OSUN GEOGRAPHICAL REVIEW

Journal of the Department of Geography,
Osun State University, State of Osun, Nigeria

Volume 5, 2022

ISSN: 2695 - 1959

Editor-in-Chief
Prof. Olusegun Ekanade

Published by the
Department of Geography, Osun State University,
State of Osun, Nigeria

EDITORIAL BOARD

CONTENTS

OSUN GEOGRAPHICAL REVIEW
Published by the Department of Geography, Osun State University, State of Osun, Nigeria
ISSN: 2695 - 1959 Volume 5, 2022; 53 - 62

RESIDENTS' PERCEPTION OF CRIME IN OSOGBO, OSUN STATE, NIGERIA

M.B. Gasu and A.O. Ezekiel
Department of Urban and Regional Planning, Osun State University, Osogbo
*Corresponding author: *gasumart@yahoo.com.*

Abstract
The study assesses the spatial perception of crime and Nearness Neighbourhood Analysis (NNA) of police stations within the different residential zones in Osogbo with a view to suggesting measures to mitigate the crime rate in the city. The 27 political wards in Osogbo were classified into three zones: the traditional zone, the intermediate zone, and the peripheral zone, from which three political wards were selected from each zone through balloting, making a total of 9 political wards. Based on a 0.01 per cent sample size, 209 questionnaires were administered across the nine political wards using a simple random sampling technique. The Likert Scale was employed to measure the perception of crime across the different residential zones. Data from Global Positioning System (GPS) locations of police stations were collected for Nearness Neighbourhood Index (NNI). Data analysis made use of descriptive and inferential statistics. The study revealed that property crimes were most prevalent within the traditional zone, with a mean score of 1.75 compared to 1.40 and 1.32 for intermediate and peripheral zones respectively. The result of the NNA analysis revealed a NNI ratio of 269.28, and the mean distance from each police station to the nearest community as 1229.08 meters which shows it is dispersed. The result of the ANOVA at 1.14E-94 revealed that there is no significant difference in the spatial variation of crime amongst the different residential zones. This implies that the people living within the three residential zones, especially the traditional zone, should be more security conscious by establishing cordial relationships and communication with the security agencies to protect lives and properties for effective urban crime management.

Keywords: Spatial Variation of Crime, Residential zones, Crimes rate of occurrence (CRO), Urban crime management and control.

Introduction

Crime has been studied from different perspectives because it involves various social, psychological, and geographical aspects. Various sciences have contributed to identifying and comprehending the factors involved in a criminal event. Aside from the events, multiple studies have examined their social impact (Foster, Knuiman, Wood & Giles-Corti, 2013). One of the most pressing social concerns is the possibility of becoming a victim. Fear of crime is an emotional response, and crime perception is a cognitive assessment of the primary causes of insecurity (Foster, Knuiman, Wood & Giles-Corti, 2013). Understanding the nature of crime in a particular area is one of the most challenging tasks for law enforcement agencies.

There are several ways by which the level of crime can be measured, such as the number of crimes committed, the frequency of criminals' activities and other characteristics associated with crime (Nokhbeh et al., 2017). Crime perception is the amount of criminal activity in a location or the risk of victimisation. The perception of crime risk and fear of crime are both associated with worry and uncertainty; the difference is in the timing of the response. Fear of crime is an emotion exhibited as an immediate reaction to an immediate threat, whereas perception of crime risk is influenced by "distant potential harm" (Jackson & Gouseti, 2014). There is evidence that people's perceptions of crime are not always consistent with actual incident statistics, resulting in an underestimation or overestimation of

safety (Velazquez, 2019). Misperceptions of crime can impact people's lifestyles, social behaviour, and spatial and economic dynamics. As a result, it is essential for law enforcement agencies to devise strategies to bridge this perception gap. Indeed, the perception of crime in a residential area differs from research-based facts on its actual nature. Against the backdrop of all these, this study was conceived to study the residents' perception of crime within the different residential zones in Osogbo to provide a better response for crime management within the residential zones.

Conceptual Underpinnings

Crime problems and other related issues are driven by a series of factors: poverty, inequality, the rate of urbanisation, political transitions, urban density, population growth and poor urban planning, design and management (UNODC, 2011). Kumar (2013) also worked on crime and economic growth, using India as a case study and was able to establish the influence of crime on the economy by using state-level data. The relationship between crime and economic growth was analysed through bivariate and multivariate methods. It was established that a negative and statistically significant relationship exists between violent crimes and growth rate per capita income. The findings deduced that intentional homicide rates affect the per capita income and its growth rate in Indian states, while the robbery rates affect only the growth rate (Kumar, 2013).

