

Urban Slum Disease Burden/Determinants of Diseases in Squatter Settlement in Calabar, Cross River State Nigeria

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Abstract - This study aims at a descriptive epidemiological survey of prevailing disease burden not readily detected or suspected by formal medical service of Governments and other stake holders as well as detection of the etiology of the identified disease in the area under investigation. The problem statement is informed by the clear recognition that the urban slum dwellers have a unique characteristic in the social, spatial, economic and demographic attributes which demands a careful assessment of their social ecology and the impact thereon. Objectives were therefore formulated to elicit the needed information that will underscore the very essence of determinants of diseases prevalent in the area. Plausible justification for the study was sufficiently elaborated from the point of view of epidemiological and social benefits derivable from the findings of the study. The methodology clearly expostulated such key frameworks as area of study, study design, study population/sampling techniques, instruments for data collection and procedure for collection of data which was analyzed by method of Analysis of Variance (ANOVA). The output of the findings showed that the calculated F-value is greater than the F-critical value at (0.05). Therefore, there was appreciable evidence to reject the null hypothesis and accept the alternative hypothesis which states that there is a significant variation or difference in the incidence of disease burden prevalent in the areas investigated. The research concluded that there is a critical need for a new method of health evaluation and characterization of social-cluster determinants of health in Urban Slum.

Keywords: Urban Slum, Social Cluster, Diseases and Determinants.

1. Introduction

Most urban centers in the developing regions of the world are characterized by dual settlement domains that are expressly distinct from one another in the physical and sociological attribution. [7] in his survey of Okononou, Enugu,

Enugu State, Nigeria observed this distinction concerning particular residential quarters that are rather described as “GRA” (Government Residential Area) and other areas outside of it that belong to the category of the urban rich or affluent group while the second, house the urban poor who dwells in makeshift residential housing units that go by such names as “slums”, (Nigeria) “Gheto’s” in South Africa, “Shanthy’s” squatter settlement and so many other degrading nomenclature in different places.

[4] Who in his study of urban centers in Nigeria, on the basis of its “livability” explained the basis of their emergence as caused by the colonial style of urban planning to develop this dual image of place and people. The “people-place” identities are a reflection of how social welfare is replicated in the identity of the people. Nigerian cities and other cities in the developing world present clear picture of this dual environmental mode.

It has been clearly established that the nature of the physical environment has a direct relationship to the physical, social and moral wellbeing of the people around. It has been investigated and corroborated that the psychosocial orders are closely related to poor quality housing and environment [5]. Among some of these incidents cited by these authors are depression, alcohol and drug abuse, suicide and violence of different kinds such as child and spouse maltreatment, abuse and target violence such as teacher assault and rape [5]. It was also reported that households constantly at risk from psychosocial disorders. It was again reported that psychosocial disorders are also connected with non-environmental factors such as insecure income and insecure tenure for inhabitants.

These reports tend to substantiate the underlying proposition that informs the problem statement of this research endeavours. The researchers’ cursory field observation of the social and physical disparity in the urban image of the people in the different housing domains tends to support [7] assertion that the landscape replicates the social image and vice versa.

1.1 Statement/Justification of the research

Slum areas are synonymous with poor physical and social environmental outlooks in every city in the world including developing world cities of Nigeria and other parts of the world. Economic poverty as well as other material deprivations are the key factors of urban slum identities. Physical environmental dereliction, noise, overcrowding, unsightly environments caused by poor refuse management, poor management of human and other forms of waste, poor ventilation, poor quality housing and other forms of environmental images have been recognized to be associated with many psychosocial disorders such as gambling, truancy, violence, banditry, mob actions, stealing or looting among others. In this sense earlier studies in the field have provided the link between many disorders and the nature of the overall environment. Along similar lines, this study is intended to unravel the true perspective of this correlation as it applies to the city of Calabar. The basic underlying questions remain whether prevalence of these maladies are specifically place determined or restricted and or what others ailment remain unexplored in the epidemiological matrixes of the areas so designated as slum in the locality. Among these and other questions are the proper foundations of the problem statement of this study.

