

**SPATIAL DISTRIBUTION OF CRIMINAL ACTIVITIES IN
OWERRI, IMO STATE, NIGERIA**

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ABSTRACT: Crime can be seen to mean a list of specific forms of human conduct which has been outlawed by political and constituted authorities. The study centered on the spatial distribution of criminal activities in Owerri, Imo state, Nigeria. This it does with the specific aim of analyzing how crimes and criminal activities are spatially distributed within the three local government areas that constituted Owerri. The objectives of the study include among others; to investigate the categories of Criminal activities in Owerri in 2014 – 2015; examine the crime occurrence in the study area in 2014 – 2015; Produce the crime statistics map of the study area in 2014 – 2015 using Geographic Information System. Secondary data were generally used in the study. The major secondary data for this study was generated from Area Command, Owerri, Imo State. Data generated were presented and analyzed using frequency tables and percentages. Choropleth map was used to present the data produced on the crime statistic map of the study area. One hypothesis was tested at 95 percent (0.05) confidence interval. The hypothesis which seeks to investigate if there is a significant variation in the spatial distribution of criminal activities in Owerri was tested using One Way Analysis of Variance (ANOVA). The hypothesis shows that criminal activities in the study area were not spatially distributed. The result shows that armed robbery is the greatest criminal activities in Owerri north and Owerri west, while cult activities cuts across the three Local Government Areas, but was observed more in Owerri Municipal Council. The result also shows that the least criminal activities in Owerri are rape and murder. The study recommends among others that security should be beefed up in the area especially around the places with higher institutions, local and neighborhood securities should be formed to enhance securities, youths should be provided with employments, serious punishment should meted on those convicted of crimes, so as to serve as a deterrent to those wanting to go into crime, and higher institutions in Owerri should be more proactive against cult activities in their various institutions

Keywords: Crime, Criminal Activity, Imo state, Owerri

Introduction

Crime and criminal activities in Owerri has been a major problem faced by the inhabitants of the area since the area was made the administrative capital of Imo state in 1976. Crime is the neglect or infraction of both basic principles of law and order and the norms of civilized behaviour. People in different walks of life define crime or understand crime differently based on their moral and socio-cultural background. It is an unlawful act punishable by a state or other authority (Oxford English Dictionary, 2009). In other words, Lindsay (2008)

was of the view that something is a crime, if declared as such by relevant and applicable law. Emeh 2011) opined that some of these definitions of crime is understood to be; an illegal act of foolishness for which one can be punished by the government; an activity that is against the law or illegal acts in general; an act of foolishness or wrong; a grave offence against morality; and an action that is deemed injurious to the public welfare and is legally prohibited

According to Opara and Nkwocha (2011), in their work on criminology and victimology, crime and criminal activities are “list of specific forms of human conduct which has been outlawed by political authorities” The general perception here is that crime is an act that is forbidden or the omission of duty that is commanded by public law, making the offender or criminal liable to punishment by law. No society is immune to this problem but what differs is the frequency and magnitude of the situation and the response mechanisms to address it.

As a part of the human community, Nigeria is currently caught in the web of crime dilemma which is manifesting in both violent crimes. The most alarming and terrifying is the present escalation of violent crimes and the way perpetrators unleash mayhem on the innocent citizens of the country. Notably, on this regard are the increasing incidents of armed robbery, ransom driven kidnapping, assassination, internet fraud and other criminal acts ravaging the society. Owerri in Imo state is also experiencing this dilemma of criminal activities. There is therefore the need to look into the spatial distribution and differentiation of criminal activities in the study Area. This study is set out to do an analysis of criminal activities in Owerri, Imo State with the aid of GIS (Geographic Information system).

In Owerri of Imo State, lack of basic amenities, unemployment and needs has caused an escalation in crime rate. Citizens of the city have divulged into illegal activities to survive and provide their needs. Certain areas in the city are more prone to these criminal activities due to harsher economic circumstances. This has called for the need of an analysis of areas of criminal occurrences in order to gain a better understanding of criminal activities and its root causes. The analysis of criminal activities using GIS (crime mapping) is what this research is set to achieve. This will enable the public and policy makers to know various locations in the study area that is vulnerable to different criminal activities.

