Evaluation of the Impact of Slum Environment on Residents of Ajegunle Slum

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Abstract

This study therefore evaluated the impact of slum environment on the residents of Ajegunle and determined the standard slum deprivation index (SDI) for this area. The survey research design was adopted with questionnaire and interview serving as the instruments of data collection. 200 households were purposively selected and sampled while 24 community leaders were purposively selected according to the number of roads in Ajegunle and interviewed. The study also utilized the WaSH (Water, Sanitation and Hygiene) and DPE (Dwelling and Physical Environment) as the measurement scale for the assessment (with the scale code of 0 = no access and 1 = access; 0 value for SDI meaning not deprived at all and 1 meaning 100 percent deprived). It was found that the study area was deprived in both the WaSH and DPE. The average SDI for Ajegunle is 0.7731 and the test of hypothesis also established a relationship between the SDI and attitude of the residents to environmental issues and the relationship model is y = 1.54 + 0.916x, where x is SDI and y is the attitude of the respondents to the environment. It was established that the relationship is positive on the average and more deprivation will lead to bad attitude of residents towards environmental issues. The study suggests that it is important to enhance the educational opportunities for slum dwellers in order to increase their awareness of the health risks associated with living in an unsanitary environment. Additionally, there should be a greater effort to raise awareness in these slum areas through collaborative initiatives with non-governmental organisations. It is crucial to prioritise environmental sanitation and promote poverty alleviation projects to enhance the socio-economic conditions of the area for the inhabitants.

Keywords: Evaluation, Impact of Slum Environment, Residents of Ajegunle Slum

1.0   INTRODUCTION

1.1   BACKGROUND TO THE STUDY

According to Iloerika-Okafor, Uwadiegwu and Onuoha (2023), one of the most enduring physical manifestations of social exclusion in African cities is the proliferation of slums and informal settlements. People living in these settlements experience the most deplorable living and environmental conditions, which are characterized by inadequate water supply, squalid conditions of environmental sanitation, breakdown or non-existence of waste disposal arrangements, overcrowded and dilapidated habitation, hazardous location and vulnerability to serious health risks. Consequently, slum dwellers, many who are poor are made poorer by the various forms of exclusion that they face. Most of them lack basic shelter while their inhabitants generally live under circumstances that are hazardous to life and health (Garau 2006). The severe and pervasive effects of urban slums drew global attention when it became included in the Millennium Development Goals (MDGs), in the year 2000, with an objective to achieve significant improvement in the lives of at least 100 million slum dwellers by 2020. Slum and squatter upgrading has been identified by the United Nations Centre for Human Settlements (UN–Habitat) as one of the areas that need priority attention. Gradual upgrading of both the environment and infrastructure in urban slum areas is seen as a measure to promote economic recovery.

The global assessment of slums undertaken by the UNHabitat (2010) shows that 828 million or 33% of the urban population of developing countries resides in slums. In sub-Saharan Africa, 62% of the urban population resides in slum settlements. Such large concentration of slums in which inhabitants live in, is in life-threatening conditions and it poses enormous burden on city authorities that are often cash-strapped and lack the institutional and technical capacity to provide even the most basic of urban services.

Slum proliferation is pronounced in all the geopolitical zones and sessions of Nigeria. There is barely a state without a slum area in Nigeria (Badmus, Rienow, Callo-concha, Greve and Jurgens, 2018), especially in the urban areas due to rapid urbanization with limited development.

The impacts of slum proliferation on the slum areas are numerous according to Adadeji and Eziyi (2010);

Many earlier researchers considered the causes and general effects of slum on the environment but the impact on the inhabitants and the slum deprivation index was not given the attention it deserved, hence this study which is aimed at evaluating the impact of slum environment on the residents of Ajegunle slum.

1.2   STATEMENT OF THE PROBLEM

The development of slums is a common phenomenon in major cities in Nigeria as observed by Ajanlekoko (2001). According to him, "the phenomenal rise in population and the number and sizes of our cities over the past few years have manifested in the acute shortage of dwelling units

which resulted in overcrowding, high rents, poor urban living conditions, and low infrastructural services and indeed high crime rates".

Ajegunle, popularly known as the ghetto city, located in the Ajeromi-Ifelodun Local Government Area of Lagos State, has similar environmental conditions which has grave negative implications on human beings residing in the area. The environment is filthy, congested, and overcrowded, with commercial and residential premises located side by side. As a result of these, pollution seems to be the major problem faced by the residents thus there is higher tendencies of outbreak of water-borne diseases like typhoid and cholera, breeding of disease causing organisms which affects the residents and higher level of environmental decay (Ola, 2011; Funmilayo, 2012; Yussuf *et al,* 2014; and Lawanson, 2020). Other features of environmental decay in the slum areas include poor sanitary conditions, congestion and the general inadequacies of services like recreational centers, health centers and so on. Open spaces are not adequately available as the few places that were mapped out for open spaces were used for refuse dump and construction of ram shackle buildings, due to high level of deprivation of amenities on residents (Badmus *et al,* 2018).

