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RESIDENTS PERCEPTION OF NEIGHBOURHOOD CHARACTERISTICS AND STRESS IN KUBWA, ABUJA

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ABSTRACT

This study evaluates the relationship between neighbourhood characteristics and stress among residents in Kubwa, Abuja. A total of 300 households were randomly sampled using structured questionnaires in a six (6) selected neighbourhoods in Kubwa based on densities (Low, Medium, and High). The data obtained were analysed using descriptive (frequency, percentage, and mean) and inferential (Spearman rank correlation) statistics. The findings indicate a negative and significant correlation between neighbourhood perceived characteristics ($r = -.172$, $p < .01$) and physical characteristics ($r = -.153$, $p < .05$) and stress among Kubwa residents. Overall neighbourhood perceived characteristics ($r = .251$) and physical characteristics ($r = .223$) show positive and weak significant ($p < .01$) association with neighbourhood satisfaction. It is recommended that the urban authorities and communities should engage in the design and building of sustainable neighbourhood that provide green spaces, good drainage and sewage system, clean environment, aesthetic quality and reputation to improve the quality of life and enhance livability for all residents.

Keywords: Neighbourhood characteristics, Neighbourhood quality, Residents wellbeing, Satisfaction, Stress

1. Introduction

Urban residents are faced with many stress factors to cope with or managed (Koslowsky *et al.,* 2013). These elements include work-related stress, residential stress, after-work age or retirement issues, and so on (Hsu, 2019), all of which reduce wellbeing (Karpenka & Boriskevich, 2019). It has been shown that people's mental health is impacted by the neighbourhood environment (Malhi & Mann, 2018), which can be roughly classified into physical and social aspects (Wang et al., 2019). The sense of neighbourhood quality is greatly influenced by neighbourhood characteristics (Ruiz et al., 2019). Residents' opinions of their communities may be impacted by their social environment, which in turn may influence physical activities and individual thinking (Bancila *et al.,* 2012).

According to Rautio *et al.* (2018), socio-spatial characteristics of people's living environments can either contribute to or guard against depression. Aside from an individual's traits, the living environment is seen as a critical factor that is directly tied to residents' health and activities (Putrik *et al.,* 2015). Thus, both the physical and social surroundings of the neighbourhood are linked to stress consequences, both directly and indirectly. Similarly, there are concerns in the neighbourhood that pose a stress to people, particularly those who live on the outskirts of towns, i.e., not near to city centres (Marcuse & Van Kempen, 2011). These include housing closeness to place of employment, transportation congestion, and, in particular, increases in home rent in city centres and nearby districts or localities (Cobbinah & Amoako, 2012).

An essential attribute of a liveable city is argued to be a high-quality place, where people want to live (Satu & Chiu, 2017*)*. Neighbourhood factors may be important independent contributors to the cause of depression (Kim *et al.,* 2008; Mair *et al.,* 2008). At neighbourhood level, a promising body of empirical literature has begun to show significant associations between specific neighbourhood characteristics and depressive symptoms across a number of countries and socioeconomic groups (Cohen-Cline *et al.,* 2018; Dowdall *et al.,* 2017). Urban environments are associated with a higher risk of adverse mental health outcomes; however, it is unclear which specific components of the urban environment drive these associations (James *et al.,* 2018). This study therefore, examined the connexion between neighbourhood characteristic, perceived neighbourhood characteristics, neighbourhood satisfaction and resident stress in Kubwa town.

2. Literature Review

Neighbourhood Characteristics, Health and Quality of Life: The concept of liveability defines the degree to which a living environment fits the adaptive species (Veenhoven, 2014). Liveability refers to an urban system that contributes to the physical, social, mental well-being and personal development of all its inhabitants (Momtaz & Elsemary, 2015). Liveability theory is essential in this study because the built environment or the available services in a city fulfil the residents' needs and expectations. Urban liveability is a multifaceted notion that encompasses many aspects of the urban living environment, including both the physical and socio-cultural surroundings (Kashef, 2016; Norouzian-Maleki et al., 2015). The subjective context is used in this study to investigate the association between neighbourhood features and resident stress.

Neighbourhood characteristic is the combination of various elements that give neighbourhoods distinct personality (CEQR Technical Manual, 2014). Neighbourhood characteristics may influence health and well-being outcomes through stressors in our daily life (Scott *et al*., 2018). Neighbourhood characteristics, includes density, land use diversity, design and amenities, which affect resident's satisfaction and influence stress. Previous research has found that housing and neighbourhood characteristics are significant predictors of residential satisfaction. Residential satisfaction is influenced by both social (e.g., social connection and social cohesiveness) and physical (e.g., the presence, location, and accessibility to businesses and schools) qualities of neighbourhoods (Jason & Wang, 2016).