This research aim is to analyze the spatial distribution of criminal activities in Owerri using Geographic Information System. The following specific objectives were used as a guide;

- a. To investigate the categories of Criminal activities in Owerri in 2014 - 2015.
- b. To examine the crime occurrence in the study area in 2014 - 2015
- c. To produce the crime statistics map of the study area in 2014 – 2015 using Geographic Information System

The Study Area

Location and Size: Owerri is the capital city of Imo State and lies in the heart of Igbo land in South Eastern Nigeria. It is almost at the centre to major towns and state capitals in the

south eastern part of Nigeria, like Port Hacourt, Umuahia, Aba Onitsha, Enugu etc. Owerri consists of three (3) local government areas: Owerri Municipal, Owerri North and Owerri West. It lies between latitude $6.89^{\circ}\text{N} - 7.16^{\circ}\text{N}$ and Longitude 5.29°E and 5.50°E (figure 1). It has an estimated population of about 401,813 as of 2016 (NPC, 2016) and is approximately over 500km sq in area according to Federal office of statistics.

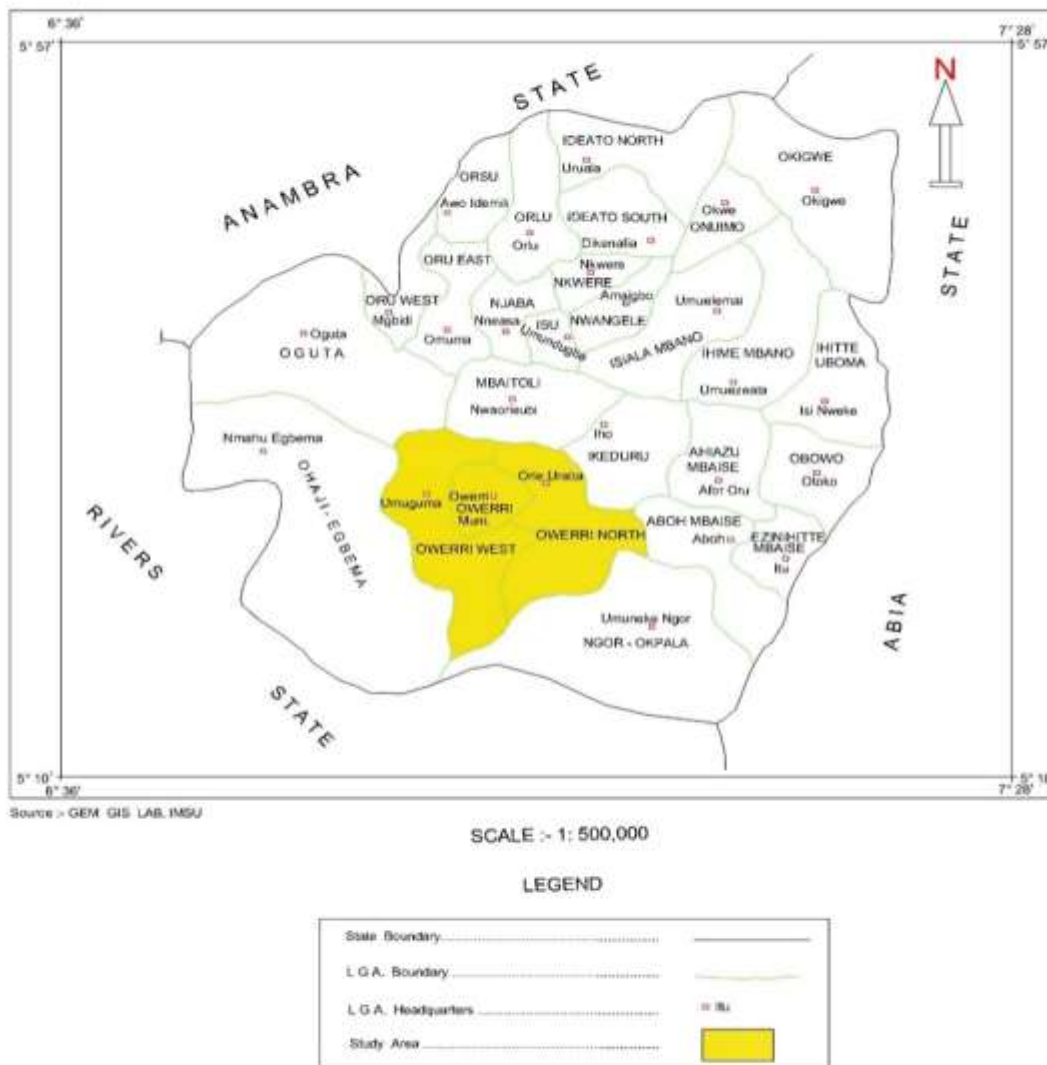


Fig. 1. MAP OF IMO STATE SHOWING THE STUDY AREA.