Many studies have been conducted in this slum area like those of Yussuf *et al,* (2014) and Lawanson, (2020) amongst others. Amidst these related literature reviewed the following gaps were identified: little attention was given to the impact of slum on residents and the Slum Deprivation Index (SDI) was partially neglected with only few studies handling it briefly outside Ajegunle. This is very important in exposing the social, economic and environmental deficiencies in the slum area to enhance formulation of good policies on slum management and improvement. Hence, this work was envisaged to assess the impact of slum on the residents of Ajegunle Slum areas with a view to establishing the slum deprivation index.

1.3   AIM AND OBJECTIVES

The aim of this study is to assess the impact of slum environment on the residents of Ajegunle, with a view to determine the standard slum deprivation index. To achieve this aim, the following objectives were pursued:

1.   to identify the impacts of slum environment on the health, social and economic life of residents of Ajegunle slum;

2.   to determine the impacts of the slum environment on the attitude of the residents of the slum area to environmental issues and

3.   to develop the slum deprivation index for the study area.

2.0   LITERATURE REVIEW

Works of earlier researchers and scholars on this subject matter were reviewed and their relevant findings noted. Pawar& Mane (2013), found that slum environment affects elements like living standard of population, socio-economic status of population and their general development and progress. Prasad & Singh (2009) and Sufaira (2013) asserted that the slum environment affects

the literacy level, family income and general social status of the slum dwellers as they have very poor and substandard living conditions. On the other hand, UN-Habitat (2003); Unger & Riley (2006) established that unhygienic water sources abound in slum locations. These, contaminated and inadequate water is a major characteristic of slums in developing countries which potentially brings about severe infectious diseases such as hepatitis and cholera.

Also inadequate domestic water supply causes irregular bathing of many slum dwellers which consequently brings about skin infections, part of which could result into severe glomerulonephritis (Unger and Riley, 2006). Inadequate provision of safe water and improper management of wastes are major factors leading to the widespread of diseases such as diarrhea, typhoid, cholera and malaria etc(Nwaka, 2005).

Ola (2011) has it that very poor health conditions of the residents of slum areas are due to exposure to pollution of different forms. This is in line with the findings of Gurmit (2012), who noted that there is a significant positive relationship between housing conditions, health, safety and social support which provides empirical evidence of the relationship between housing condition and the quality of life. The poor conditions in slum environments has very negative health effects on the inhabitants of the area and poor health conditions affects the total wellbeing of the individuals.

The works of Funmilayo (2012); Owoeye and Adedeji (2013); and Yussuf, *et al* (2014) were all in agreement that lack or inadequate access to basic public services like health care facilities; and unhealthy living conditions in hazardous locations characterize slum environments and this supports poor health conditions of the slum dwellers. Akinwale (2018) and Lawanson (2020); affirmed that Urban slum dwellers are at a high risk of non-communicable diseases such as asthma, heart disease, diabetes, mental health problems including anxiety, depression, insomnia and substance abuse as they adopt an urban lifestyle while lacking knowledge and information regarding health and health care. Quality of health care in the urban slum is sometimes worse than what obtains in some rural areas and the slum dwellers are particularly vulnerable during a health crisis (Akinyinka, 2020).

Ezenwa *et al* (2013) and Izobo *et al* (2014) confirmed that there is grave environmental effects of the slum area on the residents and their attitude towards the environment as there is lawlessness especially as regards indiscriminate waste disposal and negligence to environmental sanitation regulations. According to them, there is un-denied impact on the socio-economic lifestyles and the health of the residents, as well as the general outlook of the environment.

