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Residents' Socio-Economic Characteristics and Types of Gated Communities as Significant Determinants of Neighbourhood Safety in Ibadan, Nigeria

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Abstract

This study examined the residents' socio-economic characteristics, types of gated communities, and the perception of safety in Ibadan, Nigeria. A questionnaire survey method and a direct observation schedule checklist were used to obtain the primary data. Thirty gated communities (GCs) indicating almost half of the 57 GCs were evaluated. Of 4922 units in the study areas, 493 samples, signifying 10% were appraised using a systematic sampling technique. Information was obtained from components of resident socio-economic characteristics and physical characteristics of neighbourhoods, which include: surveillance, territoriality, image and milieu, physical and design condition, experiences and social capital. The study used a Likert scale of 1 to 5 that started from very poor to excellent to measure elements of the Perception of Safety Index (PSI). The data obtained were evaluated using descriptive and inferential statistics. The result shows the levels and pattern of criminal activities in the study areas and identifies methods used by residents to curb the trend which comprises: enclosed neighbourhoods and gated communities. Others include vigilantes, community patrol, corporate guards or private security, putting in place closed circuit television (CCTV), jungle justice and mob action. This study showed that age, GC type, and the last time residents experienced an attack among others were related significantly to the perception of safety ($p < 0.05$). The analysis yielded p-values of 0.023, 0.005 and 0.001 respectively. The study resolved that the safety requirements of neighbourhoods varied, wide-ranging and comprehensive. The pathways for making improvements included: crime prevention through environmental design, social interaction, surveillance and improvement in the concepts of neighbourhood design, surveillance, territoriality, image and milieu.

Keywords: Neighbourhood, safety, perception, crime, gated communities

1.0 INTRODUCTION

Crime causes fatality and loss of property along with an overwhelming fear of unsafe. These have serious effects and consequences for housing, values and economic development, social capital and life generally (Alohan & Ogedengbe, 2018). Nigeria has perceived an increase in crime all through the past two decades. The cumulative occurrence of armed robbery has led to a paralysing panic and fear which has in turn affected housing, social life and the economy in the country (Alemika & Chukwuma, 2005). Gated communities arose partly because of concerns for high crime levels in the city, and more importantly due to the "elite's frustration with existing urban conditions and their desire to leapfrog over the overcrowding and the dilapidated condition of housing and infrastructure in existing large urban centres (Sun & Webster, 2019).

There is a general concern for safety in most African cities, including Nigeria. This concern has continuously given rise to the emergence of the enclosed neighbourhood in the prevention and control of crime, violence and incivility (Makinde, 2020a). The private initiatives arose as consequences of the failure of the state and its safety apparatus to protect the life and property of its citizens, especially in most developing countries. Urban residents redefine urban space as a mosaic of privately controlled territories with differently installed safety strategies (Olajide et al., 2018). The regrouping, realignment and redefinition of boundaries manifest in the socio-spatial restructuring of urban space. The forms of privatised and informal crime and social control mechanisms in most Nigerian cities include neighbourhood enclosures, neighbourhood patrol, vigilantes, private security or corporate guards, installation of closed circuit television (CCTV), mob action and jungle justice (Agbola, 1997; Fabiyi, 2004).

The socio-economic factors refer to the basic characteristics of neighbourhood residents, such as race, education level, employment level and income level (Makinde, 2022). The characteristics of the residents in a neighbourhood affect their quality of life. The benefits flowing from neighbourhood networks and relationships can create possibilities and opportunities for its residents (Webster, 2002). The characteristics of people who live in a neighbourhood can be considered a factor in neighbourhood safety (Makinde, 2020a). Changes in

the socio-economic characteristics of a neighbourhood might result in a change in the level of safety (Olajide et al., 2018). Specifically, the economic status of residents is likely to be particularly significant, since changes in income levels are likely to correlate with changes in many neighbourhood amenities, and more importantly with the level of safety in the neighbourhood (Weissbourd et al., 2009). The recent examples of gated communities are shaped by global socio-economic changes, the marketing strategies of developers and the spreading of architectural concepts and lifestyles (Webster, 2002). Gated communities, spread all around the world, differ from place to place, to their socio-economic characteristics in particular and different reasons for development viz. religion, ethnicity and prestige (Gülümser & Baycan-Levent, 2009).

The physical characteristics may sometimes be in the form of barriers and enclosures, or demarcation, which are used to define members and outsiders (Gul et al., 2018). Though urban culture encourages individualism and anonymity, the concern for the safety of lives and property serves as a centripetal force and the basis for regrouping in residential neighbourhoods (Williamson, 2003). The term gated community is currently a serious issue being debated among planners, politicians, developers and the public (Makinde, 2020b). But, the underpinnings of gated communities intuitively appeal to people who equate it with a model of what a community should be, in terms of creating a sense of place, increasing participatory democracy, providing safe and private residential spaces, and designed to promote a neighbourhood vitality not found often in other neighbourhoods (Arese, 2018).

The act of separating neighbourhoods from each other with physical barriers may well confer these benefits upon the neighbourhood's residents but at the same time disassociates these individuals from the goings-on elsewhere in the community (Danielsen 2008). The rate at which gated communities have been erupting within our cities has been very alarming and this is due to an increase in crime and violence and the need for citizens to be housed in improved and better physical environments (Olajide et al., 2018). The explosive growth of gated communities over the last two and a half decades would predict that most Ibadan residents know at least one person who lives behind gates with over thirty residential zones having fifty-seven GCs in Ibadan metropolitan area (Makinde, 2014). Popular conceptions of gated communities conjure images of neighbourhoods with personally owned single-family homes or condominiums. Enclosed neighbourhoods are fast becoming the primary crime control strategies in many African cities. The road closure has been observed to be the least-cost approach to neighbourhood crime control. However enclosed neighbourhoods have been criticized for the inconvenience they cause other urban space users. The problems of enclosed neighbourhoods have become a challenge to urban managers and other urban gatekeepers in urban administration, service delivery and distribution of goods in the city (Fabiyi, 2004, 2006).

It is important that in finding solutions to these urban problems associated with safety, we should understand the nature and pattern of perceptions of the people directly affected in these areas. The understanding of residents' perceptions provides better information on their reaction to issues which may lead to a more enlightened decision of the policymaker (Arese, 2018). This study has therefore accounted for changes over time by examining the nexus between the factors that influence the perception of neighbourhood safety in gated communities in our society. The perceptions and beliefs about disorder and crime may be as important as actual crime and disorder rates in terms of how they function as risk factors for neighbourhood safety (Alohan & Ogedengbe, 2018). If people perceived an area to be declining then they are likely to act accordingly. As gated communities increase in popularity, the resulting socio-economic, cultural and environmental implications and consequences from such developments need to be addressed.

Safety in the city and at home is necessary for people to be able to function well in the world (Myers, 2011). Thus, obtaining safety by enclosing the walls of residential development and by addition increasing safety through the development of walls and gates is skyrocketing in numbers in cities (Alohan & Ogedengbe, 2018). The importance and necessity of this research are based on the need to look at the increasing occurrences of gated communities' development in the urban cities as tools of neighbourhood safety, it is necessary to explain the influences and relationship of residents' perception of safety, physical and social characteristics, social and economic contexts that make the types of gated communities a global phenomenon. The gated community's model is commonly considered an essential method for controlling fear of crime and thus has been recognized as a future development approach by numerous leading establishments (Bodson et al., 2008; Commission on Human Security, 2003; NPIA, 2012; World Bank, 2011). The few studies that explored gated communities gave limited consideration to the relationship between the perception of residents to safety, environmental design and community participation; hence this study.

This study will provide the needed information on ways of achieving neighbourhood safety in residential development in urban areas. Furthermore, this study will contribute to new global knowledge by providing quantitative spatial information on the perception of neighbourhood safety in gated communities. It will contribute to the existing international literature by extending existing knowledge on types of gated communities that could lead to useful changes in the best practice for public and private housing development. The study is also expected to fill the gaps in an important area of public policy toward achieving quality design options in urban communities. The study will provide information on neighbourhood profiles and safety indices for the effective development of gated communities.

2.0 LITERATURE REVIEW AND THEORETICAL FOUNDATION

2.1 The Study Area: Ibadan

Ibadan is the capital city of Oyo State and the third-largest metropolitan area in Nigeria, after Lagos and Kano, with a population of 1,338,659 according to the 2006 census. Ibadan is also the largest metropolitan geographical area. During the independence of Nigeria, Ibadan was the largest and most populous city in the country and the third in Africa after Cairo and Johannesburg (Makinde, 2020a). Ibadan is located in southwestern Nigeria, 128 km inland northeast of Lagos and 530 km southwest of Abuja, the federal capital, and is a prominent transit point between the coastal region and the areas to the north. Ibadan had been the centre of administration of the old Western Region since the days of the British colonial rule, and parts of the city's ancient protective walls still stand to this day. The principal inhabitants of the city are the Yoruba people, most of whom are Christian. It lies within latitude 7° 19' 08" and 7° 29' 25" and

longitude 3° 47' 50" and 4° 0' 22. The city encompasses five local government regions as revealed in Figure 1. These are Ibadan Southwest, Ibadan South East, and Ibadan North-West; Ibadan North, Ibadan North East, nevertheless the greater parts of Ibadan cover beyond the frontier of the study area including the eleven local governments. The metropolis was selected for this study. Ibadan metropolis is a home-grown urban settlement that is fast becoming a heterogeneous civilisation comprising diverse tribes and nationals (Makinde, 2020a).

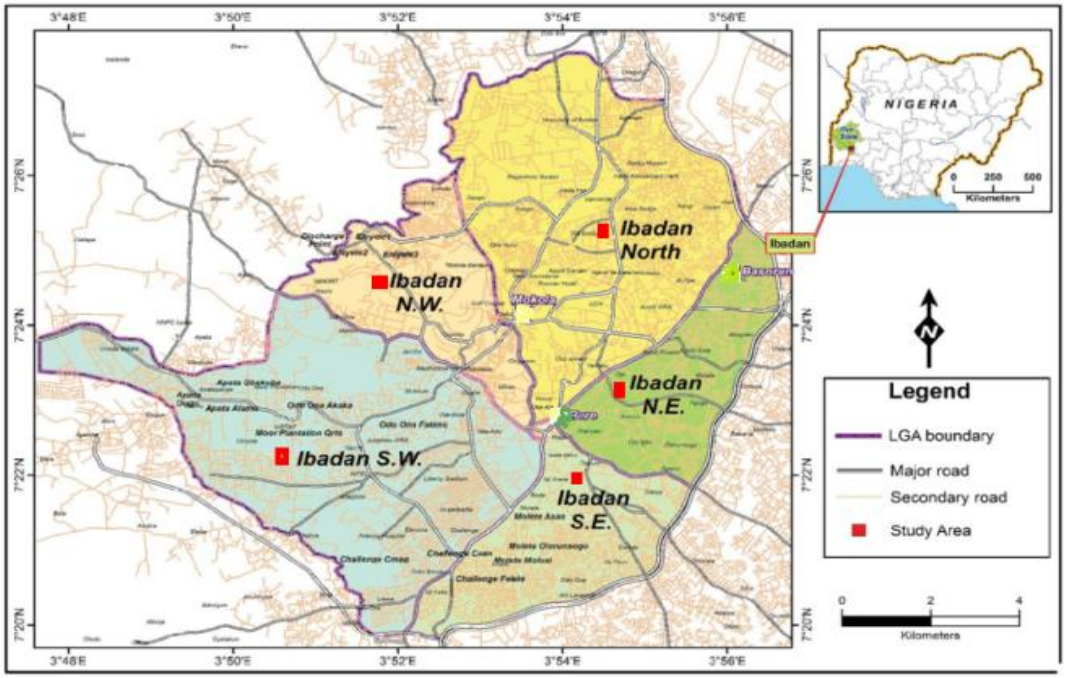

Figure 1 Map of Ibadan metropolis
(Source: Makinde, 2020a)