1.2 Objectives of the study

This research inquiry is guided by the following objectives stated in line with study focus:

- i. To delineate the spatial incidence of the typical slum settlements in the study domain.
- ii. To designate the basic similarities in the physical and social images of the areas so designated.
- iii. To enlist the prevalent incidence of disease in the respective domain of the study.
- iv. To enlist the basic slum determinants responsible for incidents of diseases in the areas under investigation.

1.3 Research Hypothesis

Two research hypotheses have been stated in null form to guide the analysis of results as follows:

Hypotheses I:

Ho: There is no significant variation in the physical and social characteristics of slum dwellers investigated in the city of Calabar.

Hypothesis II

Ho: There is no significant variation in the incidence of disease burden prevalent in the areas investigated.

2. Literature Review

Issues on urban living conditions have been vigorously explored and adequately investigated in the literature by scholars working on urban development planning and others engaged in allied fields of sociology, urban health and so on.

[4] Work on urban live ability and Okoye's later on the environmental images of Okunanow cited in the background to this study, [5] contributions on environment and well-being have also presented cases in illustration concerning environmental status and psychosocial disorder of infants, young children and adults in different environments in third world cities. Slum areas are characteristically unsightly, drab and sordid both in the personality of physical environment and those of the social dements [2].

Because of the unsuitable nature of the environment caused by poor sanitation overcrowding, lack of proper planning and all manner of haphazard occupation, many and sundry environmental disease are developed and contacted.

[8], In their submission in BMC International health and human rights inferred that an urban slum, like refugee communities comprises a social cluster that engenders a distinct set of health problems. The neglected population as they are referred to have become a major reservoir for a wide spectrum of health conditions that must be dealt with. That the formal health sector became aware of the health problems of this population relatively late, as result of that the formal sector deals with the end stage of the disease at a relatively higher cost. That further more because of informal nature of the slum settlement, and the cultural social and behavioural factors unique to the slum settlement, little is known about the spectrum. The burden and determinants of illnesses in these communities that give rise to these complications especially of diseases that are chronic and preventable. This undertaking by [8] and his associates lends heavy credence to our line of enquiry.

Their investigations focused on determination of existence of spectrum and burden of chronic diseases not likely to be detected by formal health services before they result in death. The area covered was Salvador, a slum community of over 58,000 people one of the largest such community in Brazil. Here, the slums go by such names as Favelas, Kiji, Jochpadpate, Gecekonu and so on. The year 2000 was the Nation's year of official recognition of slum domains as people who require attention and help [13], [14].

This was based on the recognition that continued neglect of the ever expanding urban slum population in the world could inevitably lead to greater expenditure and diversion of

health care resources to the management of end stage complication of diseases that are preventable [10].

Following the UN Declaration and the following up meeting, the United Nations Group held at Nairobi (2002) slum was operationally defined as human settlement that has a number of characteristics such as (i) Inadequate access to safe water, (ii). Inadequate access to sanitation and other infrastructure (iii). Poor structural quality of housing (iv) Overcrowding and (v) insecure residential status.

2.1 Disease spectra and health burden of slum residents investigated in different part of developing regions

A clear perspective of the nature and causative factors was not known until 2003, when the United Nations Human settlements programme, (UN-Habitat) report was out that a comprehensive global description of slum communities was known [14]. Detailed description of the demographic, spatial, legal, economic and social indicators of slum dwellers was provided in the report. Several facts of transforming the overall situation of the people were touched except health. The report stated, did not address disease spectrum or burden in the designated communities.

However efforts made by some reporters in the field of epidemiology have led to the identification of some disease spectrum of slum dwellers which include (i) acute renal failure, leptospirosis transmitted by a spirochete excreted in the rat urine, (which is a lethal disease) jaundice and pulmonary haemorrhage, meningococcal disease. Active hospital based surveillance initiate in 1996 found that the major risk factor of acquiring heptospirosis manifestation was to be a resident of a favela (slum) in Brazil [3].

