Variation of Physical Safety across Concentric Zones in Urban Settlements of Northern Nigeria: a Study of Hadejia Metropolis

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Abstract

The study determined the extent of physical safety and how it varies across concentric zones, from the inner core, to the outer periphery in Hadejia metropolis, Jigawa state, Nigeria. Using multi stage cluster sampling in the three concentric zones, accidental sampling method was utilized to reach 360 respondents, 120 from each zone. Data obtained using researchers’ constructed questionnaire was analyzed using descriptive and inferential statistics. The descriptive analysis using cross tabulation indicates inner zone to have high physical safety, moderate in the middle zone, and low in outer zone, which is also supported by mean plot graph with the mean differences of 2.86, 2.50 and 21.2 respectively. The inferential analysis using analysis of variance (ANOVA) indicates difference of perceived physical safety across the three concentric zones with f-calculated value of 21.476 is greater than f-critical value of 19.49 given 2 and 357 degrees of freedom at p > 0.05 level of significance. The study recommends strategizing effective policing system in the outer zone among others, for strengthening security and physical safety in the zone.

Keywords: Physical safety, Variation, Concentric zones, Inner, Middle, Outer

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Background to the Study

The concept of physical safety has remained one of the essential aspects of criminological explanation, in describing victimization and what it induce, related to places and times. This has been the business among academics and concerned organizations, in many countries including Nigeria. However, while there has been effort by academics, police and other law enforcement agencies in suggestion and implementation of recommendations in the country, to prevent crime and ensure safety of the general public, some challenges indisputably militate against the strategy, such as shortage of manpower and facilities, inadequate funding, corrupt disposed system, lack of awareness among public and so on (Okeshola and Mudiare, 2013).

The situation resulted to the emergence of some complementary policing organizations like neighbourhood watch groups, who also participate in the enterprise to ensure public safety. Other concerted efforts emphasize gaining insight on trend and pattern of crimes especially in the urban centers, which is of great relevance for strategizing effective policing system, to create confidence and sense of perceived safety in the citizens. In line with such efforts, crime mapping stands indispensably important, in identifying 'hot spots' for criminal activities, which can be signify by level of safety and extent of victimization by the public. This effort is apparently given low consideration especially in academic works.

In northern Nigeria, the unprecedented physical growth in the urban areas is frequently unplanned, which sets ecological challenges like criminal victimization and insecurity as well as proliferation of urban poverty, with resultant web of linkages between spatial expansion and urban risk (Bloch et al, 2015). Thus prevalence of crimes may differ across concentric zone settlements, with variation in socioeconomic and cultural factors. Many urban cities in the northern Nigeria share similar pattern of expansion, ecological changes, and security problems across time. Therefore, identification of hotspot locations for safety and victimization using research model is important, especially as such research gain less consideration for strategizing effective policing suggested by most academic literature in Nigeria. Hence, this study aims at determining the extent of physical safety across concentric zones, perceived by the public in Hadejia metropolis, as one of the typical example of urban centers in northern Nigeria, which evolved through simple and traditional, to complex and urban setting, experiencing population growth and development. The aim is to investigate the variation of physical safety across the city concentric zones, as an indicator of security situation, and to suggest recommendations for strategizing effective policing in the city.

Statement of the Problem

In the current use of crime mapping, criminologists utilize graphic representations of the spatial geography of crime. The method provides data on crime locations or crime concentrations, to help law enforcement agencies in strategizing service delivery, to enhance safety of communities. Using the method, criminologists can “determine if certain neighborhoods in a city have significantly higher crime or safety rates than others, so-called hot spots of crime” (Siegel, 2012:41). In Nigeria, where accurate data on criminal victimization is lacking, public perception on physical safety can represent the security condition of different neighbourhoods, because perceive safety in a particular community goes along with extent of
criminal victimization (Bottoms and Wiles, 1992). It is important to note that, some urban
centers in Nigeria have long cultural history, so are their development and expansion. The
factor of colonialism has created some communities in the periphery of such urban areas,
forming heterogenic society, a factor which couple with urbanization process and consequently
breed crime patterns.