Economic Activities and Educational Institutions: Owerri is purely and administrate state capital with very few industries and companies. Civil servants make up the greater percentage of the population of the area. It is currently pride as the entertainment capital of Nigeria because of its high density of hotels, high street casinos, production studios and high quality centres of relaxation. These industries attract a lot of tourists and travellers who come for relaxation, recreation and tourism. Owerri has an airport 23 kilometres (14mi) south East of the city, called the Sam Mbakwe international cargo airport, located in Obiangwu, Ngor Okpala L.G.A. The Airport provides flight services to Abuja, Port Harcourt, Lagos and Enugu. It is also an international cargo Airport and is a source of huge revenue to the government.

The area houses more than six institution of higher learning, owned by both the Federal and State governments. Notable among them are the Federal University of Technology, Imo State University, Federal Polytechnics Nekede, Alvan Ikoku Fedeal College of Education, and some Schools of Nursing and Health Sciences. These and other factors may be ascribed to relatively high crime rate in the area.

Literature Review and Theoretical Framework

Place therefore plays a vital role in understanding and tackling crime. Elizabeth (2003) proposed crime or offence (criminal offence) as an act harmful not only to some individuals but also to a community, society or state. Crime has an inherent geographical quality. when crime occurs, it happens at a place with a geographical location. For someone to have committed a crime, they must have also come from a place (such as their work, home or school). This place could be the same location where the crime was perpetrated (Brantingham 2011, Rosmo, 2000; Wiles & Cosetalla, 2000).

Crime mapping is used by analysts in law enforcement agencies, from the first stage of data collection through to the monitoring and evaluation of targeted response. It can also act as a mechanism in a more pivotal preliminary stage, that of preventing crime by helping in the design of initiatives that are used to solve crime issues. In recent years, crime mapping and analysis has incorporated spatial data analysis techniques that adds statistical rigor and address inherent limitations of spatial data, including spatial auto-co-relation and spatial heterogeneity. Spatial data analysis helps one to analyze crime data better by understanding where and why the crime is occurring (Spencer, 2011).

So many theories on crime have been proposed. Among them is the crime pattern theory. Crime pattern theory proposed by Brangtingham 2011 is a way of explaining why crimes are committed in certain areas. It believes that crime is not random, it is either planned or opportunistic.

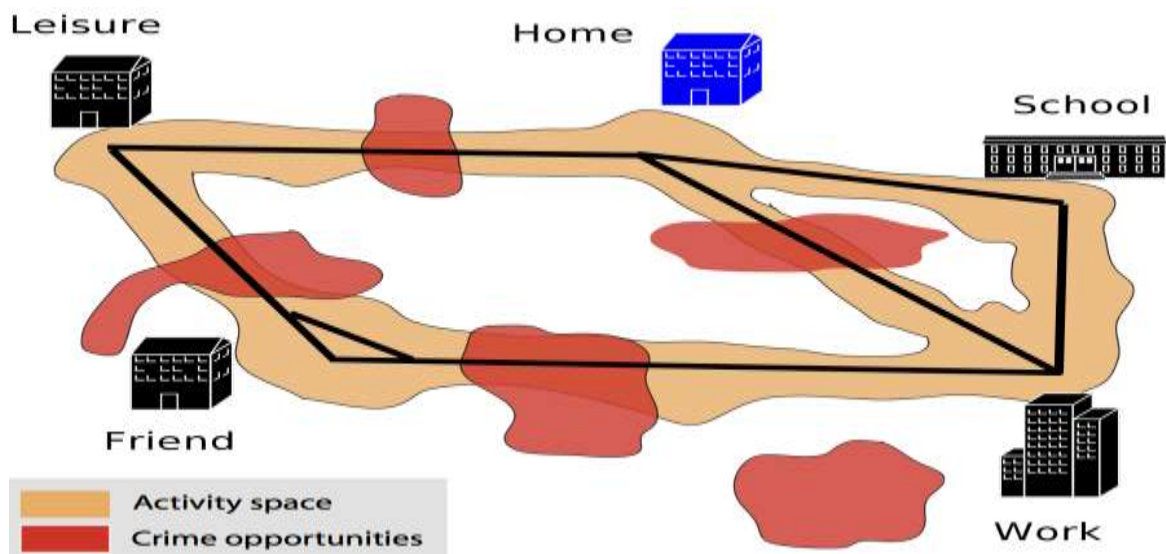


Figure 2: Crime Pattern Theory (Bangtingham, 2011)