It was further substantiated that more than 95% of those cases from the various cities have “favelas” (Opicit). There was also a cohort survey undertaken which discovered that diseased burden discovered was greater than that detected at the infected disease referral hospital [1]. Also, following the cohort report it was discovered that those who resided close to the open sewers were the most infested.

The discovery by the survey team also revealed that a variety of chronic disease either infectious or non-infectious were endemic in the favelas or slum such as hypertension, diabetes, asthma, pyoderma secondary to scabies skin lesion intentional and unintentional injuries and their chronic squalae, mental illnesses, complication of drug and a cohort use of sexually transmitted and reproductive health problems.

Concerning the basic determinants or etiology of these health problems was recognized ab initio that slum by definition are informal and illegal settlements. That a large

proportion of rural migrants, displaced person, illegal and legal migrants, unemployed and refugees. Some of them however are legally employed in gainful employment such as teachers or self-employed and own their own business [6] one fact remains that all slum dwellers are excluded from the usual benefits provided to formal sector employers.

Thus, the inability of municipal governments to provide the necessary facilities for the urban poor, forces them to rely or create their own informal infrastructure, informal housing, informal employment. It has been categorically stated that besides all the services available to slum dwellers, one that is beyond their control is health service. In the final analysis it has been clearly stated, as an early warning, that while the world’s governments worry and spend billions of health dollar the world awaits a certain and unprecedented epidemic of chronic communicable and non-communicable disease shouldering among burgeoning slum population worldwide [10].

3. Methodology

The basic framework of this study is carried out along the following thematic outlines:

3.1 Design

This research design is a variant of descriptive field survey design premised on identification of incidence of diseases and their possible etiology as well as determinations of the environmental correlates of the diseases incidents.

3.2 Area of the study

The study area is the entire core area metropolitan nuclei of Calabar that has been significantly transformed by urbanization in terms of built environment, human characteristics and ecological changes. Typical of the human and physical environment of this area is the occurrence in Juxtaposition of the rich and poor, the planned and the unplanned residential settlements. While the unplanned areas correspond to the slum districts as well as the urban poor population, the planned areas correspond to the areas of the urban rich or affluent who dwell in satellite towns or institutional areas like government residential areas, University/educational staff quarters, priestons/pastordoms etc.

Calabar as a whole remains less urbanized compared to other primate cities like Lagos, Port-Harcourt, Ibadan, Kaduna, Kano to name but a few. Overall the rich-poor divide or dichotomy is less well pronounced as in the case of the primate ones mentioned. Specifically, the slum area already designated at the prefield stage of investigation included

Mbukpa, Henshaw town, Anantiga, Goldie/Mount Zion, Bedwell, Watt Market area, Akim-Biqua Edim Otop, Nyangasang, 8miles to list but a few.

Residentially, the pace of urban development has progressed apace in recent years as shown by the frenetic pace of land acquisition and properly development in the entire place. The aggressive land demand has compelled property owners to build in less uninhabited terrains, in areas close to ravines, gully prone environments, bogs or waterlogged zones, flood prone areas, pests or vector infested habitats and so on.



Images of some squatter settlements in the research area



3.3 Population of the study

The overall universe of the study comprises of adult residents of areas to be properly designated as slum areas or squatter settlements in the area of study. The subjects or respondents were selected based on their ability to provide information on questionnaires designed for eliciting information or the ability to adequately respond to questions posed by field investigators from the questionnaires being administered illiterate categories who are adults will be engaged on the basis of their ability to respond through a language mediator/interpreter.

3.4 Sampling Techniques

Multi stage sampling was employed such as:

i) Purposive/Area sampling

This focused on the criteria that there originally exist special areas so identified as slum area predicated on their social and physical attributes or characterization. And so the clusters will be purposively identified.

ii) Systematic approach was adopted based on employment of serpentine mode of house selection employed in census mode of area survey.

iii) Finally, random sampling was applied that to select representative numbers from the entire population.

3.5 Instrument for data collection

The main instrument used for in the process of field data collection was the questionnaires.