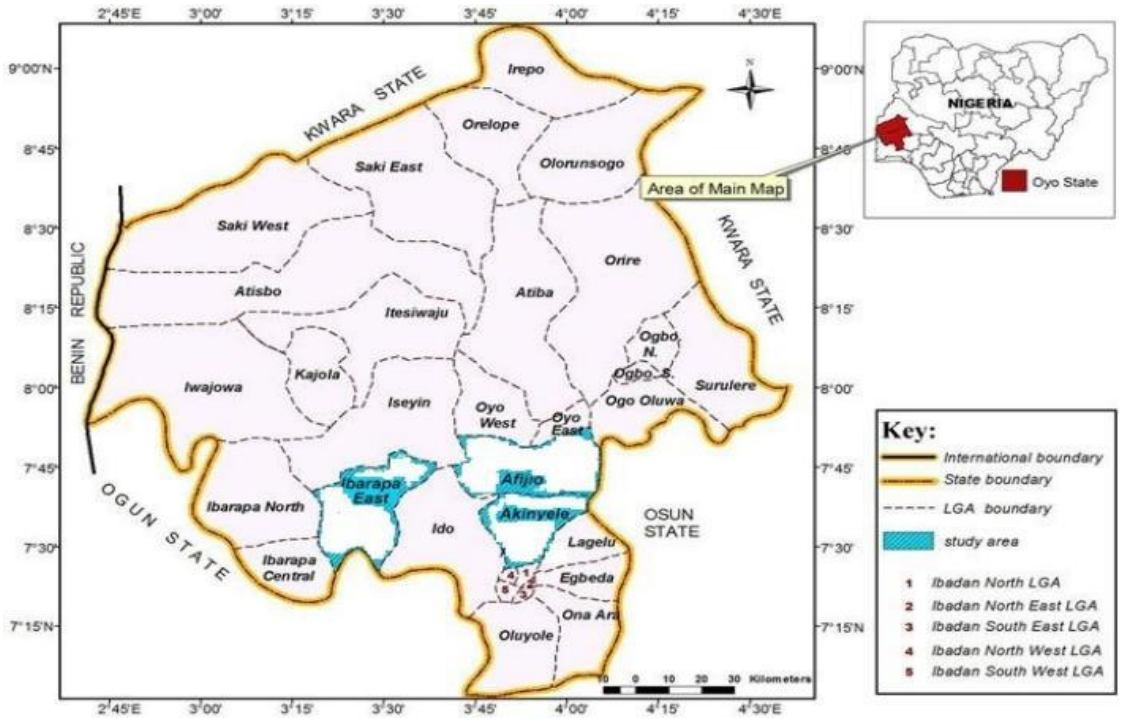

Figure 2 Map of Oyo State showing selected local government areas
(Source: Makinde, 2014)

2.2 Reviewing Past Literature

Past studies on neighbourhood safety focused on community building as a response to safety, using the neighbourhood association and urban design as platforms for evaluation. The few studies that explored gated communities focus predominantly on Western societies, based on literature and publications which are predominant with Western input and lifestyles (Ferraro, 1995; Landman, 2004; Myers, 2011). Few empirical studies have shown the level of safety among residents from diverse socioeconomic and demographic backgrounds in the context of gated communities (Ferraro, 1995; Makinde, 2020a). Alohan and Ogedengbe (2018) looked at the comparative study of the influence of gated and non-gated residential estates on property values in Edo State in Nigeria whilst Gul et al. (2018) analysed the association between the perception of crime and walking in gated and non-gated neighbourhoods of Asian developing countries. In essence, limited studies alluded to the area of the perception of residents' safety in the context of gated communities.

Besides that, Vesselinov (2009) investigated whether gated communities contribute to racial and economic segregation in Phoenix. Makinde (2020b) scrutinised the global spread of gated communities. While Wilson-Doenges (2000) explored the sense of community and fear of crime in gated communities, Landman's (2003) study focuses on gated communities in Brazil and South Africa, of which entails comparative perspectives. Later, Atkinson and Flint (2004) studied gated communities in London, England with a specific focus on the enclosed area, followed by Danielsen (2008) who probed into the lifestyle neighbourhoods by examining the semi-exclusive world of rental gated communities. In the early millenium, Giglia (2003) dissected the growth of gated communities in Mexico by comparing whether they build social division or safer communities. A study by McGoey (2018) observes on a gated community to access control issues. On the other hand, Ajibola et al. (2010) inspected the impacts of gated communities on residential property values, a comparison of Onipetesi estate and its neighbourhoods in Ikeja, Lagos State, Nigeria. Górczyńska's (2012) work focused on the specificity of gated neighbourhoods in the Bielany district while a seminal work by Grant (2003) concentrated on planning responses to gated communities in Canada. During the same period, Grant and Mittelsteadt (2004) studied the types of gated communities. These studies were limited to the area of the perception of residents' safety, in terms of environmental design, community participation, physical environmental quality and social capital in the context of gated communities. Existing studies on gated communities in the past gave limited consideration to the perception of residents, residents' socio-economic characteristics and types of gated communities as significant determinants of neighbourhood safety, hence this study.

Finding-wise, many studies had shown that neighbourhoods that score badly on the Safety Index also score badly on the Social Index (Arese, 2018; Gul et al., 2018; van Harten, 2012). Previous works also delineated that there is a link between the physical layout of a neighbourhood (squares, entrance halls, garages, alleyways, and the concentration of care facilities) and the safety in the neighbourhood (Alohan & Ogedengbe, 2018; Makinde, 2020a; Olajide et al., 2018). The quality of the housing (many cheap rented dwellings, quickly changing subletting, properties in which drug dealing takes place) and inadequate amenities in certain neighbourhoods also harm the safety and the quality of life. To be able to improve the safety level, investment in the quality of the housing stock and the level of amenities is necessary. Cleanliness determines to a large extent the residents' perception of safety. In addition to the cleaning of streets, attention to the prevention of litter on the streets is also important (Alohan & Ogedengbe, 2018; van Harten, 2012). The safety problems in the neighbourhoods are the risk and protective factors. The most important risk factors for safety are possession of firearms, the carrying of striking and stabbing weapons, unemployment, physical decline and cramped housing and drug dealing (Innes & Jones, 2006; Makinde, 2020a). Three important protective factors can support the approach to safety: self-sufficiency, quality of life and confidence in the neighbourhood and the neighbourhood residents (Sun & Webster, 2019). Risk factors and protective factors should form a part of the approach to safety. They also form the basis for the early warning system. This is achieved by improving the perception of safety by people in the neighbourhood, removing feelings of unsafe and reinforcing feelings of safety (Arese, 2018; Gul et al., 2018; van Harten, 2012).

2.3 Influences of the Socio-Economics Factors on the Residents' Perception of Safety

The socio-economic factors that influence the residents' perception of safety are very germane indicators of the quality of life of residents in any neighbourhood (Makinde 2014). Understanding the socio-economic factors that contribute to the perception of safety will assist both policymakers and designers in the development of future urban housing in addition to improving communities' quality of life (Okunola & Amole, 2012; Makinde, 2022). An academic contribution by Kellekci and Berköz (2006) assessed housing as correlated not only to the physical modules comprising the house and the surrounding neighbourhood but also to the social and economic characteristics of the residents. Studies had revealed that fear of crime is synonymous with the perception of safety (Baba & Austin, 1989). Research on the residents' quality of life included measures of personal safety (Michalos & Zumbo, 2000). Kohn (2004) identified two categories namely the social and the physical factors. The physical is the residents' perception of safety from physical assault and the social factor is seen as increased exposure to victimization resulting from factors such as economic pain, lack of resources to protect oneself and high crime (Franklin et al., 2008). Extant academic works also demonstrated that the residents' perception of high levels of physical and social disorder is related to high levels of fear of crime (Bursik & Grasmick, 1993).

Empirical studies have shown that the level of resident perception of safety varies among individuals from diverse demographic and socioeconomic backgrounds. Specifically, older persons and women are described as less at threat of crime than their younger and male counterparts respectively (Ferraro, 1995). A study in the Netherlands indicated that age, sex and size of the neighbourhood are the important factors related to the perception of safety (van Dijk & Vianen, 1978). Nevertheless, several studies had no indication of variants based on gender and education (LaGrange & Ferraro, 1989). Residents' perception of safety also varies with socio-demographic backgrounds and quality of life in a neighbourhood (Makinde, 2022). Factors such as gender, age, income, the experience of the previous victimization, an individual's ability to cope generally, rapid change in a neighbourhood, evidence of disorder in an area, living in large cities, and the role of the media have all been found to influence levels of fear (Ferraro, 1995).

2.4 Conceptual Framework

The study adopted an analytical framework cognizant of the social, economic and physical characteristics of the study area. The study took a preventive approach to crime solutions. From the inception of this study, one of the major objectives is to look at the determinants of factors. From the literature, it was discovered that physical environmental quality, individual/population characteristics, social capital, environmental design, neighbourhood institutions, and livelihoods availability affect the perception of residential neighbourhood safety. This study was premised on the view that neighbourhood safety is a function of these constructs. The diagram below explains how the concepts of neighbourhood safety, physical environmental quality and social capital, environmental design, neighbourhood institutions, and livelihood availability are defined in this study. There are three diverse methods of crime prevention; law enforcement (the justice system, legal practitioners, police, among others), locational crime prevention (architects, urban planners, etc.) and social crime prevention. These methods are commonly used in combination. Locational crime prevention is how the built environment is designed and planned to stop and avert crime. Figure 3 shows the relationship and link between socio-economic characteristics, types of gated communities, other characteristics and the perception of safety in GCs. The conceptual framework for the study is shown in Figure 4, which demonstrates the overall relationship between variables. This relationship determined perceived safety. The Safety Index will be derived from the neighbourhood profile which comprises the social and physical profile of each neighbourhood.

