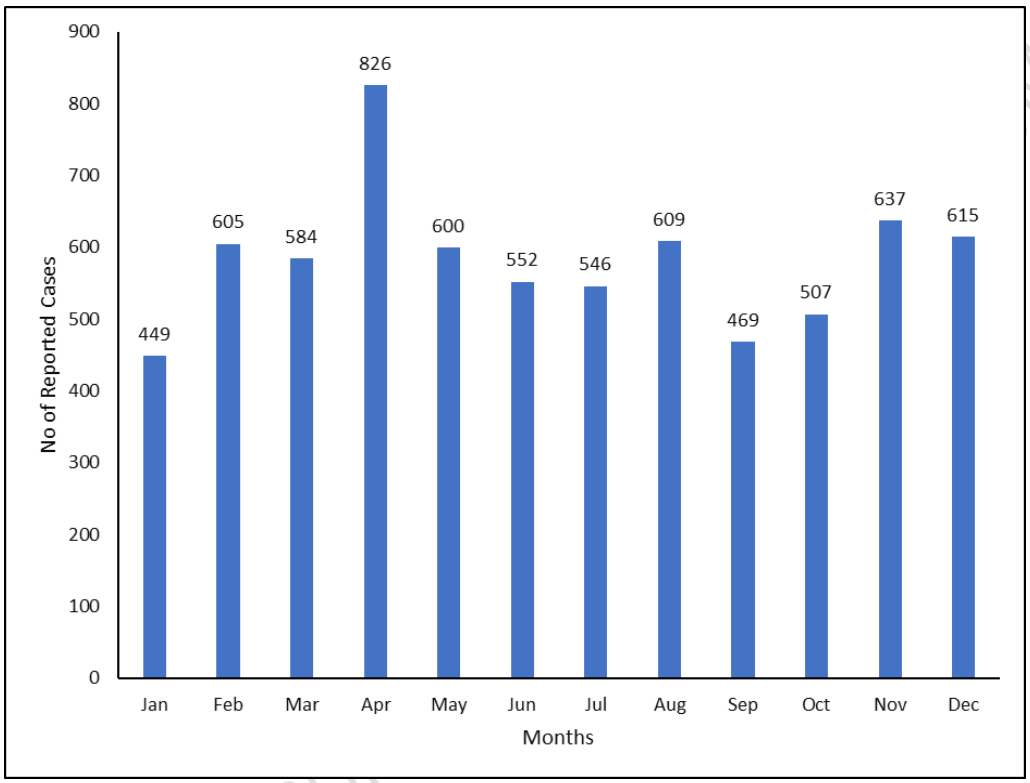

Figure 3: Monthly Crime Incidents in Ika South LGA across the Year

Table 2 presents month-to-month crime levels in Ika South and shows three clear inflection points that align with changes in public activity and environmental stress. Homicide increases from 42 in January to 71 in April, then rises again toward December with a peak of 83. Drug-related offences remain the highest category throughout the year, with a surge in March at 198 and sustained elevation across all months. Cult-related cases rise sharply in May at 187, while agricultural theft jumps to 163 in April. These shifts point to strong exposure effects during periods of crowding, reduced mobility and intensified social interaction. The concentration of offences in March, April and the last quarter signals seasonal tension linked to shifts in rainfall, humidity and work routines across agrarian and commercial zones in Ika South. Similar seasonal clusters appear in prior studies on Nigerian districts. Malleson and Andresen (2016) reported higher offence rates during months with rapid weather transitions. Charlton et al. (2022) observed strong crime variation during planting and harvest periods when labour pressure and movement increase.

Table 2: Monthly Records of Crimes in Ika-South Local Government Area

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Homicide	42	34	50	71	48	72	68	80	68	68	78	83
Assault	19	26	39	22	41	31	23	21	22	42	46	26
Rape	34	31	45	36	49	29	48	37	25	58	95	18
Robbery	23	21	34	11	23	26	24	34	23	23	26	26
Theft	12	103	17	54	12	13	14	17	12	12	20	22
Fraud	21	106	31	105	21	24	21	31	21	21	25	25
Embezzlement	19	22	12	32	13	15	54	33	12	4	22	84
Drug-related crime	135	124	198	151	136	154	139	195	133	135	155	155
Bribery and/or corruption	14	13	21	69	14	16	14	21	14	14	16	16
Smuggling of firearms	11	23	12	23	23	22	15	22	23	12	22	22
Agric theft/farm produce destruction	33	31	49	163	33	38	35	49	33	33	39	39
Cultism	86	71	76	89	187	112	91	69	83	85	93	99

Source: Nigeria Police Records (2024)