As one of the urban areas in northern Nigeria, Hadejia metropolis is the most populous and
commercial urban community in Jigawa state. Currently, its environs face serious security
problems such as burglary, stealing of motorcycles, rise of gangs and many other social
problems, complaints and discussion on the criminal victimization is on increase among
environs, a reason which poses need for systematic method of enquiry over efficacy of policing
strategies in the metropolis. While essential components like equipments, manpower and
funding are necessary for effective service delivery. Relevant researches are equally pertinent in
finding solutions that will reinforce effective policing system.

In this regard, there is need for adopting theoretically informed strategies by exploring places
the community members perceived as hot spots areas, which provides safe haven for criminal
activities, through theoretically guided research method. Hence, this study intended to
investigate the extent, as well as the differences of perceived physical safety by the public in the
three concentric zones of Hadejia metropolis from the core to the periphery i.e. inner, middle
and outer settlements, so as to bring to security limelight the areas that need more strategic
investment for tackling security problems.

**Objective of the Study**
To determine the extent of physical safety vis-à-vis the difference on perceived physical safety
between concentric zones in Hadejia metropolis.

**Research Question**
What is the extent of physical safety across concentric settlements in Hadejia metropolis?

**Research Hypothesis**
$H_0$: There is no significant difference of perceived physical safety between concentric zones
in Hadejia metropolis.

**Significance of the Study**
The research will be of great relevance to the Nigerian police force, the community of Hadejia
and the academic world. Especially, considering its contribution in underpinning the extent of
physical safety and how it varies across concentric zones in Hadejia metropolis. It will help the
police force in strategic planning in enhancing effective community policing, in collaboration
with the environs of the identified black spots with safety challenges. Thus, the findings and
recommendations suggest on the right and helpful way the community can respond, relate and
participate in the security project, through partnership with policing agencies.
Literature Review

Physical safety reflects security situation, which is determined by low victimization, or prevalence of criminal activities in a given society. The concept of physical safety usually anchored the national security condition in a given country or community. Alemika (2011) conceives safety as a freedom from fear of threat or act of violence and loss of property, bodily harm, fear of diseases, unemployment, and human rights violation. In this regard, Nnoli (2006:11) defines National Security as a “cherished value concerned with emphasis to physical safety of individuals, group or nation States as well as safety of the group valued customs”. This view represents physical safety as the prime need for security among citizens. In the same vein, Alemika (2011:12) noted that, the domains of security include physical, emotional, social, economic, and political well being. This conception suggested that, security goes beyond physical safety; it involves other domains such as serene political atmosphere, where citizens enjoy total freedom and thrive to explore their potentials. In essence, it is the responsibility of a state to cater for its citizens' security needs; it is one of the most important contractual responsibility citizens expect from their government.

In Nigeria, the relevant sections of the amended 1999 constitution states that the police among other law enforcement agencies is mandated with the functions of security of public safety and public order within the state of Nigeria. However, because of many reasons, such as corruption, inadequacy of personnel, lack of facilities e.t.c. the police are ill-equipped and distorted to carry out their function effectively (Okeshola and Mudiare, 2013). The upsurge of criminal victimization vis-à-vis police inefficiency gave rise to personal efforts like neighbourhood watch and home security, including the involvement of vigilante groups, to the extent that “citizens prefer handling the issue of their security by themselves, sometimes going as far as taking the laws in to their hands” (Dambazau, 2012:249).