According to the theory, crime happens when the activity space of an offender (a person's activity consists of everyday life, locations like school, home, shopping areas, entertainment areas etc., nodes, and personal path connects with various nodes to create a perimeter (figure 2). This perimeter is a Person's awareness space. Crime theory claims that crime will occur if an area provides opportunity for crime and it exists within an offender's awareness space. Therefore crime theory provides analysts with an organized way to explore patterns of criminal behaviour. Consequently, an area that provides shopping centres, restaurants, and recreation has a higher rate of crime. This aids in finding out why crime exists in certain areas, and where crime could occur. There is also the case of Distance Decay Differences when applied to crime. The distances decay difference states that; inquisitive criminal behaviour may be more frequent over shorter distances; organized and planned criminal behaviour may travel further distances to complete tasks.

Methodology

Data used in this research are grouped into two. They are primary and secondary data. Data acquisition and sources involved the following: data needs assessment, collection, preparation analysis and visualization (components of GIS) secondary data with spatial and non-spatial attribute were utilized. The primary data was generated basically from interview conducted on some residents of the study area. The secondary data acquired is the crime statistics of Owerri covering the three local governments (Owerri west, Owerri North and Owerri Municipal) from the year 2014-2015. This data is comprised of crime incidents and area of occurrence and was sourced from the administrator's office in Area Command Owerri. Data collected were presented using frequency tables and simple bar chart. Analysis of the data was done using percentages and One Way Analysis of Variance was used to test the working hypothesis. The software that was used for this research is AutoCAD 2007.

The population of study is focused on the three local governments in Owerri, which includes Owerri West, Owerri North and Owerri Municipal. The population statistics of the three local governments in Owerri is presented in Table 1

Table 1: Population and Area of the Study Area

Study Area	Population		Area (km ²)
	2006 *	2019 **	
Owerri Municipal	127,213	192,092	58
Owerri West	99,265	149,890	295
Owerri North	175,395	246,847	198
Total	401,873	588,829	551

Source: * NPC, 2006; ** Projected (3.2% growth rate)

Data presentation and Analysis was done using choropleth color map. This map shows the variation in quantitative data among enumeration units in the study area. Bar charts were also utilized in data presentation, while one way Analysis of Variance was used in data analysis.

Discussion of Findings

Categories of Criminal Activities in Owerri Imo State in 2014 – 2015

The information presented in Table 3 shows the categories of Criminal Activities observed in the Study area in 2014, while criminal activities in 2015 is presented in Table 2 and 3

Table 2: Categories of Criminal Activities in Owerri in 2014

Category of Crime	Owerri West		Owerri North		Owerri Municipal	
	Date	Area of Occurrence	Date	Area of Occurrence	Date	Area of Occurrence
Armed Robbery	20/01/2014	Umudibia	14/7/2014	Emii	28/4/2014	World bank estate
	24/01/2014	Nekede				
	27/3/2014	Umuokoro				
	12/04/2014	Eziobodo				
	12/08/2014	Umudibia				
	25/09/2014	Nekede				
		Holy Trinity road				
	Area M world Bank					
	Area H/ World bank					
Stolen vehicle	28/20/2014	Umuezim Nekede	-	-	-	-

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Burglary	25/7/2014 09/2/2014	Methodist Junction Jeff lodge eziobodo	18/2/2014	MCC amawire uratta	-	-
Murder	-	-	27/4/2014	Toronto/Uwalla	-	-
Rape	06/01/2014	Riverside hotel	28/5/2014	Umuokor nekede	28/5/2014	Owerri girls secondary school
Cult activities	03/04/2014	Ihiagwa	6/7 2014	Emii	Nov/17/2014 Nov/18/2014 Nov/38/2014	Aladinma Imsu backgate Aladinma Imsu backgate Aladinma Imsu backgate