Neighbourhood physical and social environment can influence health in various ways. Most recognizable is through the physical characteristics. Health can be adversely affected by poor environmental sanitation, pollution, water quality, proximity to facilities that produce or store hazardous substances, substandard housing conditions, lack of access to nutritious foods, safety, and traffic congestion (Voigtländer, 2013). The well-being of people in relation to their surroundings is referred to as their quality of life (QOL). As a result, the environmental quality of a neighbourhood influences living quality. There is a close link between the neighbourhood and the people' quality of life (Streimikiene, 2015).

Similarly, Neighbourhood satisfaction is basically shaped by neighbourhood characteristics which are usually categorized as physical (objective) and perceived (subjective) (Mouratidis, 2020). Residential satisfaction is an essential component of life satisfaction. It reflects resident's satisfied or dissatisfied responses to their environment that is comprised of neighbourhood services and facilities (Jason & Wang, 2016). Thus, measurement of neighbourhood characteristics is crucial for the development and sustainability of urban areas.

Perceived Residents Stress: The feeling of emotional or physical tension can be referred to as stress. It has an essential central role in theories that link neighbourhood characteristics and stress (Medical Encyclopaedia, 2018). Neighbourhood stressors may be originated from physical neighbourhood characteristics such as lack of resources and unpleasant physical surroundings or by the residents in the neighbourhood by imposing threats on physical safety. This study therefore, based on literatures reviewed defined neighbourhood characteristics in a conceptual structure for this study (Figure 1).

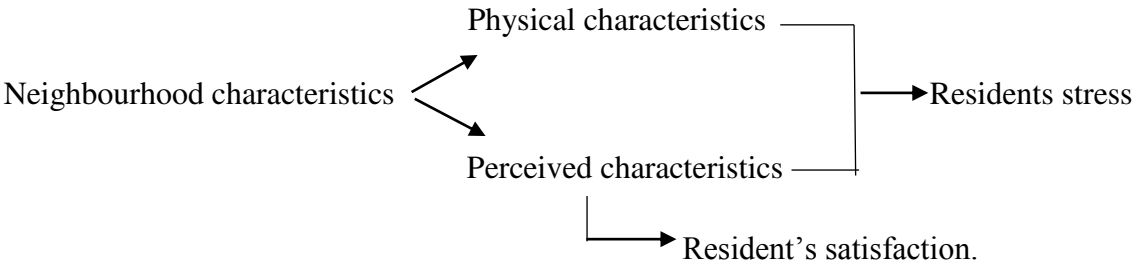

Figure 1 Neighbourhood Characteristics in the Context of Residents Stress
Source: Author's Compilation (2022)

3. METHODOLOGY

3.1 The Study Area

Kubwa is located in Bwari Area Council (BAC), one of the Federal Capital Territory (FCT) Abuja's six area councils situated at the north-western fringes of FCT, along the Outer Northern Expressway. Kubwa satellite town is strategically located and densely populated. It lies on between longitude 7018I East and latitude 9011I North of the equator. The town is bounded to the north by the Bwari-Aso hill ranges, which stretch for about 4 kilometres, to the east by the Dutse Alhaji – Lower-Usuma dam road, and to the west by the Jibi resettlement scheme. The area is approximately 3,326.29 hectares in size, with a population of approximately 776,298 people in 2006 (NPC census, 2006). Kubwa is regarded as West Africa's biggest community, which has grown and developed sustainably; however, it has been observed to be slow compared to other fast-growing cities in the world (City Mayor Statistics (2021). The town's infrastructure is rather inadequate by global standards, which has a significant impact on the lives of its residents. The impact and significance of infrastructure on human development cannot be overstated, as a lack of access to basic infrastructure services undermines inclusive development (Fujita et al., 2013).