Ikoh (2011:36) observes that, “the twenty first century Nigeria is confronted with indisputable crime challenges. Ethno-religious and political violence has compounded the problem of insecurity in the country”. He went further citing Nnoli (2003) that since the civil war, Nigeria has never recorded the amount of waste of lives and property as it has done since 1999 till date. He further conceives the factors for the upsurge of crime in relation new information technology, the existence of widespread inequality, economic deprivation, ethnic conflict, family disruption, unemployment and high level of poverty. Many decades ago, in Chicago, United States of America, Mckay and Shaw (1998) tie the prevalence of crimes across concentric settlements, with variation in economic status and health condition, the effort which provides foundation for strategizing policing in hot spot areas of the city. The effort in Chicago, inspires hitherto need for more research and planning for strategizing effective policing. The work also provides a foundation for current use of crime mapping, acquired through relevant researches that help for understanding trend and pattern of victimization in global societies, especially in the urban settlements.

In determining the status of safety across 36 states in Nigeria, a personal victimization study by Alemika (2011), sponsored by CLEEN, indicates Kebbi state to have the highest victimization rate as reported by 82.9% of the respondents, while Katsina has the least with 9.3%. Jigawa the
home state of Hadejia metropolis reported to be of median status, with 37.9% reported case of personal victimization in the survey. The contradiction in the data presented prevails, as the study reported Jigawa state to have the highest fear of victimization compared to many northern states, like Kano, Katsina, Kaduna, Kebbi, Zamfara and Sokoto states. Perhaps, significant number of the respondents from Jigawa state might be residing in criminogenic settlements, a factor not considered in CLEEN's study. Hence, the choice of Hadejia metropolis as one of the urban centers in Jigawa state for this study, to explore the status of the environs perceived safety, which encapsulates fear of victimization and extent of criminal victimization, with emphasis on difference across concentric zones.

It is pertinent to consider accounts on urban expansion and development, across history in northern Nigeria, as a tip for understanding variation in physical safety across their environmental zones. Historically, in pre-colonial Nigeria, the northern cities, such as Kano, Katsina, Sokoto and Maiduguri, were developed for being religious and political centers as well as trans-Saharan trade routes. Some of these pre-colonial urban centers, developed during colonial period, as a result of factors such as railway stations, administrative centers and presence of economic activities, attracting migrants from far and nearby communities (Falola, et al 2010). The process continues after Nigeria’s independence, urban centers in northern Nigeria gain more densification by attracting migrants across the country (Ogu, 2005). As such, some of the urban centers in northern Nigeria share similar pattern of development from the core to the periphery.

The context of urban expansion in Northern Nigeria usually occurs beyond the old city walls, giving birth to new settlements at the edges of the existing cities. It emerges when disconnected developments and residential settlements that do not form part of urban areas start to be incorporated into city limits due to physical expansion pressures (Atu et al., 2012). This process is supported by diminishing commuting distances to the urban core, which allow the ever-expanding absorption of discontinuous settlement on the periphery into an existing urban fabric (Bloch et al, 2015). This process of growth and urban change integrates a diversity of settlements, ranging from housing estates, educational facilities and industrial sites to unplanned residential developments on urban fringes progressively incorporating peripheral peri-urban (and rural) settlements (Ogu, 2005). In this regard, urban expansion due to the non-existence or inapplicability of planning instruments and often lacking resources has been the factor for social problems to a large part of the urban population in Nigeria: new urban dwellers frequently settle in high-risk areas (Adelakan, 2009), creating a form of settlements, where environs have weak resistance to criminal victimization (Shopeju, 2007). This in essence poses serious need for empirical research to explore the mapping of physical safety and criminal victimization across the concentric zones of all these old developed cities, using theoretically informed approach, so as to strategies policing system in relation to perceived safety by the public, figuring out the differences, from the inner core to the outer periphery. Hadejia metropolis is sampled for this study as an example of such old urban centers in northern Nigeria, after which subsequent researches on more northern Nigerian cities can follow to verify the findings of this study.
**Theoretical Framework**