Source: Area Command, Owerri, 2016

Table 3: Categories of Criminal Activities in Owerri in 2015

Category of Crime	Owerri West		Owerri North		Owerri Municipal	
	Date	Area of Occurrence	Date	Area of Occurrence	Date	Area of Occurrence
Armed Robbery	-	-	14/11/2015 18/12/2015 01/11/2015 20/5/2015 04/09/2015 11/11/2015 29/12/2015 31/12/2015	Umuawaka Emii Umuezi, Uratta Egbu/Uratta road Ulakwo Junction Egbu/Uratta road Isiuzo egbu Ezeogba egbu Amizi awaka	5/8/2015 3/4/2015 17/8/2015	No1 amaigbo street Mbaise road, douglas House of assembly new Owerri
Stolen vehicle	23/3/2015	Olakwa	02/02/2015 22/04/2015 23/09/2015 22/3/2015 09/31/2015 31/02/2015	Ofuzo egbu Ihite ogada Emeke agabla Ulakwo Emeoha,emii Afor egbu	-	-
Burglary	-	-			14/3/2015 18/5/2015 19/11/2015	Douglas road Owerri Onitsha road Owerri Rotimi street Owerri

Murder	27/4/2014	Toronto/ Uwalla			17/12/2015	Nworie lane Owerri
Rape	-	-				
Cult activities	03/4/2015	Ihiagwa			Oct 29 th , 2015 Nov 14 th , 2015 16 th July 2015	Aladinma, Owerri Aladinma, Backgate Owerri Aladinma.

Source: Area Command, Owerri, 2016

Analysis of the information gathered on the categories of criminal activities presented in Table 2 and 3 depicts that there are six major categories of criminal activities recorded in Owerri in 2014 and 2015. These criminal activities vary both in intensity and occurrence from one local government to another. The information showed that there is a drastic reduction in armed activities in Owerri west between 2014 and 2015, while there is a rapid increase of the same crime in both Owerri West and Owerri Municipal from 2014 to 2015. The reduction in occurrence might be as a result of security measures adopted in Owerri West which have not been implemented in Owerri Municipal and Owerri North, hence forcing armed robbers to migrate from Owerri West to the other two local governments in Owerri.

Another criminal activity which is common in the study area is cult and related activities. This crime is common in two local government areas i.e. Owerri West and Owerri Municipal and conspicuously absent in Owerri North Local Government area. One striking feature of this crime is that they share similarity in location and activities around their area of occurrence. This crime is common around Ihiagwa, Aladinma, Imo State University back gate and front gate. These areas are places where two major higher institutions; Imo State University and Federal University of Technology are situated in Owerri. It can there be deduced that there is a positive correlation between higher institutions and cult activities in the study area. The information from the Tables also showed that while occurrence in Owerri West remains unchanged, there is a reduction in cult activities in Owerri Municipal between 2014 and 2015. Stolen vehicle is another criminal activity in the study area whose incidence is on the rise from 2014 – 2015 and this rise in the incidence is experienced in Owerri north. While there was no incidence of the crime in Owerri North in 2014, there was a recorded incidence of the crime in 2015 to the tune of six cases. Other categories of crime with dates and places of occurrence in 2014 and 2015 is seen in Table 3 and 4.

Crime Occurrence in the Study Area in 2014 – 2015

It was observed and recorded in various literature that no society and environment in the world is free from crime. The information on the number of times various crimes occurred in the study area from 2014 and 2015 is presented in Table 4

Table 4: Crime Occurrence in Owerri, Imo State 2014 - 2015

Crime	2014		2015	
	No. of Occurrence	Percentage Occurrence	No. of Occurrence	Percentage Occurrence
Armed Robbery	9	39.1	11	44
Stolen vehicle	1	4.4	5	20
Burglary	3	13.0	3	12
Murder	1	4.4	2	8
Rape	3	13.0	0	0
Cult activities	6	26.1	4	16
Total	23	100	25	100

Source: Area Command, Owerri, 2016

The information on crime occurrence in Owerri in 2014 and 2015 showed that while there is reduction in some criminal activities in the area, there are some crimes in the area that are on the increase within the same period. Analysis of the information shows that the highest criminal activity experienced in the area within the two year period is armed robbery. This crime accounts for 31.9 percent and 44 percent of crime committed in the study area in 2014 and 2015 respectively. It was also observed that this crime is on the rise in the area because there was an increase in the incidence from 9 in 2014 to 11 in 2015. Another serious crime Owerri though there is a slight decline in occurrence from 2014 to 2015 is cult activities. This crime accounts for 26.1 percent of the criminal activities committed in 2014 and 16 percent of crimes committed in Owerri in 2015. It was also observed that there was a decline in the incidence from 6 in 2014 to 4 in 2015. Another crime that showed a rapid upward trend in the area is stolen vehicle. In 2014, only 1 incidence was recorded while 5 was recorded in 2015. This criminal activity accounts for 4.4 percent of crimes committed in 2014 and 20 percent of crimes committed in 2015.