3.0 STUDY AREA

Lagos is the largest city in Nigeria and the second most populous city in Africa with a population of 15.3million as at 2022 within the city proper. The Lagos metropolitan area has a population of roughly 23.5million as of 2018, making it the largest metropolitan area in the whole of Africa. It is located near the equator. Ajegunle is the largest slum area in lagos Metropolis with the coordinates $N6^0$ 27^1 52.6482^{11} and $E3^0$ 27^1 8.4132^{11}. It is bordered on the West by Apapa Wharf and Tincan, two of Nigeria's biggest seaports through which 70% of goods come into the country.
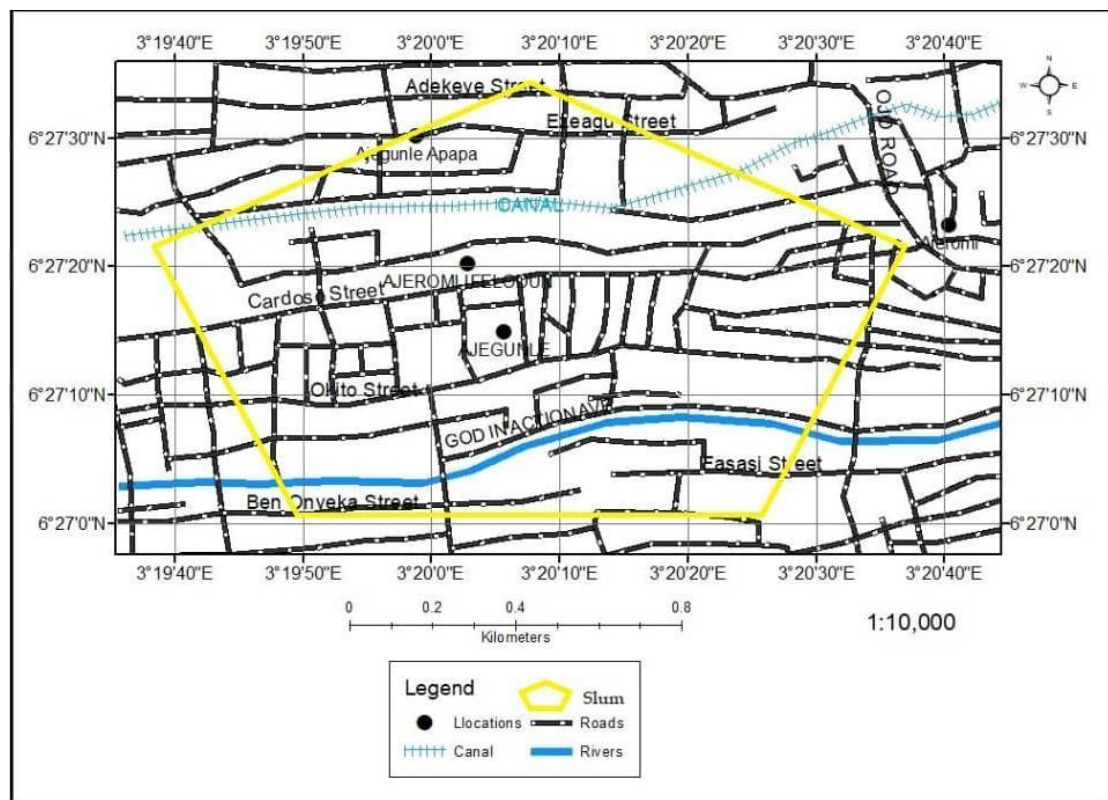
Figure 3.1: Map of Ajegunle Slum (Source: National Geohazards, 2022).

Ajengule which is in Lagos experiences a tropical Savanna climate (Aw) according to Koppen's climate classification not too strong to be classified as tropical monsoon climate and Bulbula which is in Jos also experiences a tropical Savanna Climate according to Koppen's Climate Classification closer to temperate than majority of Nigeria climate zones. There is slight seasonal temperature variation with mean high temperatures ranging from 28.3 to 32.9^0C (82.9 to 91.2 ^{0}F). Lagos also shares the seasons of the southern hemisphere with highest temperatures in March with a daily range from 32.9 to 24.1 ^{0}C (91.2 to 75.4^{0}F); and least hot temperatures in August ranging from 28.3 to 21.8^{0}C (82.9 to 71.2^{0}F). The wet season starts in April and ends in October while the dry season starts in November and ends in March. The wettest month is June with precipitation totaling 315.5mm (12.42inchs), while the driest month is January with precipitation totaling 13.2mm (0.52inches). The average annual relative humidity for Lagos is 84.7% and average monthly relative humidity ranges from 80% in March to 88%in June.

The dominant vegetation is the swamp forest of the fresh water and mangrove swamp forest both of which are influenced by the double rainfall pattern of the area making the environment a wetland region. Lagos has a population of 15.3million within the city proper as of 2021 and a population of roughly 23.5million when considered as a metropolitan area, hence, its position as the largest

metropolitan area in Africa. Ajegunle as a slum settlement has a population of 550,000 residents who are individuals from various ethnic groups in Nigeria (Bamgbose 2019; The Nation's online 2018; Nigerian Infopedia 2019).

In Ajegunle, the economic activities are mainly informal with lots of local markets and shops located intermittently across the area. Fishing and farming with buying and selling activities disrupted periodically by flood waters. According to UN-Habitat, given the fact that over 60% of residents in Lagos communities reside and/or earn their livelihoods in informal systems Ajegunle residents are not exceptions, it is particularly important that community resilience planning is adopted as a strategy to strengthen both city systems and residents' capacities to protect human, economic and natural assets from various types of shocks and stresses they might experience.