Figure 3 presents total crime counts in Ika South and shows a clear dominance of drug-related offences at 1810 cases, followed by cult activity at 1141 and Agricultural theft at 575. This pattern signals a crime structure driven by substance circulation, youth group mobilisation and pressure on agricultural output during periods of rainfall fluctuation. Homicide reaches 762, while rape records 505, which signals sustained interpersonal conflict during months with strong humidity shifts and limited supervision in dispersed settlements. Fraud at 452 and embezzlement at 322 reflect financial stress during planting and harvest cycles when household spending and informal credit rise across rural wards. Robbery and theft remain lower at 294 and 308, which suggests stronger community surveillance in trading zones. Bribery at 242 and firearm smuggling at 230 indicate persistent institutional gaps during months of heavy rainfall that disrupt movement monitoring. This distribution aligns with prior Nigerian studies. Afon and Badiora (2018) found strong links between agricultural seasons and theft in southern rural districts.

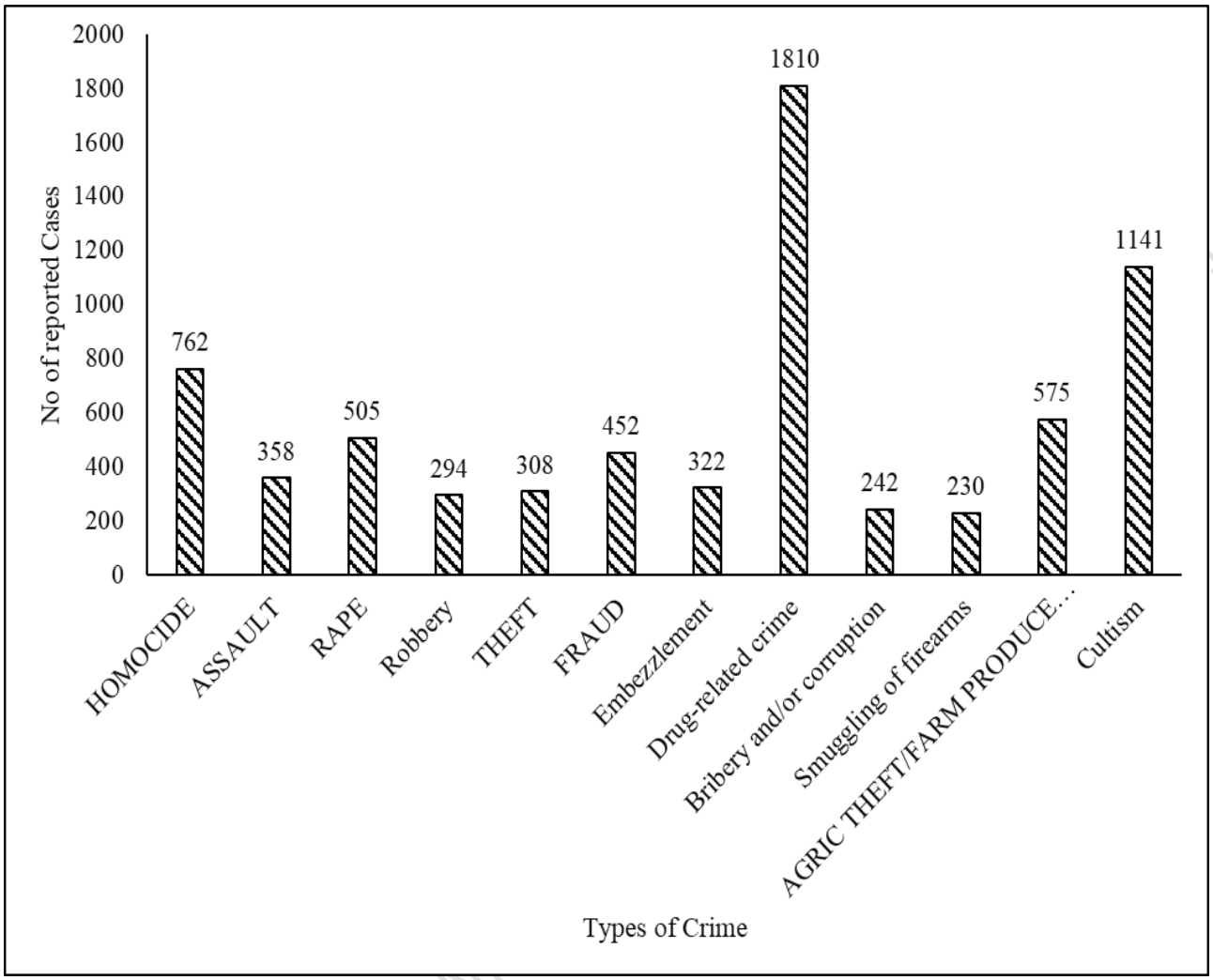

Figure 4: Reported Crime cases in Ika South Local Government Area

Table 3 reveals crime trends in Ika South Local Government Area based on 400 respondents. Notably, 37.4% perceived crime levels as stable, while 31.8% reported an increase and 28% a decrease, with 2.8% undecided. The balanced perceptions suggest no significant shift in criminal activity, possibly due to consistent enforcement or social patterns. The increase points to localized crime spikes, whereas the decrease may reflect effective interventions. Additionally, comparisons to Delta State studies highlight the influence of seasonal and environmental factors on crime, indicating a need for targeted policing and community engagement based on local conditions. Future research should examine the correlation between climate variables and crime types for actionable insights.

Table 3: Trends in Crime Occurrence in Ika South Local Government Area

Occurrence	Respondents	Percentage
Increased	127	31.8
Stayed the same Way	150	37.4
Decreased	112	28
Undecided	11	2.8
Total	**400**	**100**

Source: Field Survey (2024)

Table 4 presents respondents' experiences of victimization in their communities. Nearly half, 48.5 percent, reported being somewhat regularly victimized. A smaller segment, 28 percent, indicated regular victimization. Seldom and never experiences accounted for 7.4 percent and 9.7 percent respectively, while 6.4 percent were undecided. The data shows that most residents experience crime with some frequency, highlighting persistent exposure to criminal activity. The substantial proportion of respondents reporting somewhat regular victimization suggests that crime affects daily routines but may