Olajide and Mohd (2016) worked on the impact of residential neighbourhood crime on housing investment using a logistic regression model, thereby establishing that the impact of criminal activities has a resultant effect on property value. This literature demonstrated that different measures should be implemented to boost and encourage housing investment to combat residential neighbourhood crime. Also, from this literature, it can be deduced that residential neighbourhood crime affects not only the housing investment within the neighbourhood but also the economic viability of the neighbourhood. Pokhariyal and Munthuri (2003) studied the strategic methods to curb crime rates in Nairobi. The research looks into crime trends for seven years and compares the crime rate with other factors such as aid, financial flow, and average annual growth across different sectors of the economy for seven (7) years. From their findings, it could be noted that criminal activities occur within the legal system created to fight against it, thereby providing measures through which effective measures to curb crime rates can be curtailed. The literature reviewed does not only addresses the sources and reasons for which crimes occur, as some other researchers have been able to provide the necessary measures and ways to which crime could be curtailed. However, the prevalence of crime in the different residential zones were not stated in the reviewed studies. According to Ojo (2014), Osogbo is one of the safest cities with deficient crime records compared to other cities in Nigeria. However, the statement does not neglect that crime exists in Osogbo.

The crime that exists in Osogbo includes violent crimes as well as property crimes. According to a police report in March 2019, two suspects were arrested for the robbery and killing of a rice dealer in Osogbo (Pulse. ng, 2019). Also, in June 2019, 13 suspects were nabbed over a cult rival clash in Osogbo, which resulted in avenging their member's death (Omokaro, 2019). In October 2019, two suspected serial killers were arrested for killing and fraudulent acts by the Nigerian Police Force in the city. This is to show that there are several criminal occurrences in Osogbo.

It can be noted from the general view that the dimensions of crime well studied can provide a way for effective crime management. Planners, as the environment's custodians, play a vital role in achieving a safe environment that reduces the rate at which crime occurs through environmental design. Against the backdrop of all these, this study was conceived to study the spatial dimensions of crime within the different residential zones in Osogbo to provide a better response for urban crime management within the residential zones.

The Study Area

Osogbo is the capital city of Osun State, Nigeria. Osogbo, the capital city of Osun state is located between longitude 7º 46'N and 7º76'07" N and between latitudes 4º34'E and 4º56'E and has an altitudinal height of 320m (1050ft) above the sea level (Figure 1). The city has a population of 235,981 as of the population census done in 2006 and is projected to reach 714,000 in 2019. Osogbo city has two different local governments: Osogbo Local Government, which is situated in the Oke-Baale area, and Olorunda Local Government, which is located in the Igbonna area. Osogbo, over the years, has expanded gradually into a third local government area, i.e. Egbedore Local Government.