**Concentric Zone Theory**

Concentric zone theory is a derivative of Chicago school ecological perspective, with origin from the work of Robert Park and Ernest Burgess in 1920s (Siegel, 1998). The model formed the foundation of sociological criminology in United States of America. The paradigm adopts analogy of biological ecology of plants and animals (McShane and Williams III, 1998). Later in the 1940s, Clifford R. Shaw and Henry D. Mckay use the same model and extended the theory with social disorganization emphasis, which identified areas with high crime rates corresponded neighbourhood structure (Siegel, 1998). The central assumption of the theory lies in the analysis of environmental inhabitants, with dominant, institutionalized and stable system of life, encroached by new strange system, with consequential outcome of unstable system characterized by social problems, which is transmitted to successive generations (Mcshane and Williams III, 1998). The city of Chicago was the living laboratory for this analysis. Social disorganization theory considers factors that diminish the effectiveness of informal social controls. Poverty, ethnic heterogeneity, and residential mobility are identified as the three factors that weaken networks of social control and undermine the ability and willingness of communities to exercise informal control over their members (Shaw and McKay, 1942; Kornhauser 1978).

The Chicago school theorists of concentric zone model discover concentric circles, radiating from within the central part of the city, with demarcations which represents peculiar social vices characterized by significant difference between the concentric zones (Siegel, 1998). The inner central zone was the area of transition, characterized by concentration of business industries, which attracted migrants from different part of Europe and beyond, forming a heterogeneous community, with conflicting values. It was not favourable for residential use, because the buildings were old, cheap and undesirable, so became occupied mostly by immigrants. The heterogeneity sets in absence of dominant values that sanction deviance, and therefore turns the settlement to breeding ground for delinquency and crimes, and infectious diseases (Mckay and Shaw, 1942).

The next zone closer to the inner zone was inhabited by residences of working class individuals, close to the factories. Mckay and Shaw (1942) found that despite changes of inhabitants over years, delinquency and crimes remain relatively constant in the inner area and neighbouring communities adjacent to industrial areas. However, far away from the inner zone, it was residential zone occupied by individuals of higher economic status; the proportion of delinquency and crimes was relatively low. This analysis provides the baseline of our theoretical framework; the existence of difference in crime rates across concentric zones. The theorists emphasize: “It became obvious that social ills decreased with distance from the core. This meant rates of tuberculosis, infant mortality, various diseases, delinquency, and crime, all increased with proximity to the central business district (Mckay and Shaw, 1942:54).

It must be noted that, while the theoretical direction of Mckay and Shaw focused on variation in the rates of crime across the city zones corresponded the variations in economic status; our analysis did not focus on socioeconomic differences (though exists) among environs in Hadejia...
metropolis, but concentrates on differences of perceived physical safety across the zones. Though, the variables differ, but they are related in many respects. Also, that the concentric zones are five in the analysis of Mckay and Shaw (1942), we settle our analysis in three demarcated concentric zones. This is because, in current analytical frame, place is considered as essential variable in understanding public safety, for instance, Bottoms and Wiles (1992) observe that:

the general public's sense of safety relates not only to place but also to different times of day in place, and second, that the everyday life of offenders, as well as of victims and potential victims, is shaped in part by understandings of the nature of particular areas and, within them, of specific locations – and those understandings are undoubtedly important in shaping the geographical distribution of offending behaviour (Bottoms and Wiles, 1992:8).

The above view, gives account on the relevance of mapping criminogenic areas in concert with times, in understanding public perception on their safety, which is important in policing strategy.

**Methodology**

The research design is cross-sectional descriptive survey. The population of the research comprises of entire people living within three districts that make up Hadejia metropolis, which covered major portion of Hadejia local government and some parts of Mallam Madori local government areas i.e. Cikin Gari, Waje and Atafi. However, the city across these three districts was segmented in to three concentric zones, inner, middle and outer settlements. Mostly Waje district fallen in the outer zone, while Cikin Gari and Atafi fallen within inner and middle zones.