not reach extreme levels in all areas. Regular victimization affecting over a quarter of respondents indicates hotspots where interventions are needed. The low percentage of respondents reporting seldom or no victimization indicates limited areas with effective security measures or low population density. These results align with studies in Delta State showing that climate and environmental conditions, such as flooding or high temperatures, influence criminal opportunities and exposure (Ejemeyovwi, 2015). The data suggests that climatic conditions interacting with community layout and policing intensity affect victimization patterns. Graphical representation of Table 4 highlights that the majority face consistent exposure to crime, emphasizing the need for targeted community-based strategies that reduce risk and improve safety.

Table 4: Frequency of Victimization in Ika South Local Government Area

Frequency	Respondents	Percentage
Regularly	112	28
Somewhat Regular	194	48.5
Seldom	30	7.4
Never	39	9.7
Undecide	26	6.4
Total	**400**	**100**

Source: Field Survey (2024)

Table 5 presents respondents' perceptions of factors driving crime in Ika South Local Government Area. Unemployment accounted for 23.6 percent, followed by poverty at 21 percent. Weather or climatic conditions influenced 20.3 percent of responses. Lenient sentences, drug use, and lack of supervision of minors were reported by 15.1 percent, 14.6 percent, and 5.4 percent respectively. The data indicates that socioeconomic factors dominate perceptions of crime causation. High unemployment and poverty suggest that economic deprivation contributes to opportunities for criminal activity. The influence of weather reported by one fifth of respondents aligns with studies linking seasonal and climatic variations to crime patterns (Okeke, 2019). Extreme heat or rainfall may increase tensions, reduce surveillance, and create conditions favourable for theft or property crimes. The lower percentages for lenient sentences, drugs, and unsupervised minors indicate secondary factors that may exacerbate crime locally but are not primary drivers according to residents. Graphical analysis of Table 5 shows that economic deprivation and climate interact to shape criminal behaviour, suggesting that interventions targeting employment and social welfare could mitigate crime. These findings correspond with empirical studies in southern Nigeria, where unemployment and adverse environmental conditions consistently correlate with increases in theft, burglary, and petty crimes (Ajaegbu, 2012).

Table 5: Perceived Causes of Crime in Ika South Local Government Area

Causes	Respondents	Percentage
Weather/Climate	81	20.3
Lack of Supervision of Minors	22	5.4
Lenient Sentences	60	15.1
Drugs	58	14.6
Poverty	84	21.0
Unemployment	94	23.6
Total	**400**	**100**

Source: Field Survey (2024)