Information obtained through interview on both residents and some police officers showed that there is every tendency that the data presented in Table 4 might be lower than the actual crime occurrence in the study area. This is because it was gathered that some of the crime committed within the period might not be reported. Other cases of crime occurrence in Owerri in 2014 and 2015 can be seen in Table 4.

Graphically the data on crime occurrence in Owerri in 2014 and 2015 is presented in figures 2 and 3

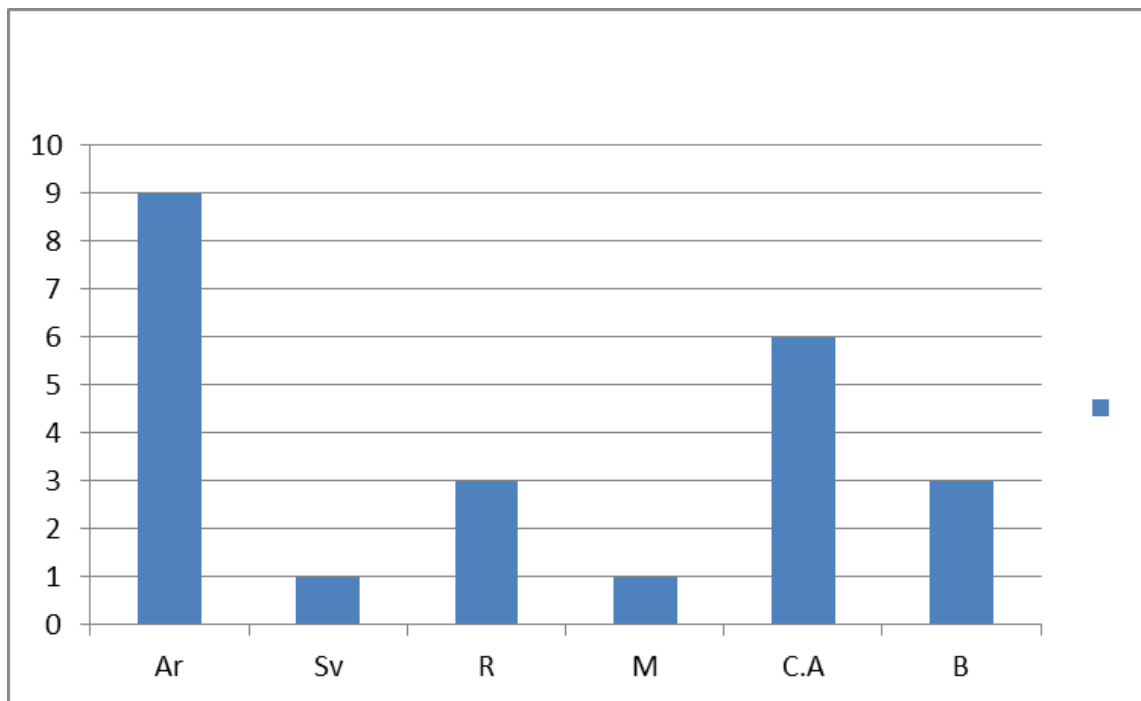


Figure 3: Crime Occurrence in Owerri in 2014

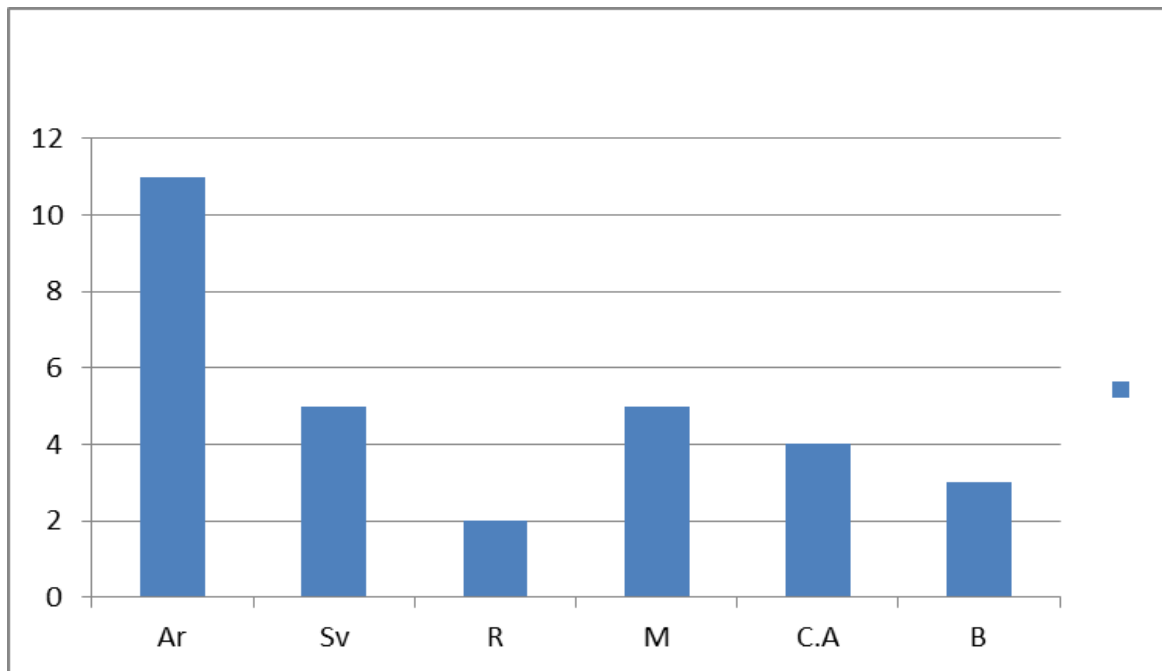


Figure 4: Crime Occurrence in Owerri in 2014

Note: Ar = Armed Robbery; Sv = Stolen Vehicle; R = Rape; M = Murder; CA = Cult Activities; B = Burglary.

Crime Statistics Map of the Study Area in 2014 – 2015 using Geographic Information System

The crime statistics map which indicates the location and density of crime occurrence in the study area is presented in Figure 4