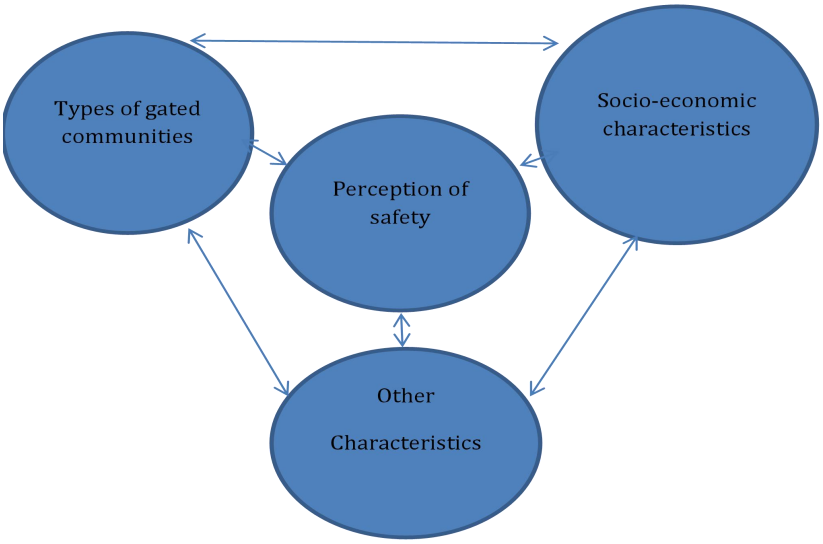

Figure 3 Relationship between socio-economic characteristics, types of gated communities, other characteristics and perception of safety

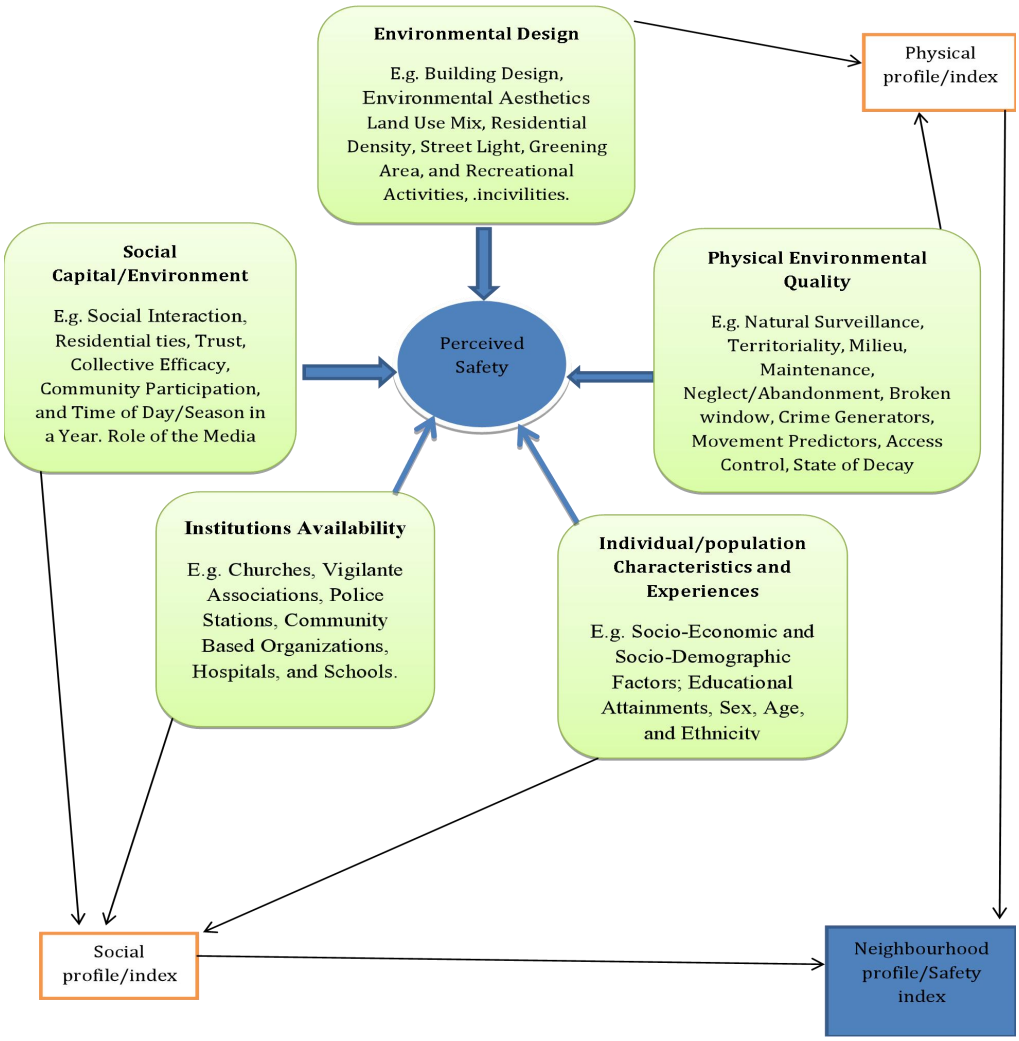

Figure 4 Conceptual framework of the study

2.4.1 Social Capital

Putnam (2000) described social capital as the interaction, connection, norms and trust that permit culture and society to function effectively. The usage of the word capital in current conceptualizations of neighbourhood safety is a clear indication of the hypothetical proposition that these social fundamentals function comparable to other forms of capital, with a related normative root. Describing social integration as capital highlights that profits are anticipated from investment in social relationships; social capital is therefore an asset and a plus in terms of admittance to social networks and the advantage of their resources (Lin, 2001). Hence, social capital is a means that can impact the societal quality of life at the neighbourhood level through nets of associations that bind societies together as a neighbourhood via definite norms and psychological abilities, especially trust, which are vital for civil society and creative for future collective action or goods (Farr, 2004).

2.4.2 Environmental Design

Environmental design can be described as the appropriate designed and operational usage of the built environment that could cause a drop in the incidence and fear of crime, and enhancement of people's well-being. Coetzer (2001) designed a novel unified model of crime prevention, integrating Crime Prevention through Environmental Design (CPTED) with environmental aesthetics and recreational activities to generate an information-driven and secure environment integrating worthy surveillance. Coetzer (2001) stated that the greener a building's surroundings were, the fewer crimes were reported. A good urban design considers security and safety concerns in spatial development. It brings an optimistic difference to crime rates. Thus, the setting up of fundamental functions in each neighbourhood enriches place liveability. This view is premised on the indication that when residents are provided with important services such as recreational facilities and social amenities, they will be pleased with living in their locality. If societies have a more satisfying physical milieu; they would be less prone to commit criminal actions. Designing urban communities for functionality is a fundamental part of planning. The roles of architects, urban planners and policymakers in crime prevention contain two major activities: economic

development and physical urban design. The first involves provision for employment opportunities and breakthroughs in master plans. The latter takes the form of addressing the design of social production public spaces through sound architectural adherence to controlling and enforcing building codes and standards to drastically reduce the chances for criminal activities (UN-HABITAT, 2011).

2.4.3 Physical Environmental Quality

Prior studies indicated that the key issues in the link between maintenance and safety are abandonment and neglect. Small pointers of neglect, for instance, unkempt lawns and broken windows are seen to encourage a feeling that an area is in a state of deterioration. Expecting decay, people equally fail to maintain their belongings. This upsurge in signs of neglect, perhaps, entails that habitation is abandoned. It is this resident's perception of neglect, which in the words of Wilson and Kelling (1982) cause crime and not crime causing neglect. The advocates of the broken windows thesis support a zero-tolerance method for property maintenance and perceived that the incidence of a broken window will induce vandals to break additional windows in the neighbourhood. Wilson and Kelling (1982) thus suggested that the sooner broken windows are rectified and fixed, the less likely such vandalism will take place in the future.

2.4.4 Institutions Availability

The presence of neighbourhood institutions such as community organizations, churches, hospitals, colleges, schools, and certain neighbourhood facilities played numerous roles in neighbourhood safety in the community (Makinde, 2020a). These roles comprise providing safety in terms of services to the residents, contributing to social relations by enhancing social capital, stabilizing the region by contributing and investing in its safety, and so forth. The social capital and production component of a region are closely correlated to the existence of neighbourhood institutions for example associations, churches, and community-based civil service, which aid the development of social networks and the occurrence of a sense of community. Anchor institutions for example hospitals and schools, and religious organizations, which are not movable and thus tend to advance the development and invest more seriously in the neighbouring community, might also have a stabilizing consequence on the neighbourhoods in which they are situated. Social collaborations are one of the key factors of safety and the important measures of neighbourhood performance correlated to change in housing price quantity and safety. The variables used to measure these factors include the number and rates of changes in property values and violent crimes (Weissbourd et al., 2009).

2.4.4 Individual/Population Characteristics

Existing works revealed that certain socio-demographic groups tend to display a greater fear of crime (Hale, 1996). Elderly people and women tend to feel more emotionally, socially and physically vulnerable, hence, their greater apprehensions and concerns for personal safety. Lower socio-economic and ethnic minority groups are said to be naturally and ecologically vulnerable (Covington & Taylor, 1991) since they have fewer financial resources to safeguard and protect themselves or their homes from crime, and sometimes often live in neighbourhoods with concerted deprivation (Hale, 1996).

3.0 RESEARCH METHODS

This study used cross-sectional research designs to gather information on the study areas at a single point in time within a short period. This entails the collection of data on more cases to collect a body of quantitative data in connection with variables which are then analysed to detect patterns of associations or relationships. The resultant strategy was expanded to cover the entire city to obtain a wide perspective and provide total spatial coverage of the study areas. Data for the study was obtained from both primary and secondary sources. A questionnaire survey that was personally administered and direct observation was used to obtain the primary data. The questionnaire was standardized and piloted to improve its reliability. The preliminary survey revealed that there were thirty (30) residential areas with (GCs) in Ibadan as demonstrated in Table 1. For this study, 20% that consisted of five areas were randomly selected. These included: Old Bodija Scheme, Agodi Government Reservation Area, New Bodija Scheme, Kolapo Ishola Scheme and Alalubosa Government Reservation Area. Thirty (30) GCs out of 57 GCs were randomly selected as reported in Table 2; this represents about half of the GCs identified were sampled. Out of the four thousand, nine hundred and twenty-two (4,922) households, four hundred and ninety-three (493), representing 10% were sampled using the systematic sampling technique. In each of the houses selected, the household heads were administered the questionnaire. But where these categories of people are not accessible, a mature member of such household was administered with the survey. Three hundred and ninety-six (80.3%) questionnaires were retrieved. The information obtained included: components of residents' socioeconomic and physical characteristics. The residents' socio-economic characteristics retrieved were their ages, income level, marital status, and ethnicity among others, while the physical attribute obtained include: surveillance, territoriality, milieu and image. Information was also retrieved for residents' perception of safety (PS), social capital, physical condition and experiences of safety as factors in describing the features of the GCs. This study used a Likert Scale of 1 to 5 from very poor to excellent to quantify attributes of the Perception of Safety Index (PSI) and Physical Characteristics Index (PCI).

The Perception of the Safety Index (PSI) is the blend of opinions, statistics and production of the safety index. It is an indicator showing measurement representing the comparative level of neighbourhood safety at a specific time compared with the number obtains at a specific period accepted as standard. Index Score are: scale from 1 to 5, these are in 5 categories: 2.0 < unsafe, 2.0 – 2.50 < problem, 2.5 – 3.0 < threatened, 3.0 – 3.5 < needs attention > = 3.5 safe. The Safety Index will contribute to the fact that safety has become measurable, both objectively and subjectively, and that we can take action based on this. The Defensible Physical Characteristics Index (DPCI) is the physical characteristic in the study area which is based on a numerical scale. The score per area ranges from 1 to 5 on the Defensible

Physical Characteristics Index. It will be apparent from the score the area has achieved on the Defensible physical characteristics Index. The Defensible Physical Characteristics Index is a numerical value assigned to an area which is based on the physical indices (characteristics of the area). The data collected were analysed using inferential statistics such as Pearson chi-square and descriptive statistics such as percentages and frequency tables. Table 1 displays the residential areas with gated communities in the Ibadan urban area, while Table 2 exhibits the selected population for the study.