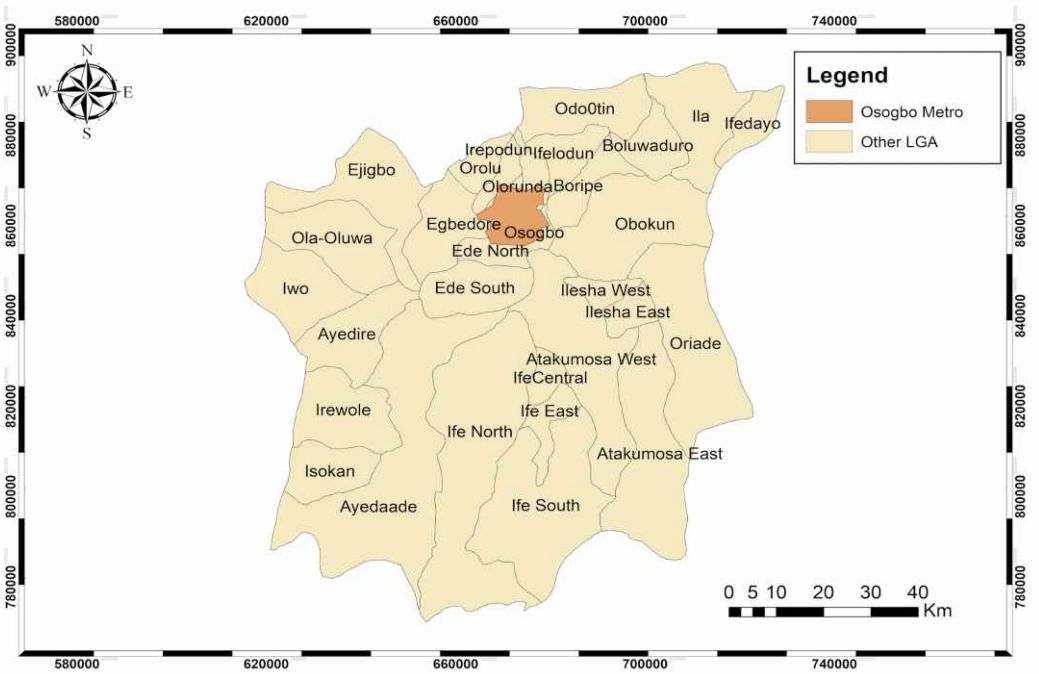


Figure 1: Map of Osogbo within Osun State, Nigeria

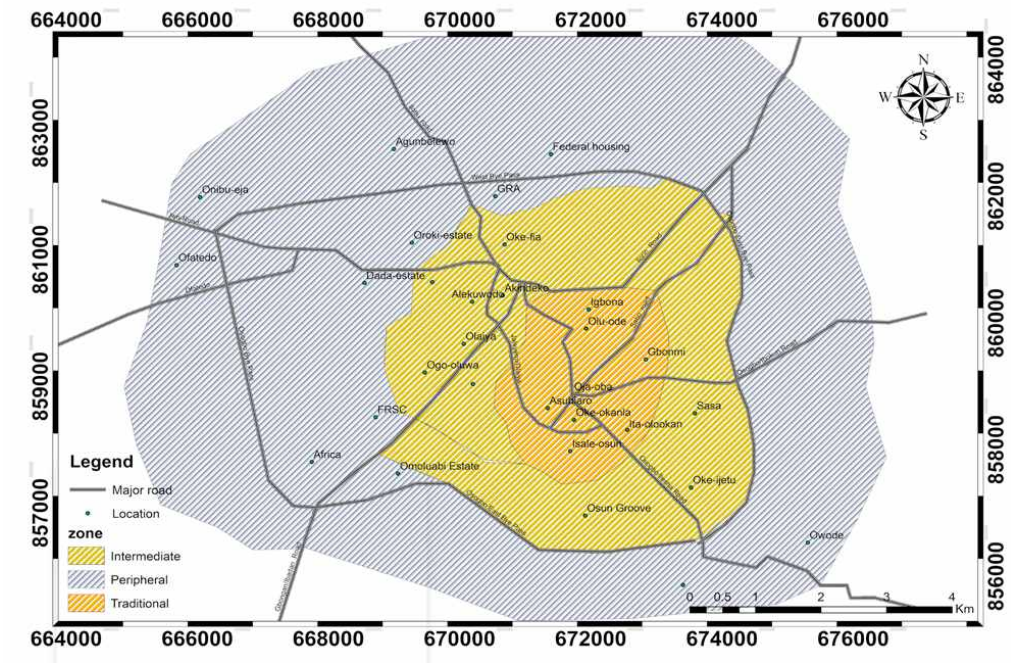


Figure 2: Map of Different Residential Zones in Osogbo

Research Methodology

Method for Data Collection

The sampling technique involves the use of a random sampling technique. The city spanning three local Government areas with a total of twenty-seven (27) political wards, formed the study population from which sample wards and respondents were selected. The twenty-seven wards were classified into three distinctive zones (Figure 2): the traditional, intermediate, and peripheral. Three areas were selected from each distinct zone using the lottery technique, making a total of nine (9) areas that formed the sample frame. A sample size of 0.1% of the population of each area was selected, and 209 questionnaires were administered across the nine political wards, as in Table 1. The study made use of primary and secondary data. Primary Data involved the use of a questionnaire. Primary data for this study entails collecting data on the types of crime within

Table 1: Selected Areas, Population and Sample Size.

SN	Area Demarcation	1991 Population	2019 the population at 3.25% growth rate	Estimated household size of 5	Sample size of 0. 1%	No of streets	No of buildings /street	Interval for questionnaire administration /street (3)
Traditional Zone								
1	Gbemu	5151	7524	2524	25	4	26	9
2	Gbonmi	4847	11875	2375	24	4	24	6
3	Oke-Ayepe	2958	7247	1449	15	7	16	5
Intermediate Zone								
1	Jaleyemi	11,401	27932	5586	56	12	29	10
2	Olu-ode	4045	9910	1982	20	4	22	7
3	Owode	2627	6436	1287	13	6	21	7
Peripheral Zone								
1	Oke-fia	3344	8193	1639	16	7	14	5
2	Powerline	3071	7524	1505	15	6	13	4
3	Ayetoro	5118	12539	2508	25	11	14	5
Number of questionnaires administered = 209					**209**	**61**	**179**	**58**

Source: Author's fieldwork, 2019.

the different residential zones, measures put in place to manage crime within the zones etc. The crime report from the police station was used as a guide to know the type of crimes that exist in a society which assisted in the questionnaire design formed part of the secondary data. The coordinates of police stations that was captured using the Global Positioning System. The coordinates were used to generate the Nearness Neighbours analysis using the (k-NN) algorithm to determine the spatial locations of police stations.