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3.6 Method of data collection

Data was collected using the following procedure:

- i) Administration of questionnaire based on defacto methods of information elicitation. Defacto follows direct administration of questionnaire and withdrawing in situ i.e. on the spot.
- ii) Application of checklist for collection of surrogate information such as housing characteristics, environmental images, overall perspective of social exhibitions and what have you.

3.7 Method of Data Analysis

Data was analyzed in diverse ways such as:

- i) Descriptive and parametric and analysis of data based on statistical explanations namely percentage distribution of events, analysis of means and standard deviation, chi square (x2) analysis of observed trends as applicable and relevant.

Pictorial/graphical presentation of data in figures and visuals.

3.8 Data Presentation/Analysis

In line with study objectives two research hypothesis were formulated. Following two parameters were investigated and presented in tables for data analyses and hypothesis testing correspondingly. The parameters employed were

- i) The Physical and Social characteristics of the areas investigated which were presented in the form of a matrix using surrogate measures (Table I).
- ii) The “place-Diseases prevalence matrix showing the spatial distribution of the diseases in each area investigated (Table II). The Socio Physical parameters index was captured using the check list in conjunction with the questionnaire while the Spatio- Morbid index parameters was captured by the use of the questionnaire (Table ii).

In each case incidence or index rating ranged of 1 – 20 as score on the matrix scaling. The two results table I and II were analyzed using the one-way analysis of variance and the decision rules provided at the end of the hypotheses tested (See table I and II under Data presentation below).

3.9 Data presentation and hypothesis testing

Table 1: Physio-social parameters of areas investigated in terms of place attributes and human personalities

S/No	PLACE NAMES	PHYSIO-SOCIAL SCALING OF AREAS								Total
		A	B	C	D	E	F	G	H	
1.	Mbukpa	4	3	3	4	14	5	4	2	39
2.	Goldie/Mount Zion	5	4	4	5	12	6	5	3	44
3.	Anantigha	6	4	2	5	16	4	3	0	40
4.	Henshaw Town	7	10	6	8	11	7	6	4	59
5.	Ikot Omin (8 Miles)	6	9	7	6	13	6	5	5	57
6.	Edibe Edibe	4	6	4	7	10	8	7	3	49
7.	Uwanse	8	10	5	8	15	10	8	4	68
8.	Njaghachang	8	7	6	7	12	10	7	5	62

A=Planning, B=Amenities, C=Sanitation, D=Roads, E=Overcrowding, F= Human Health, G=Economic Welfare and H=Health Facilities

Note: The above matrix replicates the typical and social attributes of the place and people.

Table II: Incidence of spatial distribution of diseases burden in the slum areas of Calabar, Nigeria prevalence rating is predicted on respondents’ affirmation. The rating from 0-20 as provided by the table below

S/No	Places Name	Spatial Disease Burden rating in slum areas, disease names and their rating							Total
		I	J	K	L	M	N	O	
1.	Mbukpa	12	9	7	14	16	17	10	85
2.	Goldie/Mount Zion	11	11	12	12	14	16	8	84
3.	Anantigha	14	12	13	15	13	18	12	97
4.	Henshaw Town	10	6	8	13	14	13	9	73
5.	Ikot Omin (8 Miles)	10	8	10	0	0	14	5	47
6.	Edibe Edibe	12	10	9	12	16	15	6	80
7.	Uwanse	8	8	6	14	11	13	11	71
8.	Njaghachang	9	7	8	10	12	10	10	66

I=Renal Failure, J= Hepto-spirosis, K=Leptospirosis, L=Hypertension, M=Malaria, N=Tuberculosis

Note: The disease burden prevalence matrix will be transposed through hypothesis testing for determination of the spatial prevalence of Disease burden in the areas.

4. Data Analysis

Hypothesis One:

Ho: There is no significant variation in the physical and social characteristics of the slum dwellers investigated in the city of Calabar, Nigeria.