Table 1 Locations of residential areas with gated communities (GCs) in the Ibadan Metropolitan Area

S/N	Local Government Area	Government Reservation Area	Local Govt. Scheme	Property Dev. Corp Scheme	Total GC Areas
1	Ibadan North	Agodi GRA Mokola Low-Cost Housing Scheme Samonda Scheme (Old Airport) Oke-Aremo Housing Scheme	Sabo Housing scheme Mokola Layout	Old Bodija Scheme New Bodija Scheme	8
2	Ibadan Northwest	Jericho GRA Onireke Comm. & Links Reservation Onireke Housing Estate	None	None	3
3	Ibadan Southwest	Iyaganku GRA Alesinloye GRA Alalubosa GRA Ring Road HOP. GRA	Ring Road Layout Liberty Layout Oluyole Scheme Lagos Bye Pass Layout (Mixed Dev.)	Owode Housing Scheme now in Ido Local Government Area	10
4	Ibadan Southeast	None	Lagelu Residential Scheme, Felele Express	None	1
5	Akinyele	None	Idi-Ose Layout	None	1
6	Egbeda	Ife Road Scheme	None	Olubadan Scheme, AJODA	2
7	Ona Ara	Ogbere Housing Scheme	Local Government Residential Layout	None	2
8	Lagelu	Kolapo Ishola (Old Dairy Farm) Scheme	Okebadan Scheme – Akobo/Alegongo	Akobo Scheme Iwo Road (Lalupon)	3
				Total	30

Table 2 Target population for the study

S/N	The study population (20% of the target population selected purposively)	Number of gated communities (GCs) identified in the study population	Number of gated communities (GC) selected for the study according to proportion	Sampling frame (No of houses)	Sampling size (10% of the household head selected using systematic sampling)
1	Old Bodija Scheme	30	15	2,495	250
2	Agodi GRA	10	5	492	49
3	New Bodija scheme	15	8	800	80
4	Kolapo Ishola Scheme	1	1	300	30
5	Alalubosa GRA	1	1	835	84
	Total	57	30	4,922	493

4.0 ANALYSIS AND RESULTS

4.1 Data Analysis

To examine the residents' Perception of Safety Index (PSI) and the Defensible Physical Characteristics Index (DPCI) in the study area, the data needed for PSI is based on the users' feelings and attitudes towards GCs. DPCI is also based on residents' opinions on territoriality, surveillance, milieu and image. This was obtained through the use of questionnaire. To explore the resident's perception, two approaches are used; the first is to obtain frequencies of the different categories and the second is to develop a perception index. In the first method, Likert ratings of 'Strongly Disagree', 'Disagree', Neither Agree/Disagree, 'Agree' and Strongly Agree' are allotted a value of 1, 2, 3, 4, and 5 in that order for all the questions used to measure the perception of safety and defensible physical characteristics. This implies that the range of scores for each respondent for all the 12 questions used to determine the perception of safety would be between 12 (12 X 1) and 60 (12 X 5). This range is then categorized as follows:

(i) 'Very high' for scores between 51 and 60
(ii) 'High' level of perception for scores between 42 and 51 and
(iii) 'Medium' level of perception for scores between 32 and 41
(iv) 'Low' for scores between 22 and 31
(v) 'Very low' for scores between 12 and 21

It must be highlighted that in undertaking this, all the questions with negative connotations had to be transformed to have a regular basis of evaluation. In the second approach, the Perception of Safety Index (PSI) and the Defensible Physical Characteristics Index (DPCI) were obtained by calculating the total weight value (TWV) for each question. This was attained by the summation of the product of the number of responses to each rating to a question and the respective weight value. This can be statistically expressed as follows:

$$\text{TWV} = \sum_{i=1}^{n} \text{PiVi} \quad \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots \text{equation 1}$$

4.1.1 Perception of Safety Index (PSI)

Where TWV is the total weight value of each of the 12 questions, Pi is the number of respondents choosing a particular rating I and is the weight assigned to rating 1.

The PSI to each question is arrived at by dividing the TWV by the summation of the respondents to each of the five ratings of a question. This can also be expressed mathematically as:

$$\text{PSI} = \frac{\text{TWV}}{\sum_{i=1}^{n} \text{Pi}} \quad \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots \text{equation 2}$$

Where PSI is the perception of safety

It must be noted that the closer the PSI of an attribute is to 5 (five) and the higher the assumed perception of safety.
Where: TWV= Total weight value;
Pi= Number of residents rating an attribute I;
Vi= Weight assigned to attribute i.

4.1.2 Defensible Physical Characteristics Index (DPCI)

Where TWV is the total weight value of each of the 4 variables, Pi is the number of respondents choosing a particular rating I and is the weight assigned to rating 1.

The DPCI for each question is arrived at by dividing the TWV by the summation of the respondents to each of the five ratings of a question. This can also be expressed mathematically as:

$$\text{DPCI} = \frac{\text{TWV}}{\sum_{i=1}^{n} \text{Pi}} \quad \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots \text{equation 3}$$

Where DPCI is the Defensible Physical Characteristics Index

It must be noted that the closer the DPCI of an attribute is to 5 (five) and the higher the assumed perception of defensible physical characteristics.

A judgemental approach was used to create the content validity of the questionnaire, survey and variables from comprehensive literature reviews to bring out the important tools and materials. Likewise, the study employed the service of a panel of experts that are accustomed to the concept to evaluate the content and construct validity. Construct and content validity of the instrument were also checked by chi-square tests. Testing for reliability is significant. It shows that there is consistency among the parts of a measuring mechanism. A Likert scale of 1 to 5 was used to have high consistency reliability. Cronbach's alpha coefficient of 0.70 was obtained, which is equivalent to high reliability. Data collection was carried out between June 2021 and December 2021.

4.2 Levels of Criminal Victimization in the Study Areas

Results from the study for the levels and pattern of criminal activities in the study areas are shown in Table 3.

Table 3 Extent of criminal victimization

S/N	Types of criminal victimization	Individuals victimized during the last 5 years		Year of attack				
		Frequency	%	2017	2018	2019	2020	2021
1	Assault	202	10.6	14%	16%	15%	25%	30%
2	Attempted burglary	132	6.9	14%	15%	16%	22%	33%
3	Automobile hijack	28	1.5	10%	11%	18%	26%	35%
4	Automobile theft	27	1.4	10%	10%	19%	26%	35%
5	Burglary	174	9.1	18%	16%	17%	20%	29%

6	Cheating	320	16.8	17%	18%	20%	21%	24%
7	Extortion or corruption	301	15.8	13%	19%	18%	22%	28%
8	Motorcycle/bicycle theft	52	2.7	10%	10%	19%	26%	35%
9	Murder and kidnapping	26	1.4	14%	15%	16%	22%	33%
10	Personal theft	312	16.3	17%	18%	20%	21%	24%
11	Robbery	128	6.7	14%	16%	15%	25%	30%
12	Sexual offences	79	4.1	18%	16%	17%	20%	29%
13	Theft from automobile	128	6.7	1.5	10%	11%	18%	26%

From Table 3, it can be deduced that 202 respondents representing 10.6% are victims of assault, and 132 representing 6.9% are victims of attempted burglary. Automobile hijack incidents account for 1.5% representing 28 respondents, while automobile theft incidents had 27 victims with 1.4%. Also, burglary had 174 victims representing 9.1% of the respondents. Cheating accounts for the highest with 320 respondents representing 16.8% reported that they are victims. This is closely followed by extortion or corruption with 301 respondents (15.8%), the motorcycle/bicycle theft accounted for 52 victims representing 2.7%. the results show that 1.4% (26) of the respondent reported that they have witnessed victims of murder incidents in the study area. 16.3% (312) account for personal theft and this is the second-highest on the log. Also, 6.7% (128) respondents are victims of arm robbery, while sexual offences account for 4.1% (79) victims. Finally, theft from automobiles accounted for 6.7% (128) of respondents. From Table 3, the results show the trend from 2017 to 2021 for each type of criminal victimization as linear and on the increase. These trends need to be addressed. The implication of this is that residents of this community took some preventive measures to curb the trend with the introduction of the enclosed neighbourhood and gated communities, vigilantes, community patrol, corporate guards or private security, and the installation of closed circuit television (CCTV), jungle justice and mob action.

4.3 Residents' Perception of Safety in the Study Area

In consonance with the conceptual framework and the methodology, this study discusses the residents' general perception of safety in gated communities in each of the study areas as shown in Table 4 and the cumulative values for the perception of safety index for the study areas in Ibadan as illustrated in Table 5.

Table 4 Perception of safety in all the study area

Categories	**OBS (n=202)**	**Agodi GRA (n=39)**	**NBS (n=64)**	**KIS (n=24)**	**Alalubosa GRA (n=67)**
Very low (19 – 34)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)
Low (35 – 49)	10 (4.9%)	1 (2.6)	4 (6.6)	0 (0)	2 (3.0)
Medium (50 – 64)	84 (41.6%)	13 (33.3)	35 (55.3)	2 (8.3)	4 (6.0)
High (65 – 79)	99 (49.0%)	21 (53.8)	23 (35.5)	18 (75.0)	41 (61.2)
Very high (80 – 95)	9 (4.5)	4 (10.3)	2 (2.6)	4 (17.7)	20 (29.9)
Average	4.08	3.96	3.80	4.38	4.49

Table 5 Cumulative values for perception of safety index for the study areas in Ibadan

Some Identified Attributes of Perception of Safety	a) Old Bodija Scheme			b) Agodi GRA			c) New Bodija Scheme			d) Kolapo Ishola			e) Alalubosa GRA Scheme		
	N	$TWV_{(b)}$	$TWV/n= PSI_{(Y)}$	N	$TWV_{(b)}$	$TWV/n= PSI_{(Y)}$	N	$TWV_{(b)}$	$TWV/n= PSI_{(Y)}$	N	$TWV_{(b)}$	$TWV/n= PSI_{(Y)}$	N	$TWV_{(b)}$	$TWV/n= PSI_{(Y)}$
1) I feel safe walking around in this area	202	794	3.93	39	170	4.36	64	255	3.98	24	104	4.3	67	279	4.16
2) I feel safe walking during the day	202	806	3.99	39	174	4.46	64	257	4.02	24	104	4.3	67	284	4.24
3) I feel safe walking during the early evening	202	788	3.90	39	177	4.54	64	252	3.94	24	114	4.8	67	279	4.16
4) I don't feel safe walking at night (after 10 pm)?	202	783	3.88	39	145	3.71	64	242	3.78	24	95	4.0	67	269	4.01
5) There is less crime in my community than in the surrounding areas	202	798	3.95	39	147	3.77	64	246	3.84	24	104	4.3	67	284	4.24
6) There is a possibility/chance of being a victim of an attack in this neighbourhood	202	641	3.17	39	135	3.46	64	170	2.66	24	94	3.9	67	250	3.73
7) Crime has generally increased during the past five years	202	838	4.15	39	146	3.74	64	236	3.67	24	116	4.8	67	323	4.82
8) I would not recommend my close/road/avenue to my friend because of safety	202	876	4.34	39	150	3.85	64	227	3.54	24	116	4.8	67	329	4.91
9) Because of its safety, I chose to remain on my close/road/avenue for a very long time	202	815	4.03	39	138	3.65	64	242	3.78	24	104	4.3	67	321	4.79
10) My house is safe	202	953	4.72	39	162	4.15	64	264	4.13	24	104	4.3	67	331	4.94
11) My street is not safe	202	894	4.43	39	158	4.05	64	261	4.08	24	114	4.8	67	332	4.96
12) My neighbourhood is safe	202	907	4.49	39	148	3.79	64	264	4.13	24	95	4.0	67	331	4.94
Total	48.98/12			47.53/12			45.55/12			52.6/12			53.9/12		
AVERAGE PSI = 4.14	= 4.08			= 3.96			= 3.80			= 4.38			= 4.49		