Ajegunle, popularly known as the ghetto city is located in the Ajeromi/Ifelodun Local Government Area of Lagos State. It has a dense population of about 555,000 people and 335 streets. Ajegunle was the boundary between the Western Region and the Lagos Colony. The area called Boundary in Ajegunle marked the boundary point between the Western Region and the Lagos Colony. Apapa Wharf and Tincan Island, where two of Nigeria's biggest seaports are located, border the community on the west. Ajegunle is a town that has a land area of 11.19km² in the middle of Apapa close to Apapa Quay, the major roads in Ajegunle are 24 in number. (https://geographic.org/streetview/nigeria/lagos_state/lagos_administrative_division/apapa/ajegunle.html). They have very poor link roads and high level of insecurity affecting economic activities (Asomba, 2013 and Bamgbose, 2019).

4.0   METHODOLOGY

This study adopted the survey research design using questionnaire as the main instrument of data collection.

To effectively conduct this study the following data were of essence:

1. Information on how far earlier researchers have worked on issues under study were obtained from secondary sources through literature review.

2. Maps and information about the study areas were obtained from National Geo-hazards Centre Anambra State office, Department of Survey and Geoinformatics, Nnamdi Azikiwe University, Awka, Excel research centre and other online sources.

3. The Population of the study areas were obtained from the National Population Commission, Anambra State Office, Awka and various online sources.

4. The data on the impact of slum environment on the residents, the slum deprivation index (SDI) and the attitude of residents of the selected slum areas to environmental issues were obtained through the use of questionnaire instruments, in depth interview and field observation.

The two major sources of data for this study are the Primary and the Secondary sources. The primary data sources adopted the use of questionnaire instrument and physical observation to obtain firsthand data from the study areas. From the estimated population of Ajegunle as projected from 2006 census figure and applying the average household size of 6persons, the estimated households were arrived at to be 91,666. This was reduced to a sample size of approximately 400 households using the Taro Yamaine formular at 5% error margin.

WaSH (Water, Sanitation and Hygiene) and DPE (Dwelling and Physical Environment) were utilized in this work.A two-point scale measure was used to code WaSH variables (0 = no access and 1 = access). The DPE variables were measured on a scale of five points as 1 = Single room, 2 = room and parlor, 3 = flat, 4 = Self compound bungalow and 5 = duplex for dwelling type. The total number of residents per dwelling was measured as a continuous scale. The physical environment (presence of stagnant water and waste pile) and place for hand-washing was measured as no = 0, yes= 1. This was achieved by converting all strongly agreed plus agreed to yes, strongly disagreed plus disagreed to no.

The waste disposal method was measured on a scale of eight point as none = 0, burning = 1, burying = 2, dumping in the river/drain= 3, dumping along the road side/nearby bushes = 4, through accredited garbage truck vendor = 5, dumping in State Waste Management Agency depot = 6 and through Private Sector Partnership (PSP) = 7. Sources of water supply were measured on a scale of 10 points as borehole= 1, public standpipe= 2, piped public tap= 3, protected dug well= 4, open dug well= 5, harvested rainwater = 6, water vendor= 7, bottled water= 8, sachet water= 9 and stream= 10. Sources of sanitation facility were measured on a scale of 11 points as connection to a public sewer= 1, connection to septic system= 2, pour-flush latrine= 3, simple pit latrine= 4, ventilated improved pit latrine= 5, public or shared latrine= 6, open-pit latrine= 7, bucket latrine = 8, pour-flush latrine without connection= 9, surface water = 10, and open space= 11. The material(s) for hand washing was measured on a scale of four points as water only= 1, soap with water= 2, use of sanitizer= 3, and disinfectant= 4.

Waste disposal methods, sources of water/sanitation facilities, and material for hand washing will all be transformed into binary measures as no access = 0, access = 1. For example, options, 0–4 will be regarded as no access while options 5–7 represents access for waste disposal method. For water and sanitation, all unimproved sources of water and sanitation facilities will be considered as no access while the improved source indicates access to those amenities. Regarding materials for hand washing, option 1 represents no access while options 2–4 indicate access based on the WHO & UNICEF (2014) benchmark for the definitions of access to improved water, sanitation, and hygiene. All the DPE and WaSH variables were used to compute the SDI in the study area as was applied by Akoteyon *et al* (2021).

5.0 PRESENTATION OF RESULTS AND DISCUSSION OF FINDINGS

To achieve the set objective of identifying the negative impacts of slum environment on the health, social and economic life of residents of the slum area; respondents were asked carefully structured relevant questions on the subject matter. Their responses are contained in table 1-3.

Table 1: Impacts of Ajegunle Slum Environment on Health of Residents

S/N	Item	Mean	Remark
1	Outbreak of diseases due to filth	2.90	Agree
2	Increase in Health hazards (illnesses and diseases)	2.56	Agree
3	Increase in Heat stress, air pollution or carbon emission.	**3.22**	**Disagree**
4	Rise in Eviction / demolition causing depression and health issues	2.28	Agree
5	Water contamination causes dysentery, diarrhea, malaria, typhoid	2.12	Agree
6	High mortality rate as a result of inadequate health facilities.	2.18	Agree
7	Short life span	**3.52**	**Disagree**
8	Overall poor living conditions	2.46	Agree
9	High degree of breeding and spread of pathogens	2.14	Agree
10	Frequent illness due to exposure to filth and poor environment	**3.20**	**Disagree**

Source: Researcher's Field Survey, 2023

Table1 contains the impacts of the Ajegunle slum environments on health of the residents.