The sample for the study is drawn from among the people living in the concentric zones, and 360 subjects were selected, 120 from each segmented portion based on Krejcie and Morgan (1970) sampling frame, making a total of 360 respondents. Using multi-stage cluster sampling, the samples of the study were selected at cluster stage, under three demarcated zones as inner, middle and outer settlements. The study employed accidental random sampling approach to meet the sample size of 360 respondents. The data obtained using researchers’ constructed questionnaire is analyzed using descriptive and inferential statistics.
Data Analysis

Table 1: Respondents' Socio Demographic Data

<table>
<thead>
<tr>
<th>S/N</th>
<th>Variable</th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Settlement</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Inner</td>
<td>120</td>
<td>33.3%</td>
</tr>
<tr>
<td></td>
<td>Middle</td>
<td>120</td>
<td>33.3%</td>
</tr>
<tr>
<td></td>
<td>Outer</td>
<td>120</td>
<td>33.3%</td>
</tr>
<tr>
<td>2</td>
<td>Sex</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Male</td>
<td>284</td>
<td>78.9%</td>
</tr>
<tr>
<td></td>
<td>Female</td>
<td>76</td>
<td>21.1%</td>
</tr>
<tr>
<td>3</td>
<td>Age</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>18-27</td>
<td>142</td>
<td>39.4%</td>
</tr>
<tr>
<td></td>
<td>28-37</td>
<td>130</td>
<td>36.1%</td>
</tr>
<tr>
<td></td>
<td>38-47</td>
<td>71</td>
<td>19.7%</td>
</tr>
<tr>
<td></td>
<td>48-above</td>
<td>17</td>
<td>4.70%</td>
</tr>
<tr>
<td>4</td>
<td>Educational Qualification</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Qur'anic</td>
<td>18</td>
<td>5.00%</td>
</tr>
<tr>
<td></td>
<td>Primary cert.</td>
<td>12</td>
<td>3.30%</td>
</tr>
<tr>
<td></td>
<td>Secondary cert.</td>
<td>77</td>
<td>21.4%</td>
</tr>
<tr>
<td></td>
<td>Advanced cert.</td>
<td>253</td>
<td>70.3%</td>
</tr>
<tr>
<td>5</td>
<td>Marital status</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Single</td>
<td>145</td>
<td>40.3%</td>
</tr>
<tr>
<td></td>
<td>Married</td>
<td>168</td>
<td>46.7%</td>
</tr>
<tr>
<td></td>
<td>Divorce/widowed</td>
<td>45</td>
<td>13.0%</td>
</tr>
</tbody>
</table>

The table 1 above detailed on respondents' demographic characteristics, with the first item highlighting on spatial settlements of the respondents. The data indicated there is even distribution of 33.3% (120 each) respondents from within three clustered settlements i.e. inner settlement, middle settlement and outer settlement. The sex variation among the respondents indicates most of them (78.9%) are males, while remaining 21.1% are females. Most of the respondents' age fallen within the ranges of 18 to 27, and 28 to 47, which covered 39.4 percent and 36.1 percent respectively. Those above 48 years of age are the fewest (4.7%). Most of the respondents (70.3%) have educationally obtained advanced level certificate. Those with primary school certificate and informal Qur'anic school education formed the fewest categories, represented by 3.3 percent and 5.0 percent respectively. Some 46.7 percent of the respondents are married; other 40.3 percent are singles, while 13 percent are either widowed or divorced.

Table 2: Perceived Physical Safety in the concentric zones of Hadejia Metropolis

<table>
<thead>
<tr>
<th>Concentric Zones</th>
<th>Perceived Physical Safety</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>VL</td>
</tr>
<tr>
<td></td>
<td>%</td>
</tr>
<tr>
<td>1. Inner</td>
<td>12</td>
</tr>
<tr>
<td>2. Middle</td>
<td>15</td>
</tr>
<tr>
<td>3. Outer</td>
<td>32</td>
</tr>
</tbody>
</table>

VL= Very Low, L=Low, H=High, VH=Very high. (Source: Field Work 2017)

The cross tabulation in the Table 2 indicates high extent of perceived physical safety in the inner concentric zone, as reported by 72.5% respondents, while it is least (35%) in the outer zone. The
middle concentric zone shares 50:50 ratios between low and high extent concerning physical safety in their communities.