Notes: TWV = Total Weight Value; N = Number of respondents; PSI = Perception of Safety Index

4.4 Summary of the Perception of Safety Indices

To summarise the residents' perception of safety, as shown in Table 6, it is observed that Alalubosa GRA had the highest value of the perception of safety index at 4.49, closely followed by Kolapo Ishola Scheme with 4.38. However, Old Bodija Scheme and Agodi GRA were having 4.08 and 3.96 respectively. New Bodija Scheme had 3.89. The result shows that based on residents' perception of safety, the Alalubosa GRA scheme has better-organised neighbourhoods, portrayed by the strong demonstrated neighbourhood profile. Based on the aggregate average of 4.14 PSI, the study area exhibited a good level of perception of safety. This established and supported the verdict of earlier studies (c.f. Alohan & Ogedengbe, 2018; Arese, 2018; Gul et al., 2018; Makinde, 2020a), of which they asserted that resident's perception of safety is related to the identified variables that include feeling safe walking around their area, less crime in their community, the safety of the house, street and neighbourhoods among others.

Table 6 Summary of the perception of safety indices in the study areas

Indicator	GCs					Average
	Old Bodija Scheme	Agodi GRA	New Bodija Scheme	Kolapo Ishola Scheme	Alalubosa GRA	
Perception of safety	4.08	3.96	3.80	4.38	4.49	4.14

4.5 Classification of Gated Communities through Variety of Enclosure in the Study Areas

After physical observation of the neighbourhood and communities, in the study areas, the following classification was achieved as shown in Table 7. The table shows the types of gated communities through a diversity of enclosures in Ibadan.

Table 7 Types of gated communities through variety of enclosure in the study areas

S/N	Type	Boundary	Road access	Notes
A	Restricted entry, guarded area	Wall, fence and/ or natural features that restrict access	Gate with limited control access; security guards, army or police	The neighbourhood may regulate public entrée; Telephone or video systems may likewise permit guests to be checked by residents. They have guards at the gates to patrol the area. In some neighbourhoods, security guards may use automatic guns.
B	Restricted entry, bounded area	Wall, fence and/ or natural features that restrict access	Gate with limited control access	Neighbourhoods and subdivisions may restrict, regulate and control public access; Video or telephone systems may also allow guests to be checked by inhabitants.
C	Full gated roads	Natural features for instance ravines, water, mountains and forest	Swingarm or lifts	Prestige subdivisions and neighbourhoods on remote, islands, or peninsular limits entrees through collective artificial and natural features.
D	Partially gated roads	No marked boundary	Lifts or swing arm	Rural cottage sections may feature gates that are only closed for some part of the year. May have gates but no walls. The pedestrian access is open.
E	Barricaded streets	No clear borderline	Public streets closed by planters or concrete barriers	Numerous neighbourhoods barricaded roads and created dead-end or cul-de-sac streets within the neighbourhood as a means of traffic control. Pedestrian access is open.
F	Walled subdivisions	Opaque fence or wall	Exposed	It is a completely fenced community. This is a common city feature. Pedestrians and cars may enter.
G	Ornamental or Decorative gating	No mark boundary	Landmark gate at entry	Features developed gates displaying the community name, which is positioned and displayed at the main entries to give focal point, identity and uniqueness to an area.
H	Faux-gated entries	Opaque wall or fence	Narrow entry, detachable chains or bollard, guardhouse	Some neighbourhoods have physical edifices such as private entries or guard houses to discourage uninvited vehicles from entering.
I	Condominium	Enclosed by fences, with access control, either in the form of an intercom system or manned by private security guards	Gate with limited control access; Private security guards	Vertical closed and horizontal closed condominiums. A collection of high rises in a complex. Low-density developments spread over large areas of land. Typical luxury estate developments.

4.6 Checklist of Features Defining Gated Communities in the Study Areas

Table 8 summarises the features which explain the characteristics of the types of gated communities in the study areas, which comprised of the physical, economic, social and psychological or symbolic characteristics. Also, it gives details on the purposes of the enclosure as obtained in the study areas, shows the various safety features, facilities and amenities, categories of residents, tenancy, locality proportions and policy framework in the areas.

Table 8 Checklist of features defining gated communities in the study areas

Purposes of Enclosure	Physical	Economic	Social	Psychological or Symbolic
	Safe property and people Generate uniqueness for the scheme	Increase property value. Secure neighbourhoods amenities	Give spatial or visual privacy. Regulate those that are outside and inside	Display status and power. Control and monitor those that are outside
Safety Features	***Natural surroundings of boundary*** Wall, Chain, or Low fence Bollard, Faux guard Station, Vegetation or Hedge Swing harm gate *Nature of safety* Guard at all times Auto opener entry	Fence-opaque, Fence-barbed, Mirror glass on the guardhouse, Topographic features, Lift-arm gate, Watching guards and Surveillance cameras	**Physical** A fence that is visually opened, Speed bumps or chicanes. Private properties Signs, Water, Ravines, Forest and Slide gate Devices in the roadbed, Card entry and Armed guards	**Symbolic** An electric fence, Pavement texture or colour No parking, Signs, Desert and Swing gate Guards at designated time, Code entry and House alarms
Facilities and Amenities	Private roads, Institutional facilities, Open places	Meeting space, Landscape maintenance and Guards	Activities centres and Quality design	Recreational amenities and Commercial amenities
Categories of Residents	Consistent by income and age	Consistent with education and class	Consistent by ethnicity status and race	Shared facilities and activities, for example, football and golf field
Tenancy	Main residence and Fee simple ownership	Secondary residence and Condominium ownership	Seasonal residence and Land lease	Public and Rental housing
Locality	Urban and Infill	Suburban and Greenfield	Exurban and Resort destination	Rural and Inner-city
Proportions	Cul-de-sac pod	Neighbourhood (ten to hundreds of units)	Village (hundreds of units, some commercial)	Town (thousands of units and mixed uses)
Policy Framework	Restricting gating	Enables gating	Developing area	Stable or deteriorating area

4.7 Relationships between Residents' Socio-Economic Characteristics, Types of Gated Communities and Perception of Safety in the Study Area

The present study reports the results of the analysis of the relationship between perceptions of safety, socio-economic characteristics of residents, and types of gated communities. The two tools are regression and cross-tabulation. The regression enables one to see the total relationship between these characteristics while cross-tabulation enables us to see the individual impacts of the characteristics on the perception of safety. To carry out the expected analysis, the following personal characteristics were selected because they were supposed to be important from the literature. These were: gender, age, marital status, level of education, occupation, household size, residents' household position, monthly income level, year of residency in the neighbourhood, hours spent during the day, and ethnicity. while for social characteristics, the following attribute was selected: number of hours spent inside the house during the day; length of stay; having experienced, any previous attack experience; membership of residents association; the presence of vigilante groups; the presence of economic activities in and around the house.

The results of the analysis of the relationship between (perception of safety index, using the PSI) and the above characteristics are discussed below. The Pearson chi-square analysis of the personal characteristics of the residents of the study areas shows that all the characteristics of the residents taken together influenced and predict any change in the level of resident's perception of safety. Using cross-tabulation to determine the associations between each of the personal characteristics and the perception of safety the analysis yielded the following result.

The analysis of this relationship between perception of safety categories and age yielded a Pearson chi-square of 27.8 and a p-value of 0.023 as shown in Table 9, this is statistically significant and it shows that there is a relationship between age and the residents' perception of safety. The analysis of this relationship shows that ethnicity is not significant to the perception of safety; this is indicated by a Pearson chi-square value of 23.9 and a p-value of 0.159. Again, the analysis of this relationship shows that gender is not significant to the perception of safety; this is indicated by a Pearson chi-square value of 6.48 and p-value of 0.091 as shown in Table 9. This result contradicts some of the earlier positions in literature which suggest that gender is significant to the perception of safety. Also, the analysis of this relationship shows that education is not significant to the perception of safety. This is also indicated by a Pearson chi-square value of 12.2 and a p-value of 0.835. This study also indicates that there is no relationship between the income of residents and their perception of safety. This can be seen in the Pearson chi-square value of 15.4 and p-value of 0.805 as shown in Table 9.

The results also suggest that there is a relationship between GCs and perception of safety categories. This is indicated in the Pearson chi-square value of 32.72 and p-value of .005 this value is statistically significant. Again the analysis of the relationship between the person per household and perception of safety gives a Pearson chi-Square value of 47.03 and p-value of 0.632 as shown in Table 9. This value is not statistically significant and therefore proves that there is no relationship. Considering the perception of safety and the presence/absence of vigilante groups, the analysis of this relationship yields a Pearson chi-square value of 5.75 and a p-value of 0.452. This shows that there is no relationship, as the value obtained is not statistically significant. In the analysis of the perception of safety and hours spent during the day, the analysis of this relationship shows a Pearson chi-square value of 23.28 and a p-value of 0.180 (see Table 9) this is not statistically significant and shows that there is no relationship between how long residents stay at home during the day and their perception of safety. In analysing the perception of safety and length of stay, the analysis of this relationship yields a Pearson chi-square value of 118.91 and a p-value of 0.167. This value is not statistically significant and therefore, means that it does not matter how long residents have been living in the area their perception of safety is not influenced by it.

The analysis of this relationship between membership of residents association and perception of safety also gives a Pearson chi-square value of 9.46 and a p-value of 0.149. This again is not statistically significant and therefore; the membership of the residents association has no relationship with their perception of safety. The analysis of the relationship between perception of safety and the last time residents experienced attack yielded a Pearson chi-square value of 32.17 and a p-value of 0.001 as shown in Table 9. This is statistically significant and shows that a certain amount of residents' perception of safety can be explained by how long ago they experienced the last attack. Various factors influence the resident's perception of safety in communities but factors like experience and knowledge of criminal realities; environmental context and factual features play more roles in influencing people's perception of safety. The analysis of this relationship between perception of safety and types of attacks yields a Pearson chi-square value of 10.85 and a p-value of 0.286. This is not statistically significant and therefore it shows that there is no relationship between the perception of the safety of residents and the type of attack. Finally, the analysis of the relationship between perception of safety and any attack in the house shows that there is no relationship between whether or not the attack took place in the house and the resident's perception of safety. This is reflected in the Pearson chi-square value of 9.62 and p-value of 0.142 as shown in Table 9, which is not statistically significant. This resonates findings from the earlier studies by Makinde (2014); Olajide et al. (2018); Sun and Webster (2019); which stated that there are relationships between residents' socio-economic characteristics such as age, last of attack, types of gated communities, and the perception of safety in the study area.