Method of Data Analysis

Cross-tabulation was used to express the interaction between the source of income and occupational status. Several researchers used Crime Rate Index for rating responses (Badiora and Afon, 2013). To measure such responses, the identified variables were ranked, delineating one of the five (5) ratings; Very Frequent (VF), Frequent (F), Just Frequent (JF), Less Frequent (LF), Not Frequent (NF) in the analysis model or platform, each of this Crime Rate Index was assigned a value of 1 to 5 in that order. This was expressed mathematically as:

Where: Summation of Weighted Value (SWV)
Xi = number of respondents to rating I;
PiVi5 i=1 ..... (1)
SWV = 5-7

The Perception Index (PI) for each variable was determined by dividing the summation of weighted values by adding the number of respondents to each of the five ratings. This is mathematically expressed as 5 = i. This method was used to measure people's responses to the rate at which crime occurs in their environment. ANOVA was also used to measure the variation in the perception of crime across the residential areas under study. This study also used the Nearest Neighbours Analysis using the (k-NN) algorithm to determine the locations of police stations.

Results and Discussion

Results in Table 2 show the crime rate index (1.75) within the traditional zone. The results revealed further those crimes like "other offences" rated 3.81, "armed robbery" rated 2.13, and "grievous harm and wounding and attempted suicide" rated 2.10 are the highest types of crime existing within the study area. In contrast, "murder" was rated 1.10, "manslaughter" was rated 1.23, and "terrorism" rated 1.26 happens to be the lowest rate of crimes in the area. It is important to note that "other offences", which are crimes against moral values, were rated the highest while "armed robbery" was next to it, which may be a result of the difficult socio-economic conditions of the area. Badiora and Afon (2013) found that trading activities in the traditional settlement zone bring about crimes against property, like store breaking, which may prevail in the zone. Armed robbery can be classified under crimes against property which affirms the finding of Badiora and Afon (2013). The highest crime rates often characterise the neighbourhoods closest to the city centre due to their low socio-economic background, which was in tandem with earlier studies by Zembroski (2011).

Table 2: Perception of Crime Occurrence in Traditional Zone

S/N	Variables	RATING					F(NR)	SMV	CRI	RANK
		VF (5)	F (4)	JF (3)	LF (2)	NF (1)				
1	Terrorism	0	0	3	28	47	62	78	1.26	17th
2	Murder	0	0	3	8	56	61	67	1.10	19th
3	Manslaughter	0	0	0	14	48	62	76	1.23	18th
4	Attempted murder	0	0	3	36	42	61	81	1.33	15th
5	Suicide	0	0	3	60	31	62	94	1.52	12th
6	Attempted suicide	5	16	36	56	17	62	130	2.10	3rd
7	Grievous harm and wounding	5	16	51	36	22	62	130	2.10	3rd
8	Assault	10	8	6	44	34	62	102	1.65	10th
9	Child stealing	0	4	9	18	49	62	80	1.29	16th
10	Slave dealing	0	8	18	46	31	62	103	1.66	9th
11	Rape & Indecent Assault	0	4	6	34	42	62	86	1.39	14th
12	Kidnapping	0	0	12	38	39	62	89	1.44	13th
13	Unnatural offence	5	8	51	48	18	62	124	2.00	6th
14	Armed robbery	0	12	60	42	18	62	132	2.13	2nd
15	Thefts and other stealing	0	8	54	48	18	62	128	2.06	4th
16	Burglary	10	8	54	28	25	61	125	2.05	5th
17	Housebreaking	5	12	36	46	22	62	124	2.00	6th
18	Store breaking	5	8	24	40	31	62	108	1.74	8th
19	False pretence & cheating	10	8	30	30	33	62	111	1.79	7th
20	Unlawful possession	0	4	21	46	30	61	101	1.66	9th
21	Arson	0	8	15	40	35	62	98	1.58	11th
22	Breach of public peace	5	0	9	34	41	62	89	1.44	13th
23	Other offence	90	132	0	6	8	62	236	3.81	1st
Total		150	300	504	786	737		2492	40.33	

Mean Score of ∑CRI/n = 1.75

Source: Author's fieldwork, 2019.

Key:- Very Frequent (VF), Frequent (F), Just Frequent (JF), Less Frequent (LF), Not Frequent (NF), frequency (F), Number of Responses (NR), Summation of Weighted Value (SMV), Crime Rate Index (CRI).

Table 3: Cross-tabulation of Occupational Status and Monthly Income within the Traditional Zone

Occupational status (in%)	Monthly Income (#)				Total
	Below 19,000	19,000-30,000	30,000-40,000	40,000 above	
Civil servant	0	3	0	1	4
	0	75	0	25	100
Private sector	2	5	1	3	11
	18.2	45.5	9.1	27.3	100
Self-employed	13	5	2	2	22
	59.1	22.7	9.1	9.1	100
Artisan	0	5	0	0	5
	0	100	0	0	100
Farmer	1	4	0	0	5
	20	80	0	0	100
Student	12	1	0	1	14
	85.7	7.1	0	7.1	100
Unemployed	1	0	0	0	1
	100	0	0	0	100
	29	23	3	7	62
Total	**46.8**	**37.1**	**4.8**	**11.3**	**100**

Source: Author's fieldwork, 2019.