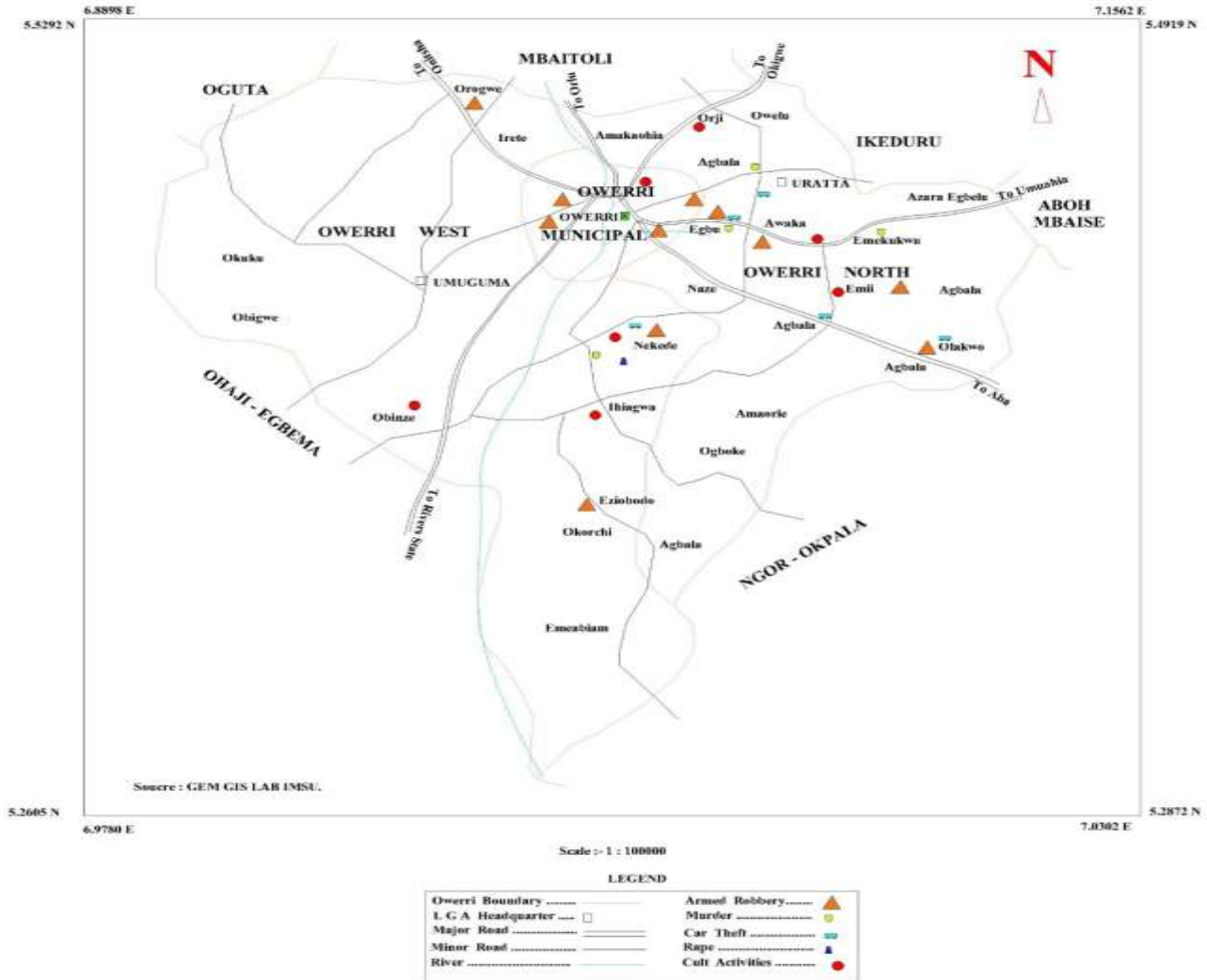


Fig. 2. OWERRI SHOWING SPATIAL DISTRIBUTION OF CRIMINAL ACTIVITIES.

Local Governments	Criminal Activities						Total
	Armed Robbery	Stolen Vehicle	Rape	Murder	Cult Activities	Burglary	
Owerri West	6	2	1	1	2	2	14
Owerri North	8	6	1	1	1	1	18
Owerri Municipal	4	0	1	1	6	3	15
Total	18	8	3	3	9	6	47

Analysis of the information in Table 5 showed that a total of 47 crime occurrences were recorded in Owerri in 2014 and 2015. The crime that recorded the highest rate of occurrence was armed robbery, while rape recorded the least. The local government area in Owerri with the highest rate of crime occurrence was Owerri North while Owerri West recorded the least rate of Crime occurrence in 2014 - 2015

The information in Table 5 was subjected One way Analysis of Variance (ANOVA) analytical technique and the result obtained is presented in Table 6

Table 6: ANOVA Table

Source of variation	Sum of Squares	Degree of freedom	Variance Estimate	F- Critical (0.05)	F- Ratio
Between Sample	51.6	5	10.3	3.11	3.96
Within Sample	31.7	12	2.6		
Total	83.3	17			

$F - \text{Ratio} = \text{Greater Variance Estimate} / \text{Lesser Variance Estimate}$

$F - \text{Ratio} = 10.3/2.6 = 3.96$

$F (0.05)_{5/12} = 3.11$

Decision: Since the calculated F-Ratio is greater than the Critical value of F at 3/12 degree of freedom, the null hypothesis is rejected and it is affirmed that there is significant variation in the distribution of criminal activities in Owerri.

Conclusion and Recommendation

The study shows that criminal activities can be analyzed, solved and even predicted with the aid of crime mapping (GIS). It shows the areas in which crime occur spatially in each community in Owerri. This is to aid such communities develop schemes and programmers to protect themselves from crime reoccurring. It was also revealed that crime rate in Owerri

is high. This can be attributed but not limited to presence of higher institutions and many hotels in the area, given the type and nature of crimes found in the area. While some criminal activities is on the decline, others are on the rise. This study observed and confirmed a serious increase in criminal activities in the two year period due to the destabilization of the Nigerian economy.

A suggestion can however be applied to decrease the growth of crime in Owerri. The recommendations suggested include:

- The provision of social amenities and infrastructure to people to make their life easier.
- Creating employment opportunities for unemployed citizens to reduce the tendency of relying on crime.
- Improving leadership conditions to avoid political unrest which leads to crime.
- Employing the use of GIS and crime mapping in monitoring and solving crime efficiently.
- Higher institutions and communities in the study area should step up efforts to alleviate cult activities in their various institutions
- Neighborhood and local security outfits should be formed in various communities of the study area to assist police and other law enforcement agencies in crime combat.

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