Table 9 Chi-square tests on the relationships between residents' socio-economic characteristics and the perception of safety in the study area

(a) **Age**	**Value**	**Df**	**Assymp. Sig. (2 –sided)**		**(h) Vigilante groups**	**Value**	**Df**	**Assymp. Sig. (2 –sided)**
Pearson Chi-Square	27.759(a)	15	.023		Pearson Chi-Square	5.745(a)	6	.452
Likelyhood Ratio	29.070	15	.016		Likelihood Ratio	7.837	6	.250
Linear–by–Linear Association	4.103	1	.043		Linear–by–Linear Association	.000	1	.987
No of Valid Cases	524	-	-		No of valid Cases	509		
(b) **Ethnicity**					**(i) Hours spent during the day**			
Pearson Chi-Square	23.865(a)	18	.159		Pearson Chi-Square	23.277(a)	18	.180
Likelyhood Ratio	22.825	18	.197		Likelyhood Ratio	22.540	18	.209
Linear–by–Linear Association	3.509	1	.61		Linear–by–Linear Association	3.148	1	.076
No of valid Cases	517				No of valid Cases	510		
(c) **Gender**					**(j) Length of stay**			
Pearson Chi-Square	6.475(a)	3	.091		Pearson Chi-Square	118.910 (a)	105	.167
Likely hood Ratio	6.685	3	.083		Likelyhood Ratio	120.806	105	.137
Linear–by–Linear Association	2.478	1	.115		Linear–by–Linear Association	11.736	1	.001
No of valid Cases	525				No of valid Cases	512		
(d) **Level of education**					**(k) Membership in residents association**			
Pearson Chi-Square	12.228(a)	18	.835		Pearson Chi-Square	9.461(a)	6	.149
Likelyhood Ratio	16.216	18	.577		Likelyhood Ratio	10.051	6	.123
Linear–by–Linear Association	3.228	1	.072		Linear–by–Linear Association	3.647	1	.056
No of valid Cases	511				No of valid Cases	523		
(e) **Monthly income level**					**(l) Last time attacked**			
Pearson Chi-Square	15.356(a)	21	.805		Pearson Chi-Square	32.170(a)	12	.001
Likelyhood Ratio	17.608	21	.674		Likelyhood Ratio	35.894	12	.000
Linear–by–Linear Association	2.593	1	.107		Linear–by–Linear Association	.2.316	1	.128
No of valid Cases	375				No of valid Cases	174		
(f) **Types of gated communities**					**(m) Types of attack**			
Pearson Chi-Square	32.719(a)	15	.005		Pearson Chi-Square	10.850(a)	9	.286
Likelyhood Ratio	31.558	15	.007		Likelyhood Ratio	14.330	9	.111
Linear–by–Linear Association	.111	1	.739		Linear–by–Linear Association	.413	1	.520
No of valid Cases	531				No of valid Cases	161		
(g) **Persons per household**					**(n) Experience of any attack in the house**			
Pearson Chi-Square	47.030(a)	51	.632		Pearson Chi-Square	9.619(a)	6	.142
Likelyhood Ratio	40.086	51	.865		Likelyhood Ratio	9.623	6	.141
Linear–by–Linear Association	.939	1	.333		Linear–by–Linear Association	6.203	1	.013
No of valid Cases	487				No of valid Cases	514		

4.8 Utilisation of Variables

The variables used for measuring milieu (environmental image) include: the quality of dwellings, impressions of the overall design of the neighbourhood, the physical conditions of the neighbourhoods in terms of building ratio to green areas, presence of 'undesirable' properties, presence of properties believed to be safe, the physical condition of GCs, How far away is the nearest emergency service such as an alarm, security personnel? Are there any areas where a call for help could not be heard? And the level of corners, recesses, or bushes where somebody could hide and wait for you. The variables used for measuring surveillance included: the height of the fence to permit surveillance, the level of commercial activities during observation, quality of surveillance, external and outdoor light to remove blind spots, location of vehicular traffic, and surveillance potential of land use. The variables used for measuring territoriality include: the use of landscape to create clear boundaries between areas, are the territories clearly defined into public, semi-public, and private areas? How properly maintained/cleaned is the neighbourhood, Impression of overall signage, presence of elements to restrict access and elements used to define territories.

Variables for measuring the level of social capital within gated communities included: level of trust in my neighbour, level of trust in the vigilante group in the neighbourhood, participation in community activities, ability to turn to neighbours for help in times of problems, level of open-mindedness among neighbour, level of friendship in the neighbourhood, level of contribution to the neighbourhood association and level of mutual benefit among Neighbour. Some identified variables for measuring the level of experiences on safety within gated communities comprise the Level of residents' experiences with criminal activity occurring during the rainy season. Level of residents' experiences on criminal activity occurring at month-end and the experiences of residents on criminal activity occurrence after sunset; Others included: places without safety measures and poorly maintained that are a target by criminals in the neighbourhood, Experiences of places harbouring wealthy classes that were target by criminals, Experiences of residents on neighbourhood watch and police patrols that make them feel save in their neighbourhood and the experiences of the resident on the neighbourhood that had become a better place to live in the past years. The variables used for measuring safety features within GCs**,** included: Nature of the boundary, fence types, is the fence low enough to permit surveillance of adjoining neighbourhoods? Others include gate types, gate material, nature of security, the extent of closed space, the period of closure, and modes of security within the GC.

4.9 Relationship between Physical Characteristics and Perception of Safety

To discuss the relationship between the physical characteristics and perception of safety, Table 10 offers a simple way to go about this. The table combines the physical characteristics of the neighbourhoods and the resident's perception of safety, namely territoriality, surveillance and milieu. The results show that Alalubosa GRA appears to have the highest perception of safety categories of 'high' (52.9%). This shows that there seems to be some element of association between the perception of safety categories of the neighbourhood and physical characteristics. The results show that Old Bodija Scheme had the highest percentage in the high perception categories (48.0%).

Territoriality: Old Bodija Scheme had the highest index in territoriality at 3.50 and also had the highest percentage of the 'high' perception categories (48.0%); this suggests that a good showing of territoriality may translate to a better perception of safety in a neighbourhood. This appears to be further confirmed by the fact that the New Bodija Scheme has the lowest territorial index at 1.91 the high percentage of the medium perception categories (53.2%).

Surveillance: As demonstrated in Table 10, the Old Bodija Scheme and New Bodija Scheme appear to have the highest index on surveillance at 3.54 and 3.74; this coupled with the fact that the Old Bodija Scheme had a high percentage at the 'very high' perception categories of 52.9% appears to endorse the influence of surveillance to the perception of safety. Nevertheless, this is not to submit that surveillance only leads to high perception as revealed by Alalubosa GRA which has the lowest index on surveillance 3.17 and at the same time has 4.49 the highest percentage of the 'high' perception categories (59.2%).

Milieu: New Bodija Scheme had the highest index (3.10) and the highest percentage in 'medium' perception categories (55.3%) however not have the highest perception of safety index. Consequently, this suggests that milieu might contribute to the perception of safety; it is not enough to solely decide the perception of safety. In summary, Old Bodija Scheme had the highest combined defensible physical characteristics index (3.49) which is further reinforced by the Perception of safety index (4.08). This is with a high percentage of 52.9% of 'high perception types. This suggests that this neighbourhood enjoys a sort of primacy when all these factors are considered. On the other hand, Alalubosa GRA seems to have a 3.14 aggregates index of defensible physical characteristics but a relatively highest perception of safety index of 4.49 which was also further reinforced by the highest percentage at 'high' perception categories (59.2%). This result states that the comparatively weak defensible physical characteristics of the neighbourhood might not be sufficient to weaken the residents' perception of safety. This might suggest that there are other factors which include: social capital, physical condition / environmental design and experiences of safety indices among others which are at play in determining and influencing the strength of elements of physical defensible characteristics.

Table 10 Relationship between Perception of Safety Index (PSI) and Defensible Physical Characteristics Index (DPCI)

Indicators	Neighbourhood					Average
	Old Bodija Scheme	Agodi GRA	New Bodija Scheme	Kolapo Ishola Scheme	Alalubosa GRA	
Territoriality	3.50	1.97	1.91	3.29	3.40	2.81
Surveillance	3.54	3.31	3.74	2.80	3.17	3.31
Milieu	3.00	2.30	3.10	2.40	1.20	2.4
Image	3.90	3.80	3.00	4.30	4.80	3.96
Average (DPCI)	3.49	2.85	2.94	3.20	3.14	3.12
Low	1.4	6.6	6.5	4.0	4.0	4.5
Medium	34.3	55.3	53.2	40.0	32.0	42.96
High	52.9	35.5	35.5	54.0	59.2	47.42
Very high	11.4	2.6	4.8	2.0	4.8	5.12

Table 11 Perception of Safety Index (PSI) and Defensible Physical Characteristics Index (DPCI)

Indicators	**GCs**				
	Old Bodija Scheme	Agodi GRA	New Bodija Scheme	Kolapo Ishola Scheme	Alalubosa GRA
Territoriality	3.50	1.97	1.91	3.29	3.40
Surveillance	3.54	3.31	3.74	2.80	3.17
Milieu	3.00	2.30	3.10	2.40	1.20
Image	3.90	3.80	3.00	4.30	4.80
Perception of safety	4.08	3.96	3.80	4.38	4.49
physical/design condition	4.10	3.94	3.53	4.43	4.40
Social capital	3.75	3.02	3.73	2.92	2.95
Experiences of Safety	3.92	3.95	3.82	4.10	4.22
Average	3.72	3.28	3.33	3.58	3.58

Table 11, obviously, shows the perception of safety index (PSI) and defensible physical characteristics index (DPCI) in the carefully chosen gated communities in Ibadan and it can be inferred that unpredictably Old Bodija Scheme has the highest safety attribute even though the area has a lower perception of safety and lower image and milieu, environmental and physical design condition indices than Kolapo Ishola Scheme and Alalubosa GRA that had higher indices in these elements. It could be inferred that the Old Bodija Scheme is better in the area of territoriality, social capital, image and milieu, and surveillance indices than these two GCs. The study revealed that for safety to be attained in housing all these elements must be put in proper design considered.

From the study, it was observed that seasonality and time in a day are key factors to residents' experiences of safety as they are correlated to the chances of crimes being committed in this area. During wet seasons, grass habitually grows faster and quicker than during dry seasons. Occasionally, it grows and propagates beyond acceptable heights, raising safety concerns. The situation becomes dreadful to move in the unmaintained spaces. It was observed that crimes usually happened from 6 pm until the early hours in the morning. Confirming the notion that darkness promotes vulnerability to attacks. Based on the results obtained, some crime happens during month-ends for the reason that criminals recognize that they have added probabilities of targeting an individual with valuables. From the results of this study, individuals with valued properties and women, in specific, were regularly targeted. The study inferred that there is a direct relationship between lack of safety measures, neighbourhood maintenance and safety in the study areas. This confirmed and established the verdict of previous studies by Makinde (2014), Olajide et al. (2018), Sun and Webster (2019), Alohan and Ogedengbe (2018), Gul et al. (2018), Arese (2018) and Makinde (2020a), of which they stated that residents' perception of safety is related to the identified factors in this studies that include the social connection, types of gated communities, physical characteristics and residents socio-economics characteristics.