The result in Table 3 shows the occupation status and monthly income in the traditional zone as it can be derived that the highest number of people living within the area were self-employed with a frequency value of 22. According to Anser et al. (2020), income inequality is one of the significant determinants of crime against a person, while poverty and economic growth significantly affect property crime rather than violent crime. This further affirms that with the rating of armed robbery as one of the highest crimes (Table 2), and the majority of the residents characterised by low income (Table 3), this might have led to armed robbery and other crimes being rated higher. From Table 3, it can be seen that majority of the respondents in the traditional zone earn lower than #19,000. Also, most people 46.8% make below #19,000, meaning they live on an average income of #600 or below per day. This has increased the rate at which property and violent crime occur in the study area, as shown in Table 2.

Results in Table 4 show the mean value within the intermediate zone to be 1.40. Crimes like attempted suicide rate were 2.01, grievous harm and wounding rated 1.99, and armed robbery rated 1.93 is the highest within the study area, while terrorism rated 1.01, other offences rated 1.05, and murder and manslaughter rated 1.06 happens to be the lowest rate of crimes in the area. It is important to note that attempted suicide is ranked highest in the zone, which may result from serious socio-economic challenges the country is going through, leading to high unemployment and job insecurity.

The perceived crime rate index of those living in the peripheral is 1.32 (Table 5). This implies that crimes like other offences (1.87), breach of public peace (1.52), store breaking (1.48), assault (1.48), false pretence and cheating (1.46), Burglary (1.43), theft and other stealing (1.43), grievous harm and wounding (1.43), unlawful possession (1.39), arson (1.34) are perceived to have occurred more in the study area. All of the crimes mentioned are property crimes (Table 5).

Table 4: Perception of Crime Occurrence in Intermediate Zone

S/N	Variables	RATING					F(NR)	SMV	CRI	RANK
		VF (5)	F (4)	JF (3)	LF (2)	NF (1)				
1	Terrorism	0	0	0	2	82	83	84	1.01	22nd
2	Murder	0	0	0	10	78	83	88	1.06	20th
3	Manslaughter	0	0	0	10	78	83	88	1.06	20th
4	Attempted murder	0	0	3	8	78	83	89	1.07	19th
5	Suicide	0	4	3	8	77	83	92	1.11	18th
6	Attempted suicide	10	28	66	22	41	83	167	2.01	1st
7	Grievous harm and wounding	10	36	48	30	41	83	165	1.99	2nd
8	Assault	5	4	15	14	69	83	107	1.29	13th
9	Child stealing	0	4	0	4	80	83	94	1.13	16th
10	Slave dealing	0	0	15	6	75	83	96	1.16	15th
11	Rape & Indecent Assault	0	0	3	16	74	83	93	1.12	17th
12	Kidnapping	0	4	9	18	70	83	101	1.22	14th
13	Unnatural offence	0	20	21	12	65	83	118	1.42	10th
14	Armed robbery	15	20	42	44	39	83	160	1.93	3rd
15	Thefts and other stealing	15	20	60	24	44	83	159	1.92	4th
16	Burglary	5	12	36	26	54	83	133	1.60	7th
17	Housebreaking	10	12	39	28	51	83	140	1.69	5th
18	Store breaking	10	16	33	26	53	83	138	1.66	6th
19	False pretence & cheating	5	16	24	26	57	83	128	1.54	8th
20	Unlawful possession	5	4	36	16	61	83	122	1.47	9th
21	Arson	10	8	12	14	68	83	112	1.35	11th
22	Breach of public peace	5	8	15	12	69	83	109	1.31	12th
23	Other offence	0	0	0	2	19	20	21	1.05	21st
Total		**105**	**216**	**480**	**378**	**1384**		**2604**	**32.17**	

Mean Score of ∑CRI/n = 1.40

Source: Author's fieldwork, 2019.

Key: - Very Frequent (VF), Frequent (F), Just Frequent (JF), Less Frequent (LF), Not Frequent (NF), Frequency (F), Number of Responses (NR), Summation of Weighted Value (SMV), Crime Rate Index (CRI).