The negative impacts of slum on the health of residents of Ajegunle as can be seen from the table based on the responses of the respondents are:

     a.   Outbreak of diseases due to filth
     b.   Increase in Health hazards (illnesses and diseases)
     c.   Rise in Eviction / demolition causing depression and health issues
     d.   Water contamination causes dysentery, diarrhea, malaria, typhoid
     e.   High mortality rate as a result of inadequate health facilities.
     f.   Overall poor living conditions
     g.   High degree of breeding and spread of pathogens

Table 2: Impacts of the Ajegunle Slum Environment on Social Lives of the Residents

S/N	Item	Mean	Remark
1	There is high degree of restlessness	1.76	Agree
2	High level of insecurity	1.82	Agree
3	It is hard to bring children under control	2.10	Agree

4	Possibility of recreational activity is limited	2.72	Agree
5	There is high level of moral decadence	1.94	Agree
6	Frequent threat of eviction / ejection	2.08	Agree
7	There is high level of Crimes and Social vices	2.06	Agree
8	Social hazards, Prostitution and anti-social activities are on the increase	2.10	Agree
9	Increased fear and tension due to violence	1.98	Agree
10	High level of apathy to government programmes	2.42	Agree

Source: Researcher's Field Survey, 2023

The following were agreed to be the impacts of Ajegunle slum environment on the social lives of the residents:

a. There is high degree of restlessness
b. High level of insecurity
c. It is hard to bring children under control
d. Possibility of recreational activity is limited
e. There is high level of moral decadence
f. Frequent threat of eviction / ejection
g. There is high level of Crimes and Social vices
h. Social hazards, Prostitution and anti-social activities are on the increase
i. Increased fear and tension due to violence
j. High level of apparty to government programmes

Table 3: Impacts of Ajegunle Slum Environment on the Economic Lives of Residents

S/ N	Item	Mean	Remark
1	Poor feeding and inadequate housing maintenance as a result of low household income	2.34	Agree
2	High cost of environmental management due to high degree of deterioration of the environment	2.76	Agree
3	Poor environmental conditions leads to low economic productivity.	2.90	Agree
4	Lack of good health facilities gives rise to high infant and child mortality rates	2.60	Agree
5	Low influx of tourist industries which in turn impact negatively on the residents.	**3.36**	**Disagree**
6	Inadequate financial power as a result of high level of environmental degradation.	**3.40**	**Disagree**
7	There is Economic stagnation	2.62	Agree

8	Inadequate housing maintenance	2.04	Agree
9	Increasing poverty due to unemployment	2.54	Agree
10	Low property values due to the nature of the slum environment	**3.00**	**Disagree**

Source: Researcher's Field Survey, 2023

The views of the respondents in Ajegunle have it that the following are true as the negative impacts of that slum environment on the economic lives of her residents:

a. Poor feeding and inadequate housing maintenance as a result of low household income

b. High cost of environmental management due to high degree of deterioration of the environment
c. Poor environmental conditions leads to low economic productivity.

d. Lack of good health facilities gives rise to high infant and child mortality rates

e. There is Economic stagnation

f. Inadequate housing maintenance

g. Increasing poverty due to unemployment

To determine the impacts of the slum environment on the attitude of the residents of the selected slum area to environmental issues the responses of the respondents was analyzed in table 4.

Table 4: Impacts of Ajegunle slum environment on attitude of the residents to environmental issues

S/N	Item	Mean	Remark
1	Poor waste disposal attitude due to inadequate waste disposal facilities	2.26	Agree
2	Poor personal and general hygiene	2.34	Agree
3	There is high level of noncompliance to sanitation rules	2.42	Agree
4	Increased litigation because of avoidable errors	**3.42**	**Disagree**
5	Depression, low self-esteem, anxiety as a result inadequate infrastructural amenities.	2.06	Agree
6	Increased degradation of waste disposal facilities due to inadequacy	2.30	Agree
7	The environment is most times littered with wastes	2.58	Agree
8	There is unplanned deforestation and devegetation occasioned by uncontrolled exploitation of environmental resources	**3.70**	**Disagree**
9	There is indiscriminate dumping of waste	1.88	Agree

| 10 | Sewage facilities are readily filled up | **3.04** | **Disagree** |
| 11 | Drainage facilities are blocked with wastes | 2.14 | Agree |

Source: Researcher's Field Survey, 2023

The impacts as opined by the respondents from Ajegunle are as follows:

a. Poor waste disposal attitude due to inadequate waste disposal facilities

b. Poor personal and general hygiene

c. There is high level of non-compliance to sanitation rules

d. Depression, low self-esteem, anxiety as a result inadequate infrastructural amenities.

e. Increased degradation of waste disposal facilities due to inadequacy

f. The environment is most times littered with wastes
g. There is indiscriminate dumping of waste

h. Drainage facilities are blocked with wastes

The table 5 shows the mean responses of the respondents on the general questions on WaSH and DPE.