Table 6 presents zero-order Pearson correlations between rainfall, temperature, and multiple crime types. The results indicate complex and differentiated relationships. Homicide showed a moderate negative correlation with rainfall ($r = -0.551$, $p = 0.063$) and a weak positive correlation with temperature ($r = 0.295$, $p = 0.353$), suggesting rainfall may suppress violent incidents while temperature has limited direct effect. Theft and fraud exhibited positive correlations with rainfall ($r = 0.567$ and 0.560, $p \approx 0.05$), indicating that higher rainfall may create conditions favouring property crimes, possibly through reduced public vigilance or economic pressures. Most violent crimes, including assault, rape, and robbery, displayed weak and statistically insignificant correlations with both rainfall and temperature. Child and adult-targeted crimes showed minimal association, highlighting those environmental factors alone do not fully predict sensitive or socially regulated offenses. Embezzlement, bribery, drug-related crimes, smuggling, agricultural theft, and cultism also showed low correlations, reinforcing that structural and social factor exert stronger influence than short-term climatic variations. The correlation between rainfall and temperature was strong and negative ($r = -0.713$, $p = 0.009$), confirming the inverse seasonal relationship typical in Ika South, where rainy periods coincide with lower temperatures. This pattern suggests that observed climate-crime links may be seasonally moderated rather than uniformly linear. These findings partially align with prior studies showing that rainfall influences property-related crimes and that temperature affects aggressive behaviours (Afon & Badiora, 2018). Interventions should combine environmental awareness with targeted social and policing strategies to address vulnerability periods rather than treating climatic factors as primary drivers.

Table 6: Correlation between temperature, Rainfall and crime types in the study area

Correlations			
Control Variables		Rainfall	Temperature
Homicide	Correlation	-0.551	0.295
	Significance (2-tailed)	0.063	0.353
	df	10	10
Assault	Correlation	0.256	0.013
	Significance (2-tailed)	0.421	0.967
	df	10	10
Rape	Correlation	0.040	-0.013
	Significance (2-tailed)	0.901	0.968
	df	10	10
Robbery	Correlation	-0.221	-0.028
	Significance (2-tailed)	0.489	0.931
	df	10	10
Theft	Correlation	0.567	-0.395
	Significance (2-tailed)	0.055	0.204
	df	10	10

Fraud	Correlation	0.560	-0.290
	Significance (2-tailed)	0.058	0.361
	df	10	10
Embezzlement	Correlation	-0.097	-0.256
	Significance (2-tailed)	0.764	0.423
	df	10	10
Drug related crime	Correlation	0.283	-0.017
	Significance (2-tailed)	0.373	0.957
	df	10	10
Bribery and/or corruption	Correlation	0.283	-0.019
	Significance (2-tailed)	0.372	0.953
	df	10	10
Smuggling of firearms	Correlation	-0.041	0.074
	Significance (2-tailed)	0.899	0.818
	df	10	10
Agric theft farm produce	Correlation	0.280	-0.019
destruction	Significance (2-tailed)	0.377	0.953
	df	10	10
Cultism	Correlation	0.001	0.227
	Significance (2-tailed)	0.997	0.478
	df	10	10
Rainfall	Correlation	1.000	-0.713
	Significance (2-tailed)		0.009
	df	0	10
Temperature	Correlation	-0.713	1.000
	Significance (2-tailed)	0.009	
	df	10	0

a. Cells contain zero-order (Pearson) correlations

Source: SPSS Computation

The findings reveal a seasonal link between climate variations and crime rates in Ika South. Increased rainfall from April to July limits outdoor activities, resulting in fewer property crimes, consistent with prior studies. Conversely, drier months see higher movement and elevated interpersonal conflict, aligning with spikes in crime incidents, particularly in April. Crime stabilizes during peak rainfall but rises again from September to December, with notable increases in drug-related crimes and agricultural thefts. Public perceptions focus on stability in crime trends, yet acknowledge localized rises linked to unemployment and poverty. Correlations indicate moderate relationships between rainfall and homicide, while temperature shows weaker ties to violent crime, supporting the notion that climatic conditions influence mobility and crime dynamics, driven by socioeconomic factors. This evidence advocates for interventions tailored to climatic transition periods.

5. Conclusion

The study shows a clear link between climatic shifts and crime patterns in Ika South. Rainfall peaks reduce movement and suppress several offence types, while dry months intensify mobility, interpersonal contact and crime exposure. Drug offences, cult activity and agricultural theft dominate the annual profile, shaped by seasonal labour pressure and shifting routines. Perceptions from residents confirm strong influence of unemployment, poverty and climatic stress on daily security conditions. Correlation results affirm a seasonal structure where rainfall and temperature move in opposite directions and shape opportunities for crime. These findings strengthen Crime Pattern Theory by demonstrating how routine activities respond to environmental stress in a localised agrarian setting. The evidence supports targeted

policing during transition months when movement patterns shift quickly. Security agencies should adjust patrol routes during peak rainfall to cover isolated spaces and increase surveillance in market corridors during dry months. Planning units should integrate rainfall projections into crime prevention strategies and prepare interventions in labour intensive periods linked with agricultural theft and youth group mobilisation. Local authorities should partner with community groups to monitor flood prone zones where reduced guardianship heightens exposure. These actions align with the temporal structure identified in the study and support sustained crime reduction across Ika South.

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