**Figure 1: Mean Plot graph of Perceived Physical Safety across Concentric Zones in Hadejia Metropolis**

The above Mean Plot in the diagram 3 indicates differences in perceived physical safety between categorized inner, middle and outer settlements within Hadejia metropolis, with the mean differences of 2.86, 2.50 and 2.12 respectively. This indicates that, physical security is higher in the inner core zone, followed by middle zone of the metropolis, and it is least in the outer settlements, which police described as volatile and hot spots.

**Hypothesis 1**

**Table 3: There is no significant difference of perceived Physical Safety among Environs of Different Settlements in Hadejia Metropolis.**

<table>
<thead>
<tr>
<th></th>
<th>Sum of squares</th>
<th>Df</th>
<th>Mean Square</th>
<th>F. Calculated</th>
<th>F. Critical</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between groups</td>
<td>33.506</td>
<td>2</td>
<td>16.753</td>
<td>21.476</td>
<td>19.49</td>
<td>0.05</td>
</tr>
<tr>
<td>Within groups</td>
<td>278.483</td>
<td>357</td>
<td>0.780</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>311.989</td>
<td>359</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Table 3 shows that f-calculated value of 21.476 is greater than f-critical value of 19.49 given 2 and 357 degrees of freedom at P > 0.05 level of significance, which indicates significant difference of perceived physical safety between the three zones. Therefore, the null hypothesis is rejected, and we accept the alternative hypothesis which states that; there is significant difference of perceived physical safety between environs of different settlements in Hadejia metropolis.

**Discussion of the Findings**

The study found that there is high extent of perceived physical safety in the inner concentric zone of Hadejia Metropolis, reported by 72.5% respondents from the zone, while it is least (35%) in the outer zone. The middle concentric zone shares 50:50 ratios between low and high extent concerning physical safety in their communities. This finding is supported by Mean Plot graph in the diagram 4.8, which indicates difference in perceived physical safety between categorized inner, middle and outer settlements within Hadejia metropolis, with the mean differences of 2.86, 2.50 and 21.2 respectively.

Using analysis of variance correlation, the study found significant difference of perceived physical safety between the three concentric zones, with f-calculated value of 21.476 being greater than f-critical value of 19.49 given 2 and 357 degrees of freedom at P > 0.05 level of significance, the null hypothesis is rejected, and the alternate accepted. Hence, there is significant difference of perceived physical safety between environs of different settlements in Hadejia metropolis. In sum, the gravity of physical safety radiates from within the core, to the outer settlements. While, the finding appraises the validity of concentric zone theory in existence of difference across concentric zones in urban cities, it however, contrasts Mckay and Shaws' social disorganization model of concentric zone theory, which analyses Chicago city, and found outer zone as safer with less crime and delinquency, and the inner zone being transitional and crime prone zone. In this study the inner zone is safer, the middle being moderate, and the outer is found to have the lowest safety as perceived by the respondents.

**Conclusion**

The paper presents physical safety variation across concentric zones of Hadejia metropolis, as one of the typical urban metropolis in northern Nigeria. The implication of the study is to figure out variation of physical safety across concentric settlements. The data indicates difference between concentric zones, the inner zone which comprises of Cikin Gari and some parts of Atafi districts as the zone with higher safety, while Waje and some parts of Atafi and tail end of Cikin Gari districts, which formed the outer zone are perceived to have least safety. The findings indicate need for more strategy in policing system, which will ensure safety of citizens in the outer zone, and the neighbouring community adjacent to the outer zones.

**Recommendations**

The police in collaboration with local residents of the outer settlements in Hadejia metropolis should collaborate to build support for effective system of community policing, and improve social cohesion among the neighbourhoods, so as to strengthen security and physical safety in their communities. Government should ensure adequate funding, manpower and provision of
essential facilities to the police and other complementary policing bodies, to carry out their mandate as expected, which will help in making the policing services effective.

References