Table 5: Mean Response General Questions on WaSH and DPE

S/N	Item	
		Mean
1	There is Unimproved sanitation facilities (public or shared latrine, open-pit latrine, bucket latrine, pourflush latrine without connection, surface water, and open space)	2.24
2	There is Improved sanitation facilities (connection to a public sewer, connection to a septic system, pourflush latrine, simple pit latrine, and ventilated improved pit latrine)	3.78
3	There is Unimproved facility for hygiene : inadequacy of place for hand-washing and Material for washing hand in households	2.70
4	There is Improved facility for hygiene : adequacy of place for hand-washing and Material for washing hand in households	3.82
5	There is Adequacy of availability of waste bin/disposal facilities in household	3.62
6	There is Availability of adequate housing for residents (number of persons per room per household)	3.72

7	There is Presence of stagnant or sewage water near dwelling or near water sources	2.46	
8	There is Presence of good drainages facilities	3.58	
9	There is Access to good water portable supply	3.22	
10	There is Adequate Health facilities	3.52	

Source: Researcher's Field Survey, 2023

Table 6: Rating the Level of Deprivation of various amenities in the slum area

S/N	Item	Mean	Remark
1	Power supply	2.86	Inadequate
2	Supply of portable water	2.94	Inadequate
3	Health facilities	3.02	Inadequate
4	Educational facilities	2.72	Inadequate
5	Waste disposal facilities	2.92	Inadequate
6	Drainage facilities	2.60	Inadequate
7	Recreational facilities	2.90	Inadequate
8	Open spaces	3.02	Inadequate

Source: Researcher's Field Survey, 2023

Computation of Slum Deprivation Index (SDI)

From the literature, The first step begins with the estimation of the absolute variation in performance (AVP) which indicates the difference between the highest and the lowest proportion of residents that lack a service variable on each of the DPE and WaSH components across a settlement, as indicated in Equation (1):AVP = max Xijk –Xijk (1).

Where AVP = Absolute Variation in Performance; Xijk = score on a variable (1, 2, 3…) in different locations; Max Xijk = maximum variable score in a location (Akoteyon *et al*, 2021).

The total variation in performance(TVP) is therefore represented by Equation (2):

TVP = max Xijk –min Xijk (2)

From the above equations 1 and 2, SDI can be computed using the expression;

$$SDI = \frac{\sum_{ijk=1}^{n} \bar{x}_{ijk} - \min\left(\bar{x}_{ijk}\right)}{\left(Max\left(\sum_{ijk=1}^{n} \bar{x}_{ijk}\right) - \min\left(\bar{x}_{ijk}\right)\right)} \quad (3)$$

and the aggregate of the SDI can be computed using the expression;

$$SDI_{Aggregate} = \frac{\sum_{ijk=1}^{n} SDI_{ijk}}{n} \qquad (4)$$

where n is the number of SDIs computed.

Table 8: presents the rating of the Slum Deprivation Index for the three selected slums under study and the aggregate Slum Deprivation Index for all put together.

Table 7: Rating of SDI for Okpoko slum area

SDI	Okpoko
Power supply	0.86
Portable water supply	0.725
Health Facilities	0.98
Educational Facilities	0.73
Waste Disposal	0.96
Drainage Facilities	0.89
Recreational facilities	0.51
Open Space	0.53
Aggregate SDI	0.7731

Pearson correlation of SDI rating of Ajegunle and Mean rating of response from Ajegunle = 0.975.