Table 5: Perception of Crime Occurrence in Peripheral Zone

S/N	Variables	RATING					F(NR)	SMV	CRI	RANK
		VF (5)	F (4)	JF (3)	LF (2)	NF (1)				
1	Terrorism	0	0	0	14	49	56	63	1.13	13th
2	Murder	0	0	6	8	50	56	64	1.14	12th
3	Manslaughter	0	4	0	6	52	56	62	1.11	14th
4	Attempted murder	0	4	3	6	51	56	64	1.14	12th
5	Suicide	0	0	3	6	52	56	61	1.09	15th
6	Attempted suicide	0	0	9	14	46	56	69	1.23	10th
7	Grievous harm and wounding	5	12	3	18	42	56	80	1.43	5th
8	Assault	10	4	12	8	45	56	83	1.48	3rd
9	Child stealing	15	0	3	2	51	56	71	1.27	9th
10	Slave dealing	5	0	0	0	55	56	60	1.07	16th
11	Rape & Indecent Assault	5	0	0	18	46	56	69	1.23	10th
12	Kidnapping	0	0	6	12	48	56	66	1.18	11th
13	Unnatural offence	0	0	6	12	48	56	66	1.18	11th
14	Armed robbery	0	8	9	12	45	56	74	1.32	8th
15	Thefts and other stealing	5	12	12	16	40	56	85	1.52	2nd
16	Burglary	15	4	3	14	44	56	80	1.43	5th
17	Housebreaking	10	8	6	12	44	56	80	1.43	5th
18	Store breaking	10	4	15	12	42	56	83	1.48	3rd
19	False pretence & cheating	10	4	9	18	41	56	82	1.46	4th
20	Unlawful possession	10	4	6	14	44	56	78	1.39	6th
21	Arson	10	4	3	12	46	56	75	1.34	7th
22	Breach of public peace	10	16	6	10	43	56	85	1.52	2nd
23	Other offence	25	4	0	8	21	31	58	1.87	1st
	Total	**145**	**92**	**120**	**252**	**1045**		**1658**	**30.44**	

Mean Score of ∑CROI/n = 1.32

Source: Author's fieldwork, 2019.

Key: - Very Frequent (VF), Frequent (F), Just Frequent (JF), Less Frequent (LF), Not Frequent (NF), Frequency (F), Number of Responses (NR), Summation of Weighted Value (SMV), Crime Rate Index (CRI).

In a similar study, Badiora and Afon (2013) stated that property crimes are likely to have a higher magnitude of threat in high-income residential areas, which were classified as the peripheral zone. Crimes like; child stealing (1.27), attempted suicide (1.23), rape and indecent assault (1.23), kidnapping (1.18), unnatural offence (1.18), murder (1.14), attempted murder (1.14) etc. were perceived as low in the peripheral zone.

Table 6 shows the difference that existed between the crime rates of occurrence across the three zones. The result shows that violent crimes like terrorism, murder, manslaughter, attempted murder, suicide, attempted suicide, grievous harm and wounding, assault, child stealing, slave dealing, rape and indecent assault, kidnapping, and unnatural offences occur most often in the traditional zone which was deduced from the crime rate index of 1.54 for the traditional zone, 1.39 for the intermediate zone, and 1.21 for the peripheral zone. This could result from variation in the socio-economic characteristics of the respondents in the study area as there is a significant variation in the income level of the different zones. Similarly, the highest percentage of the sampled residents' of the traditional zone is self-employed, with most of them earning an income below #18,000, as shown in Table 3. This result suggests that most respondents in the traditional core area may be living below the poverty line, leading to aggravated anger, thus resulting in violence within the society.

At 1.14E-94 significant level, the One-way ANOVA indicates no spatial variation in the perceived crime at different locations. Although there is a variation between the other groups measured, the level of significance derived, i.e. 1.14E-94, is lesser than the 0.05 (5%) alpha or significance level adopted.