Table III: Summary of ANOVA

Groups	Count	Sum	Average	Variance
Planning	8	48	6	2.571429
Amenities	8	53	6.625	7.982143
Sanitation	8	37	4.625	2.839286
Roads	8	50	6.25	2.214286
Overcrowding	8	103	12.875	4.125
Human health	8	56	7	4.857143
Economic welfare	8	45	5.625	2.839286
Health Facilities	8	26	3.25	2.785714

Source of Variation	SS	df	MS	F	P-value	F crit.
Between Groups	448.4375	7	64.0625	16.96217	12	2.178156
Within Groups	211.5	56	3.776786			
Total	659.9375	63				

Decision Rules:

Here, we can see that the F-value is greater than the F-critical value at alpha level selected (0.05). Therefore, we have evidence to reject the null hypothesis and accept the alternative hypothesis to say there is a significant variation in the physical and social characteristics of the slum dwellers investigated in the city of Calabar.

Hypothesis two:

Ho: There is no significant variation in the incidence of disease burden prevalent in the areas investigated.

Table IV: Summary of ANOVA II

Groups	Count	Sum	Average	Variance
Renal failure	8	86	10.75	3.642857
Hepto-spirosis	8	71	8.875	4.125
Lepto-spirosis	8	73	9.125	5.839286
Diabetes	8	90	11.25	23.07143
Hypertension	8	96	12	26.57143
Malaria	8	116	14.5	6.571429
Tuberculosis	8	71	8.875	5.839286

ANOVA

Source of Variation	SS	df	MS	F	P-value	F crit.
Between Groups	448.4375	7	64.0625	16.96217	8.37E-12	2.178156
Within Groups	211.5	56	3.776786			
Total	659.9375	63				

Decision Rule II

Here, we can see that the F-value is greater than the F-critical value for the alpha level selected (0.05). Therefore, we have evidence to reject the null hypothesis and accept the alternative hypothesis to say there is a significant variation in the incidence of disease burden prevalent in the areas investigated.

4.1 Discussion of Result

Because of the late complications of these diseases that the formal health sector sees and treats, chronic non-communicable and communicable diseases like hypertension, diabetes, intentional and unintentional injuries, tuberculosis, rheumatic heart disease, and HIV infection are recognized to

exist in slums. However, little is known about the prevalence, risk factors, and severity of these disorders in slums before they lead to heart disease, kidney failure, suicide, multi drug-resistant and their Likes.

The economic, social, and cultural ties that slum residents have to the rest of the urban population make it inevitable that the formal health sectors will have to cope with the effects of the chronic diseases mentioned above. Because they don't treat these patients until severe, near-end-stage problems of the chronic diseases they have occur, doing so is extremely expensive for the national health system.

In many nations, statistics from clinics, hospitals, or national mortality registries really provide the bulk of information on the disease burden or death of slum inhabitants. Only the "tip of the iceberg" is represented by this end point data. This kind of information drastically understates or misdirects the needs for allocating healthcare resources and is insufficient for planning health care expenditures.

Additionally, the field team found that a significant number of the people living in this slum had a variety of chronic illnesses, both infectious and non-infectious, as a result of conducting this community-based study. These included mental diseases, complications of drug and alcohol usage, sex-transmitted infections, hypertension, diabetes, asthma, pyoderma due to scabies skin sores, chronic purposeful and unintentional injuries, and their aftereffects.

5. Summary and Conclusion

The range and impact of disease morbidity in urban slums around the world and Nigeria in particular are poorly understood. The provision of suitable disease prevention services and the adequate allocation of healthcare resources are hampered by the lack of such data. Slum residents only come into contact with the formal health sectors when they have advanced complications from a chronic illness. Their health care resources are severely taxed by these difficulties. At the community level, there is an urgent need to examine the health burden and risk factors for disease morbidity among slum dwellers.

Prolonged disregard for the world's ever-growing urban slum populations could eventually result in higher costs and a shift of healthcare funds toward the treatment of curable diseases' late-stage consequences. In urban slums, there is a critical need for a new method of health evaluation and characterization of social-cluster determinants of health.

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