P-Value = 0.000

Interpretation: The correlation value is 0.975. This correlation value is positive and greater than 0.5. Therefore, high deprivation is leading or has led to poor attitude of the people of Ajegunle in terms of attitude to environment. The correlation is significant since its P-value is less than 0.05.
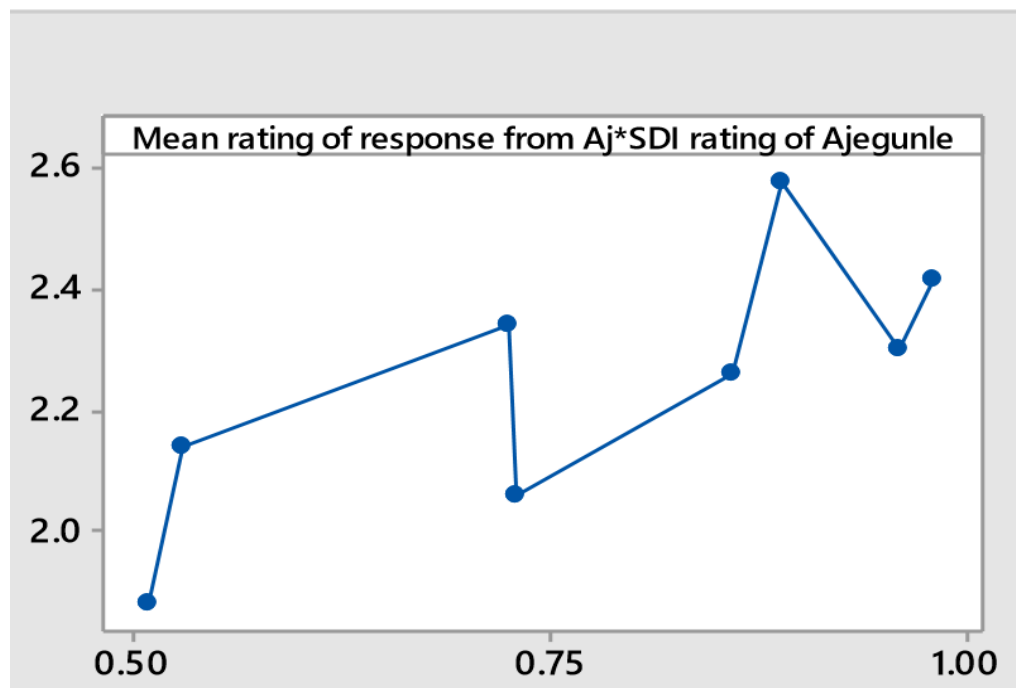
Fig. 3: Scatter Plot of the relationship between the variables

Interpretation: From the scatter plot, it can be deduced that the observations increase from left hand side to right hand side which is an indication of positive relationship between the variables.

Regression model of relationship between SDI and attitude of residents to environmental issues for the slum area

Table 8: Model for Ajegunle

Regression Statistics	
Multiple R	0.762694
R Square	0.581702
Adjusted R Square	0.511986
Standard Error	0.152492
Observations	8

R-Sqaure of the model is coefficient of determination which shows percentage of fluctuation in the dependent variable attributable to the independent variable. In the model summary, the

coefficient of determination is 58.2 percent which is an indication that the independent variable can adequately explain the dependent variable.

Table 9: ANOVA output for Ajegunle

ANOVA

	df	SS	MS	F	Significance F
Regression	1	0.194027	0.194027	8.343856	0.027745
Residual	6	0.139523	0.023254		
Total	7	0.33355			

In Regression Analysis, ANOVA is used to test for the adequacy of the model. In the output, the P-value of the ANOVA is 0.028 which is less than 0.05. This implies the model is adequate and can be used for decision making.

Table 10: Intercept Ratings for Ajegunle

	Coefficients	Standard Error	t Stat	P-value
Intercept	1.539628	0.25092	6.135928	0.000857
SDI rating of Ajegunle	0.915599	0.316973	2.888573	0.027745

From the above table, the model fitted can be extracted and t-test was used for the test of parameters in the model. The P-value of the t-test are less than 0.05 which implies the parameters in the model are significant.

The model for Ajegunle as slum location is $y = 1.54 + 0.916x$

Where x is SDI and y is the attitude of the respondents to the environment. From the model, it can be observed that the relationship is positive as more deprivation will lead to bad attitude towards environment.

5.1 Discussion of Findings

Overcrowding is a common issue in slums worldwide, leading to poor living conditions, increased health risks, and limited access to basic services (Owoeye and Adedeji, 2013). Chandramouli (2003) in his study of the demographic characteristics of Chennai slum supported large family sizes in slums, this was affirmed by the data harnessed from the slum residents across the study area. It also agrees with the findings by some earlier researchers with related interest of study like Prasad & Singh (2009). The negative impacts of slum environment on the health of residents of all the three selected slum areas are significantly the same and include: Outbreak of diseases due to filth; Increase in Health hazards (illnesses and diseases); Increase in Heat stress, air pollution or carbon emission; Rise in Eviction / demolition causing depression and health issues; Water contamination causes dysentery, diarrhea, malaria, typhoid; High mortality rate as a result of inadequate health facilities; Overall poor living conditions; High degree of breeding and spread of pathogens; and Frequent illness due to exposure to filth and poor environment. This affirms the findings Nwaka (2005) and Unger & Riley (2006) who indicated that inadequate provision of safe water and improper management of wastes are major factors leading to the widespread of diseases. Also Ola (2011) found that poverty result in the very poor health conditions of the residents of slum areas due to exposure to pollution of different forms.