Table 6: Comparing Perception of Crime Occurrence across the Three Zones

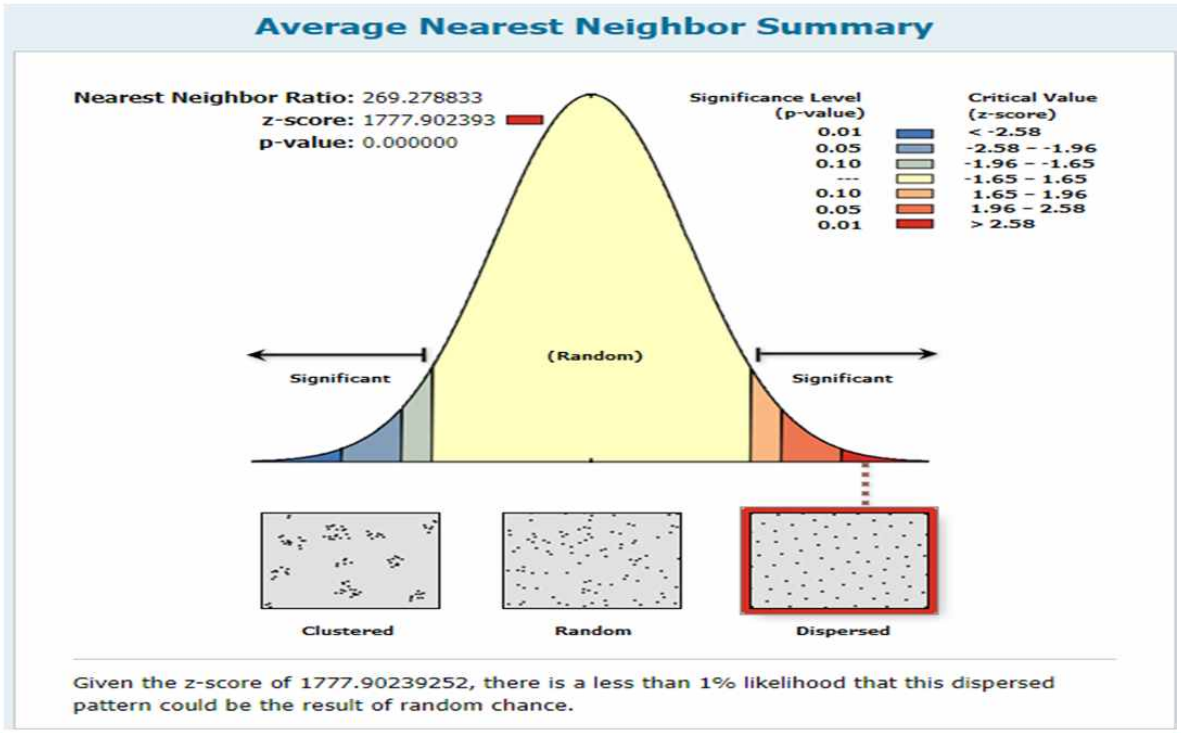
Traditional Zone		**Intermediate Zone**		**Peripheral Zone**	
Crime related activities	**CRI**	**Crime related activities**	**CRI**	**Crime related activities**	**CRI**
VIOLENT CRIME					
Terrorism	1.26	Terrorism	1.01	Terrorism	1.13
Murder	1.10	Murder	1.06	Murder	1.14
Manslaughter	1.23	Manslaughter	1.06	Manslaughter	1.11
Attempted murder	1.33	Attempted murder	1.07	Attempted murder	1.14
Suicide	1.52	Suicide	1.11	Suicide	1.09
Attempted suicide	2.10	Attempted suicide	2.01	Attempted suicide	1.23
Grievous harm and wounding	2.10	Grievous harm and wounding	1.99	Grievous harm and wounding	1.43
Assault	1.65	Assault	1.29	Assault	1.48
Child dealing	1.29	Child dealing	1.13	Child dealing	1.27
Slave dealing	1.66	Slave dealing	1.16	Slave dealing	1.07
Rape and indecent assault	1.39	Rape and indecent assault	1.12	Rape and indecent assault	1.23
Kidnapping	1.44	Kidnapping	1.22	Kidnapping	1.18
Unnatural offence	2.00	Unnatural offence	1.42	Unnatural offence	1.18
Mean score	1.54		1.39		1.21
PROPERTY CRIME					
Armed robbery	2.13	Armed robbery	1.93	Armed robbery	1.32
Theft and other stealing	2.06	Theft and other stealing	1.92	Theft and other stealing	1.52
Burglary	2.05	Burglary	1.60	Burglary	1.43
Housebreaking	2.00	Housebreaking	1.69	Housebreaking	1.43
Store breaking	1.74	Store breaking	1.66	Store breaking	1.48
False pretence & cheating	1.79	False pretence & cheating	1.54	False pretence & cheating	1.46
Unlawful possession	1.66	Unlawful possession	1.47	Unlawful possession	1.39
Arson	1.58	Arson	1.35	Arson	1.34
Breach of public peace	1.44	Breach of public peace	1.31	Breach of public peace	1.52
Other offence	3.81	Other offence	1.05	Other offence	1.87
Mean Score	2.03		1.55		1.48
General Mean Score	**1.75**		**1.40**		**1.32**

Source: Author's fieldwork, 2019.

Table 7: Spatial Variation of Perceived Crime in Different Locations

ANOVA					
Source of Variation	*SS*	*df*	*MS*	*F*	*Sig.*
Between Groups	419.022	20	20.9511	30.8893	1.13754E-94
Within Groups	860.039	1268	0.67826		
Total	**1279.06**	**1288**			

The result in figure 3: shows the nearest neighbourhood analysis with the observed mean distance from each police station to the nearest community as 1229.08m while the expected mean distance is 4.56m. The nearest-neighbour ratio for the area was recorded at 269.28. The planning implication is that over a distance of 1000m (1km), the police stations are dispersed, which may affect the timely response to crime incidence in the study area. The few Police stations that need to be upgraded technologically for crime management and control have moved from physical activities to technological and intelligence gathering.