5.0 DISCUSSION OF FINDINGS IN THE CONTEXT OF EXISTING LITERATURE

This study is inconsistent with Górczyńska (2012), which affirmed that there exist many classifications of gated communities that relate to their organisational, functional, or morphological considerations (Glasze, 2001; Tobiasz-Lis, 2011) or the modes of protection used (Gąsior-Niemiec et al., 2007). These classifications were first expounded by Blakely and Snyder (1999). The additional classification proposed by Brabec and Sýkora (2009) has identified three main categories of gated communities: guarded and walled, guarded, and walled communities. Hegedűs's (2009) classification was based on the additional functions of gated communities and the presence of specific gates and fences. Based on these, three types of gated communities were identified: (1) gated communities with complete functions, (2) with incomplete functions, and (3) lacking any physical separation but delivering amenities (Hegedűs, 2009). Chabowski (2007) proposed eight typologies of a gated community that focused on eight features these include: the extent of closed space, the period of construction, the scale of closure, the period of closure, the number of storeys, architectural types, quality and price of dwellings, and characteristics of surrounding areas. These typologies correspond to the great diversity of gated neighbourhoods. From this study, the typologies of gated communities differ slightly from those proposed for western countries which comprised eight different classifications

that include: ornamental or decorative gating, walled subdivisions, faux-gated entries, barricaded streets, partially gated roads, full gated roads, restricted entry and bounded area, restricted entry and guarded area base on the physical characteristics of the areas.

Furthermore, this study identified eight purposes of enclosure and factors that differentiate gated communities from other housing development including functions of enclosure, safety features and barriers, facilities and amenities, type of residents, location, tenure, size and policy context. This factor is strongly supported by several commentators (e.g. Grant & Mittelsteadt, 2004; Kohn, 2004), of which they believe that gated developments reveal a rising trend toward private governance and private communities. Also, these findings support and confirm earlier studies by Myers (2011) and Alohan and Ogedengbe (2018) that neighbourhood safety hinges on the socio-economic features of the residents. Thus, residents' income level, residents' age, types of ownership, level of education and occupation among others, considerably impacted neighbourhood safety in the study area. This study also endorses earlier studies by Fiadzo et al. (2001) and Makinde (2020b) that assessed neighbourhood safety using the Neighbourhood Safety Index (NSI). This was based on the physical and social characteristics such as environmental design for example building design, environmental aesthetics, land use mix, residential density, street light, greening area, recreational activities, and incivilities among others. Physical environmental quality for example natural surveillance, territoriality, milieu, maintenance, neglect/abandonment, broken window, crime generators, movement predictors, access control, state of decay among others. The social capital in the study areas, for example, social interaction, residential ties and trust, collective efficacy, community participation and the role of the media among others. This study shows that these factors influence the perception of neighbourhood safety in the study area. Improvement in levels of these facilities in the study area will have positive impacts on neighbourhood safety.

Also, this study is in agreement with the prior efforts by Austin et al. (2002), Wood et al. (2008), and Schuck and Rosenbaum (2006) that confirmed that the physical and social characteristics, as well as socio-economic characteristics of residents, were important factors influencing and affecting the safety of the neighbourhood in residential development. This research is also in line with the earlier contributions by Power (2004), Commission on Human Security (2003) and Vesselinov (2009) which indicated that socio-economic factors such as employment level, ethnicity, religion, and marital status among others, were factors dictating safety level in the neighbourhood. These studies show that the residents' experience of crime is significant in determining the fear of crime. Also, studies by Crawford (1998), Covington and Taylor (1991), and Ditton and Innes (2005) are in agreement with this research that the physical features of neighbourhoods, for instance, quality of infrastructure and facilities, spatial composition, level of social interaction and access to recreational areas, were essential factors for neighbourhood safety. Furthermore, this study is consistent with the earlier works authored by Foster (1995), Moore (1999), Warner et al. (2002) and Bauman (2002) who observed that institutions available such as churches, vigilante associations, police stations, community-based organizations, hospitals, and schools were resilient predictors of neighbourhood safety.

On top of that, the current study is in line and corroborated the findings of earlier studies by Owens (2005), Ewing and Handy (2009), Appleyard (2010), Prompayuk and Sahachaisaeree (2012) who have established the significance of good quality neighbourhood design of public and private GCs. The physical and social attributes, such as social capital, social production space, and community participation in the production of space along with residents' social-economic characteristics consideration are important and imperative in the design and development of GCs.

6.0 CONCLUSION

The study established that the preponderance of residents in the study areas have a high perception of safety and has an average aggregate index on defensible physical characteristics. Again findings revealed that age, length of stay in the area, membership of residents association, neighbourhood and the time of the last attack in varying degrees of significance among others have relationships with residents' perception of safety. The study showed that surveillance potential is high in the study areas and is facilitated by the positive influence of commercial activities in and around some of the areas. The maintenance culture is high in the study and this supported the suggestion of the previous studies which say that people are more likely to look after territories that are under their control is further validated. After careful observation of the physical characteristics of numerous neighbourhoods and communities, in the urban area of Ibadan city; this study identified and classified an operational typology of gated communities in Ibadan, which was taken as a starting point and the foundation for this study. This typology includes nine main categories of the gated community in Ibadan. These comprise: Type A (Restricted entry, guarded area), Type B (Restricted entry, bounded area) Type C (Full gated roads) Type D (Partially gated roads) Type E (Barricaded streets) Type F (Walled subdivisions) Type G (Ornamental or Decorative gating), Type H (Faux-gated entries) and type I (Condominium). The results show eight key elements of physical and none physical features which are surveillance; milieu and image, territorial, perception of safety, physical/design condition, experiences of safety and social capital. These variables were used as considerations in describing the characteristics of the GCs in the study areas.

6.1 Policy Recommendations

The study recommends that the study areas need to be improved in the concepts of territoriality, surveillance, milieu and image. Also, advancement in the area of physical condition, environmental design, social production space, community participation in the production of space and social interaction among neighbours and an improvement in the important elements of defensible physical characteristics will impact the resident's perception of safety. This research recommends that the requirements of various neighbourhoods on the issue of safety are diverse and the blueprints for generating improvements may be different. Therefore, the preliminary point for any solution should be to establish what the needs are in each neighbourhood and then deliver interventions and implementations accordingly, design and gear to the local conditions. Factors such as the inaccessibility of the gated communities to patrols by security agents are detrimental to

the safety and can make these communities targets of crime, this can be resolved by strict compliance with the town planning code and obtaining necessary approval from the planning authority before any alteration to the existing urban development.

Also, the area of community participation is an expression of social fortifications and is sometimes more beneficial than physical fortifications. Public safety revolves mainly around people's protection from assault, automobile hijack and theft, burglary, cheating, extortion or corruption, motorcycle/bicycle theft, murder and kidnapping, personal theft, robbery and sexual offences and theft from the automobile. Actions, policies and measures put in place to curtail the menace should, therefore, improve safety and enhance the feeling of safety. Government agencies involved with the responsibility of urban policy and practice should take seriously the fact that it is humanities' perceptions of their position that are crucial. Essentially, dealing with the impressions that individuals concept of their neighbourhood, and what they feel and see when in public spaces, is an essential factor in making them safe. People act on their perceptions and beliefs. Those involved in neighbourhood safety management must attend to the logic of community participation and perceptual intervention. Understanding public perceptions matters. Interventions should be planned to have an optimistic impact on perceptions and should not be left to chance. 'Neighbourhood Safety Indices' would make available information and an interrelated level of how safe the populace is and how safe they perceive themselves to be. This would be better than the present situation to depend on police recorded crime statistics in comparing local areas' situations.

6.2 Limitations of the Research

From the outcomes of this study, it is clear that the present study is confined in some ways, which should be explored holistically. Primarily, it is limited because the work focused on urban areas only of Ibadan city, neglecting rural and fringes. Consequently, the outcomes cannot be generalised to all gated communities and enclosed areas. Secondly, the study is also limited in scope as it dwells mainly on the residents' socio-economic characteristics as significant determinants of neighbourhood safety. Hence, to gain all-inclusive knowledge on factors influencing residents' perception of safety in gated communities, it is needed to consult other published research articles that had been done by this author and other researchers on other factors critically.

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References

Agbola, T. (1997). *The architecture of fear: Urban design and construction response to urban violence in Lagos, Nigeria*. Ibadan: IFRA / African Book Builders.

Ajibola, M. O. (2010). Valuation inaccuracy: An examination of causes in Lagos Metropolis. *Journal of Sustainable Development, 3*(4), 187-193.

Alemika, E. E. O., & Chukwuma, I. C. (2005). *Criminal victimization and fear of crime in Lagos Metropolis, Nigeria* [Monograph]. Lagos: CLEEN Foundation. Retrieved from http://new.cleen.org/LAGOS%20CRIME%20SURVEY.pdf

Alohan, E. O., & Ogedengbe, P. S. (2018). Comparative study of the influence of gated and non-gated residential estates on property values in Edo State, Nigeria. *African Journal of Environmental Research, 1*(2), 1-13.

Appleyard, B. S. (2010). *New methods to measure urban environments for consumer behavior research: Individual access corridor analysis of environmentally sustainable travel to rapid transit* (Unpublished doctoral dissertation). University of California, Berkeley, CA.

Arese, N. S. (2018). Urbanism as craft: Practicing informality and property in Cairo's gated suburbs, from theft to virtue. *Annals of the American Association of Geographers, 108*(3), 620-637.

Atkinson, R., & Flint, J. (2004). Fortress UK? Gated communities, the spatial revolt of the elites and time–space trajectories of segregation. *Housing Studies, 19*(6), 875-892.

Austin, D. M., Furr, L. A., & Spine, M. (2002). The effects of neighbourhood conditions on perceptions of safety. *Journal of Criminal Justice, 30*(5), 417-427.

Baba, Y., & Austin, D. M. (1989). Neighborhood environmental satisfaction, victimization, and social participation as determinants of perceived neighborhood safety. *Environment and Behavior, 21*(6), 763-780.

Bauman, Z. (2002). Violence in the age of uncertainty. In A. Crawford (Ed.), *Crime and insecurity: The governance of safety in Europe* (pp. 52-74). Cullompton: Willan Publishing.

Blakely, E. J., & Snyder, M. G. (1999). Fortress America: Gated Communities in the United States. Washington, DC: The Brookings Institution.

Bodson, J., Leeke, J., Lelandais, I., Nolin, G., Soria, L., & Virgin, M. (2008). *International report on crime prevention and community safety: Trends and perspectives* (Report No. 224894). Montreal: International Centre for the Prevention of Crime (ICPC).

Brabec, T., & Sýkora, L. (2009). Gated communities in Prague. In C. Smigiel (Ed.), *Gated and guarded housing in Eastern Europe*, (pp. 83-89). Leipzig: Leibniz–Institut für Länderkunde.

Bursik, R. J., Jr., & Grasmick, H. G. (1993). Economic deprivation and neighborhood crime rates, 1960-1980. *Law & Society Review, 27*(2), 263-283.