From the analyses of the SDI for water supply, health facilities, educational facilities, waste disposal facilities, drainage facilities, recreational facilities and open spaces it was found that the study area was deeply deprived of all these facilities, though at various degrees. Authors like Gurmit (2012); Funmilayo (2012); Owoeye and Adedeji (2013) and Yussuf *et al*, (2014) who studied slums earlier supported this finding. The slum environment has various negative health impacts, including disease outbreaks, health hazards, and water contamination. These health risks are prevalent in slums globally due to inadequate sanitation and healthcare facilities. Akinwale (2018), opined that the health effects of slum environments on the slum dwellers are numerous and increasing with increased neglect of the slum areas. According to him, they usually lack basic infrastructural facilities and are characterized by very poor environmental conditions.

Ezenwa *et al* (2013), affirmed that a significant relationship exists between slum characteristics and crime rates this was also supported by Izobo *et al*, (2014). Slum environments contribute to social challenges such as insecurity, moral decay, and high crime rates. These social issues are often observed in slums worldwide, where lack of proper infrastructure and services can lead to social instability (Akinyinka, 2020). Slum living environment results in economic challenges like poor income, unemployment, and inadequate housing maintenance. Economic hardships in slums are a global concern, as residents often lack access to formal employment and face barriers to economic mobility (Madhusoodhanan, 2008; Sen, 2007). Economic impacts of the slum environment vary among residents of the selected slum areas. This variation mirrors the diverse economic challenges faced by slum dwellers worldwide.

5.1   CONCLUSION AND RECOMMENDATION
5.1.1   Conclusion

In line with the findings of this research work, the following conclusions were made:

1.   The main negative impacts of slum environment on the health of residents of Ajegunle are: outbreak of diseases due to filth; increase in health hazards (illnesses and diseases); increase in heat stress, air pollution or carbon emission; rise in eviction / demolition causing depression and health issues; water contamination causes dysentery, diarrhea, malaria, typhoid; high mortality rate as a result of inadequate health facilities; general poor living conditions; high degree of breeding and spread of pathogens; and Frequent illness due to exposure to filth and poor environmental sanitation.

2.   The major impacts of slum environment on the social lives of the residents of Ajegunle are: high degree of restlessness; high level of insecurity; it is hard to bring children under control; limited possibility of recreational activities; high level of moral decadence; frequent threat of eviction / ejection; high level of crimes and social vices; social hazards, prostitution and anti-social activities are on the increase; increased fear and tension due to violence; and high level of apathy to government programmes.

3.   Similarly, the major negative impacts of that slum environment on the economic lives of residents of the study area includes: poor feeding and inadequate housing maintenance as a result of low household income; high cost of environmental management due to high degree of deterioration of the environment; poor environmental conditions leading to low economic productivity; lack of good health facilities which gave rise to high infant and child mortality rates; inadequate financial power as a result of high level of environmental degradation; economic stagnation; inadequate housing maintenance; increasing poverty due to unemployment; and low property values due to the nature of the slum environment

4.   The major impacts of the slum environment on the attitude of the residents of the study area to environmental issues are as follows: poor waste disposal attitude due to inadequate waste disposal facilities; poor personal and general hygiene; high level of noncompliance to sanitation rules; depression, low self-esteem, anxiety as a result inadequate infrastructural amenities; increased degradation of waste disposal facilities due to inadequacy; littering of the environment with wastes; unplanned deforestation and devegetation occasioned by uncontrolled exploitation of environmental resources; indiscriminate dumping of waste; and blocking of drainage facilities with wastes.

5.   The SDI considering all the facilities being investigated is 0.7731 this confirms that the Ajegunle slum area is largely deprived of the various facilities.

6.   The Slum Deprivation Index (SDI), is directly proportional to poor attitude of residents to environmental issues. The increase in deprivation is leading or has significantly led to poor attitude of the people of all the three selected slums to environmental issues like: environmental.

5.1.2   Recommendations

Based on the research findings and literature considerations, the following recommendations have been put forward:

a. There is great need to intensify academic development of the slum dwellers as this will improve their understanding of the dangers of a filthy environment to their health and general well-being, hence they will become proactive and not always wait on the government to spoon feed them in the area of environmental sanitation.

b. There is need for increased awareness campaign in these slum areas and collaboration with nongovernmental bodies in project execution in these areas to give them a better live.

c. The government and non-governmental agencies including international donors should be involved in improving the environmental condition of these slum areas by providing the necessary amenities as this will go a long way in changing their orientation about the environment and also improve their attitude towards environmental sanitation.

d. The role of environmental sanitation in prevention of diseases cannot be over emphasized. Hence, Environmental Sanitation should be intensified in these slum areas to mitigate the negative impacts of the dirty environments on the health of the residents.

e. Family planning programmes should be encouraged to educate the inhabitants on the importance of having a manageable family size and through this population growth will be controlled, social vices will be limited and overuse/over stretching of available facilities in the future will be taken care of.

f. Programmes and or project to alleviate poverty and improve the socio-economic status of the residents of the area should be adopted to enhance the economic and social life of these slum dwellers.

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