Average Nearest Neighbor Summary

Observed Mean Distance:	1229.0841 Meters
Expected Mean Distance:	4.5644 Meters
Nearest Neighbor Ratio:	269.278833
z-score:	1777.902393
p-value:	0.000000

Dataset Information

Input Feature Class:	nearest neighbor\POLICE STATION
Distance Method:	EUCLIDEAN
Study Area:	1000.000000
Selection Set:	False

Fig 3: showing the nearest neighbourhood analysis for police stations.
Source: Author's fieldwork, 2019.

Conclusion

The study revealed that significant variations exist spanning various types of crimes and criminal activities in the identified distinctive residential areas of Osogbo with different rates of occurrences. In the core traditional residential area, "other offences" and "armed robbery" had the highest mean values. They were therefore rated as the most frequent or highest occurring in this area which could be attributed to the difficult socio-economic conditions the citizens of Nigeria are currently going through. It could also be observed that in the intermediate residential zone, "attempted suicide", "grievous harm and wounding", and "armed robbery" were rated amongst the highest crimes in the study area, which may not be unconnected with the economic situation. Similarly, the low-density residential zone was highly characterised by crimes like "thefts and other stealing", "store breaking", and "other offences", which may be a result of the income level of those living in the peripheral zone as they are primarily wealthy with valuables which attract such crimes.

For effective crime management and control, particularly in the traditional core area of the city of Osogbo, there is a need for community collaboration through the formation of community policing associations, landlords associations, community

development associations, vigilante groups and provision of other streets and community surveillance devices to checkmate the rate of crime occurrences. Since most of these crimes could likely be attributed to the economic downturn of the nation, there is a need to initiate some youth empowerment and employment generation activities towards wealth creation that will take them off criminal activities and keep them busy in productive activities which could go a long way to reduce crime in the city. Similarly, a societal ill such as "suicide", which has been attributed to depression, on the increase in the intermediate and peripheral zones, needs serious attention through counselling and mind-building to inculcate some sound moral and societal values and self-esteem in our youths and other members of the society who may be going through such challenges. It is highly recommended that the available Police Stations be upgraded technologically, and the police officer should be trained appropriately in information gathering and crime detection for effective neighbourhood crime management and control.

References

Anser, M.K., Yousaf, Z., Nassani, A.A. (2020). Dynamic linkages between poverty, inequality, crime, and social expenditures in a panel of 16 countries: two-step GMM estimates. *Economic Structures* 9, 43. https://doi.org/10.1186/s40008-020-00220-6

Badiora, Wumi & Afon, Abel. (2013). Spatial Pattern of Crime in Nigerian Traditional City: The Ile-Ife Experience. International Journal of Criminology and Sociological Theory. 6. 15-28.

Foster, S., Knuiman, M., Wood, L., & Giles-Corti, B. (2013). Suburban neighbourhood design: Associations with fear of crime versus perceived crime risk. Journal of Environmental Psychology, 36, 112-117.

Jackson, J., & Gouseti, I. (2014). Fear of crime. The encyclopedia of theoretical criminology, 1594-1602.

Kumar, S. (2013, January 12). http://mpra.ub.uni-muenchen.de/48794/.

Nokhbeh Zaeem, R., Manoharan, M., Yang, Y. and Barber, K. S. (2017). Modelling and analysis of identity threat behaviours through text mining of identity theft stories. Comput. Secure., 65, 50–63. https://doi.org/10.1016/j.cose.2016.11.002

Olajide, S. E., & Mohd, L. (2016, January 10). *Determining the Impact of Residential Neighbourhood Crime on Housing Investment Using Logistic Regression.* Retrieved from www.pathofscience.org: www.pathofscience.org

Ojo Oluwakemi, (2014). Safest Cities for Tourism in Nigeria. Pulseng.com.

Omokaro (2019). The Independence Newspaper.

Petherick, W. (2015). Applied Crime Analysis (1st Ed.). Waltham, Massachusets, USA: Elsevier

Pokhariyal, G. P., & Muthuri, R. K. (2003). Strategic Measures To Curb Crime Rates In Nairobi. International Journal on World Peace, p55-69.

United Nations Office on Drugs and Crime. (2011). Practical Approaches to Urban Crime Prevention. *Proceedings of the Workshop held at the 12th UN Congress on Crime* (pp. 1-177). Salvador.: International Centre for the Prevention of Crime.

Velazquez, M. V. (2019). Analysis and mapping of crime perception. A quantitative approach to sketch maps. M.Sc project submitted to Faculty of Geo-Information Science and Earth Observation of the University of Twente.

Zembroski, D. (2011). Sociological Theories of Crime and Delinquency. *Journal of Human Behavior in the Social Environment*, 1-16.