Chabowski, R. (2007). Kwestia klasyfikacji i nazewnictwa osiedli zamknie˛tych w Warszawie [The question of classification and naming of gated communities in Warsaw]. In B. Jałowiecki & W. Łukowski (Eds.), *Gettoizacja polskiej przestrzeni miejskiej [Gettoization of Polish Urban Space]* (pp. 121–127). Warszawa: Wydawnictwo Naukowe Scholar.

Commission on Human Security. (2003). Human security now. Retrieved from https://www.resdal.org/ultimos-documentos/com-seg-hum.pdf

Coetzer, C. (2001, September 24-27). *Crime prevention in neighbourhoods.* Paper presented at the 6th Annual CPTED Association Conference, Brisbane, Australia.

Covington, J., & Taylor, R. B. (1991). Fear of crime in urban residential neighborhoods: Implications of between- and within-neighborhood sources for current models. *The Sociological Quarterly, 32*(2), 231-249.

Crawford, A. (1998). *Crime prevention and community safety: Politics, policies and practices*. London: Longman.

Danielsen, K. A. (2008). *Lifestyle neighborhoods: The semi-exclusive world of rental gated communities* (Doctoral dissertation). Virginia Polytechnic Institute and State University, Alexandria, VA. Retrieved from https://vtechworks.lib.vt.edu/handle/10919/27915

Ditton, J., & Innes, M. (2005). The role of perceptual intervention in the management of crime fear. In N. Tilley (Ed.), *Handbook of crime prevention and community safety* (pp. 595-623). Cullompton: Willan Publishing.

Ewing, R., & Handy, S. (2009). Measuring the unmeasurable: Urban design qualities related walkability. *Journal of Urban Design, 14*(1), 65-84.

Fabiyi, O. (2004). Gated neighbourhoods and privatisation of urban security in Ibadan metropolis. Ibadan: IFRA.

Fabiyi, O. O. (2006). Analysis of inter-connectivity levels of urban street networks and social interactions in enclosed neighbourhood in Johannesburg RSA. *Humanity & Social Sciences Journal, 1*(1), 79-95.

Farr, J. (2004). Social capital: A conceptual history. *Political Theory, 32*(1), 6-33.
Ferraro, K. F. (1995). *Fear of crime: Interpreting victimization risk*. Albany, NY: State University of New York Press.
Fiadzo, E. D., Houston, J. E., & Godwin, D. D. (2001). Estimating housing quality for poverty and development policy analysis: CWIQ in Ghana. *Social Indicators Research, 53*(2), 137-162.
Foster, J. (1995). Informal social control and community crime prevention. *The British Journal of Criminology, 35*(4), 563-583.
Franklin, T. W., Franklin, C. A., & Fearn, N. E. (2008). A multilevel analysis of the vulnerability, disorder, and social integration models of fear of crime. *Social Justice Research, 21*(2), 204-227.
Gąsior-Niemiec, A., Glasze, G., Lipok, D., & Pütz, R. (2007). Grodzenie miasta: Casus Warszawy [Gating the city: The case of Warsaw]. *Studia Regionalne i Lokalne, 4*(30), 5-30.
Giglia, A. (2003, September 18-19). *"Gated communities" in Mexico City*. Paper presented at the Conference: "Gated communities: Building social division or safer communities?", Glasgow, United Kingdom.
Glasze, G. (2001). Geschlossene Wohnkomplexe (gated communities) als Enklaven des Wohlbefindens in der wirtschaftsliberalen Stadt [Guarded residential complexes (gated communities) as enclaves of well-being in the deregulated city]. In H. Roggenthin (Ed.), *Stadt – der Lebensraum der Zukunft? Gegenwärtige raumbezogene Prozesse in Verdichtungsräumen der Erde* (pp. 39-55). Mainz: Institute of Geography, Mainz University.
Górczyńska, M. (2012). Specificity of gated neighbourhoods in the Bielany district (Warsaw). *Articulo - Journal of Urban Research* , (8), Article 2022.
Grant, J. (2003, September 18-19). *Planning responses to gated communities in Canada*. Paper presented at the Conference: "Gated communities: Building social division or safer communities?", Glasgow, United Kingdom.
Grant, J., & Mittelsteadt, L. (2004). Types of gated communities. *Environment and Planning B: Urban Analytics and City Science, 31*(6), 913-930.
Gul, Y., Sultan, Z., & Jokhio, G. A. (2018). The association between the perception of crime and walking in gated and non-gated neighbourhoods of Asian developing countries. *Heliyon, 4*(8), e00715.
Gülümser, A. A., & Baycan-Levent, T. (2009). Through the sky: Vertical gated developments in Istanbul. *The Urban Reinventors Online Journal*. Retrieved from http://www.urbanreinventors.net/3/gulumser/gulumser-urbanreinventors.pdf
Hale, C. (1996). Fear of crime: A review of the literature. *International Review of Victimology, 4*(2), 79-150.
Hegedűs, G. (2009). A review of gated communities in some Hungarian cities. *Geographica Pannonica, 13*(3), 85-96.
Innes, M., & Jones, V. (2006). *Neighbourhood security and urban change: Risk, resilience and recovery*. New York, NY: Joseph Rowntree Foundation.
Kellekci, O. L., & Berköz, L. (2006). Mass housing: User satisfaction in housing and its environment in Istanbul, Turkey. *European Journal of Housing Policy, 6*(1), 77-99.
Kohn, M. (2004). *Brave new neighborhoods: The privatization of public space*. New York: Routledge.
LaGrange, R. L., & Ferraro, K. F. (1989). Assessing age and gender differences in perceived risk and fear of crime. *Criminology, 27*(4), 697-720.
Landman, K. (2003). *Crime, political transition and urban transformation in South Africa and Brazil* (SAIIA Report No. 36). Johannesburg: SAIIA.
Landman, K. (2004). Gated communities in South Africa: The challenge for spatial planning and land use management. *Town Planning Review, 75*(2), 151-172.
Lin, N. (2001). *Social capital: A theory of social structure and action*. Cambridge: Cambridge University Press.
Makinde, O. O. (2014). *Neighbourhood safety in selected gated communities in ibadan, Oyo-State, Nigeria* (Unpublished master's thesis). Obafemi Awolowo University, Osun State, Nigeria.
Makinde, O. O. (2020a). The correlates of residents' perception of safety in gated communities in Nigeria. *Social Sciences & Humanities Open, 2*(1), 100018.
Makinde, O. O. (2020b). The effects of physical and social characteristics on residents' perception on neighbourhood quality in the urban environment. *Journal of Human, Earth and Future, 1*(3), 122-145.
Makinde, O. O. (2022). Typological analysis of gated communities characteristics in Ibadan, Nigeria. In A. Almusaed, & A. Almssad (Eds.), *Sustainable housing*. London: IntechOpen.
McGoey, C. (2018, April 13). Gated community access control issues as a security amenity. Retrieved from https://crimedoctor.com/gated-community/
Michalos, A. C., & Zumbo, B. D. (2000). Criminal victimization and the quality of life. *Social Indicators Research, 50*(3), 245-295.
Moore, M. H. (1999). Security and community development. In R. F. Ferguson, & W. T. Dickens (Eds.), *Urban problems and community development* (pp. 293-337). Washington, DC: Brookings Institution Press.
Myers, A. D. (2011). *The social implications of gated communities and the planning process: A suburban case study* (Master's thesis). Kansas State University, Manhattan, KS. Retrieved from https://krex.k-state.edu/dspace/handle/2097/8452
National Policing Improvement Agency (NPIA). (2012). *NPIA annual report and accounts 2011/12*. London: The Stationery Office. Retrieved from https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/247028/0241.pdf
Okunola, S., & Amole, D. (2012). Perception of safety, social participation and vulnerability in an urban neighbourhood, Lagos, Nigeria. *Procedia -Social and Behavioral Sciences, 35*, 505-513.
Olajide, S. E., Lizam, M., & Akinbola, K. B. (2018). Residential neighbourhood crime prevention in Nigeria: Need for a paradigm shift. *Advanced Science Letters, 24*(5), 3781-3784.
Owens, P. M. (2005). *Beyond density: Measuring neighborhood form in New England's Upper Connecticut River Valley* (Unpublished doctoral dissertation). University of California, Berkeley, CA.
Power, A. (2004, January). Neighbourhood management and the future of urban areas (CASEpaper No. 77). London: Centre for Analysis of Social Exclusion.
Prompayuk, S., & Sahachaisaeree, N. (2012). Unity in environmental design and livable neighbourhood. *Procedia - Social and Behavioural Sciences, 50*, 812-817.
Putnam, R. D. (2000). *Bowling alone: The collapse and revival of American community*. New York, NY: Simon & Schuster.
Schuck, A., & Rosenbuam, D. (2006). *Promoting safe and healthy neighbourhoods: What research tells us about intervention*. Washington, DC: The Aspen Institute.
Sun, G., & Webster, C. (2019). The security grills on apartments in gated communities: Trading-off 3D and 2D landscapes of fear in China. *Cities, 90*, 113-121.
Tobiasz-Lis, P. (2012). Social relations in gated communities based on the city of Łódź. *Space – Society – Economy, 11*, 211-223.
United Nations Human Settlements Programme (UN-HABITAT). (2011). *Housing the poor in African cities – Quick guide for policy makers number 8: Local government*. Nairobi: UN-HABITAT. Retrieved from https://unhabitat.org/sites/default/files/download-manager-files/Quick%20Guide%208.pdf
van Dijk, J. J. M., & Vianen, A. C. (1978). *Criminal victimization in the Netherlands: Victim surveys, 1974-1977* (Report No. VII). The Hague: Ministry of Justice.
van Harten, M. (2012, October). *Intercultural pathways to urban safety: 'How do cities and citizens benefit?* [Meeting report]. Lisbon/Amsterdam: ICC. Retrieved from https://rm.coe.int/16803009c4
Vesselinov, A. (2009). Do gated communities contribute to racial and economic residential segregation? The case of Phoenix. Retrieved from http://soc.qc.cuny.edu/wordpress/wpcontent/uploads/2008/08/note_vesselinov4.pdf
Webster, C. (2002). Property rights and the public realm: Gates, green belts, and Gemeinschaft. *Environment and Planning B: Urban Analytics and City Science, 29*(3), 397-412.
Warner, B. D., Leukefeld, C. G., & Kraman, P. (2002). *Informal social control of crime in high drug use neighbourhood: Final project report*. Washington, DC: National Institute of Justice.
Weissbourd, R., Bodini, R., & He, M. (2009). *Dynamic neighborhoods: New tools for community and economic development*. Chicago, IL: RW Ventures.
Williamson, T. (2003). *Understanding crime and the neighbourhood: Concepts, evidence and policy direction*. Paper presented at the ESRC Centre for Neighbourhood Research Conference, Bristol, United Kingdom.
Wilson, J. Q., & Kelling, G. L. (1982). Broken windows. *The Atlantic Monthly*, (March), 29-38.
Wilson-Doenges, G. (2000). An exploration of sense of community and fear of crime in gated communities. *Environment and Behavior, 32*(5), 597-611.
World Bank. (2011). Violence in the city: Understanding and supporting community responses to urban violence. Washington, DC: The World Bank.
Wood, L., Shannon, T., Bulsara, M., Pikora, T., McCormack, G., & Giles-Corti, B. (2008). The anatomy of the safe and social suburb: An exploratory study of the built environment, social capital and residents' perceptions of safety. *Health & Place, 14*(1), 15-31.