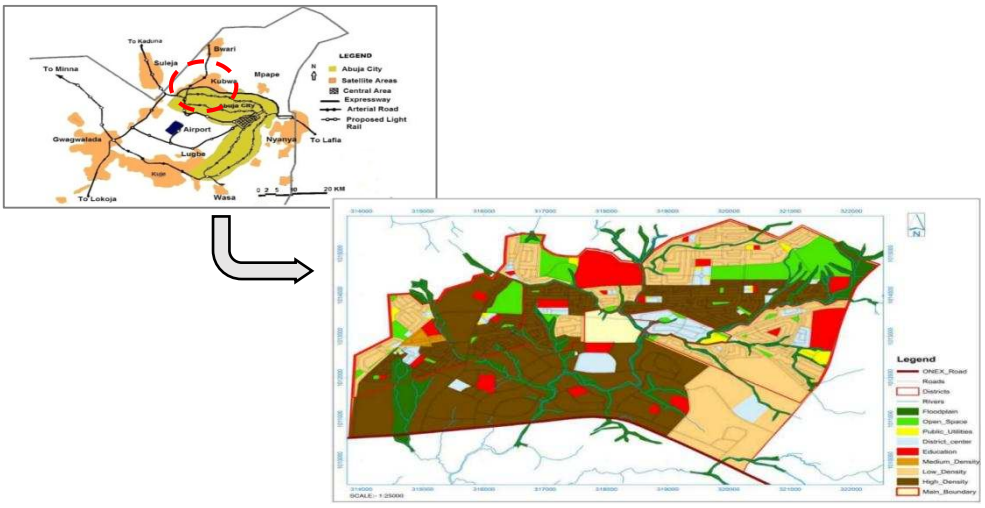

Figure 2 Kubwa in the context of Abuja Federal Capital City (FCC)
Source: Fola Konsult Nig. Ltd, (2004).

3.2 Methods

The total population in Kubwa, according to National Population Commission's census figure in 2006 was 776,298. The census figure is projected to 951,741 in 2021 bases on 2.58% Abuja growth rate by the National Bureau of Statistic (NBS, 2020) using exponential population projection model. Base on the projected populated population, the sample for the study is calculated by using Taro Yamane (Yamane, 1973) formula with 95% confidence level. The study sampled 300 households head from residential buildings in Kubwa's selected neighbourhood using stratified randomly based on densities (Low density, Medium and High). Structured questionnaires were used to seek responses of household head using systematic random sampling. The neighbourhoods include Phase 1 site 1 (PW), Phase 2 (Phase 2 site 1 and Phase 2 site 2), Phase 3, Army Quarters, and Kubwa Federal Housing Authority (FHA).

Descriptive statistics (Frequency, Percentage, and Mean) were used to analyse the acquired data. Bi-variate analysis (Spearman rank correlation (rs)) was used to test the relationship between neighbourhood characteristics (perceived and physical) and stress, as well as the relationship between neighbourhood characteristics (perceived and physical) and neighbourhood satisfaction among residents (SPSS). Two independent variables were included in the study: physical and perceived neighbourhood characteristics. The physical neighbourhood characteristics variables include 16 items (neighbourhood congestion, distance, green Ares, public transportation accessibility, good road/walkable street, health services, water supply, electricity, and telecommunication) that are measured on a 5-Likert Scale (1='Strongly Disagreed' to 5='Strongly Agreed'). Items with a high percentage score in both 'Agreed' and 'Strongly Agreed' are considered 'good,' 'Neither agree nor disagree' is considered 'Fair,' while 'Disagreed' and 'Strongly Disagreed' is considered 'Poor.' While the perceived neighbourhood qualities variable was measured using six (6) items on a 6-Likert Scale (1='Not at all' to 6 = 'Very high') (Neighbourhood safety, cleanness, aesthetes' quality, reputation, cohesiveness, and level of attachment). The dependent variable, stress, was measured using only one item, "Feelings of worry during the last week" on a 5-Likert Scale ('Very seldom or never', 'Rarely', 'Sometimes', 'Often', 'Always', 'Always', 'Always', 'Always', 'Always').

4. Results and Discussion

Physical and Perceived Neighbourhood Characteristics in Kubwa

The physical and perceived characteristics of the neighbourhood were evaluated. Items with a high percentage score in both 'Agreed' and 'Strongly Agreed' are considered 'good,' 'Neither agree nor disagree' is considered 'Fair,' while 'Disagreed' and 'Strongly Disagreed' is considered 'Poor.' Tables 1 and 2 show the results of the residents' responses to the assessment of physical and perceived neighbourhood characteristics in Kubwa. Access to public transportation (M = 3.97), local amenities (M = 3.73), education facilities (M = 3.69), health services (M=3.50), water supply and telecommunication (M=3.47), good road and walkable street (M=3.31), neighbourhood congestion (M=3.11), and neighbourhood distance to city centre (M=3.09) scored higher among other neighbourhood characteristics in Kubwa. While access to power (M=3.26) was fair, available green open spaces (M=2.71), drainage and sewage system (M=2.94) were assessed as bad in Kubwa communities.

Table 1 Residents Response on Physical Neighbourhood Characteristics in Kubwa
Source: Authors' Fieldwork, 2021.

S/N	Physical Neighbourhood Characteristic	Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree	Mean	Remark
		Freq (%)	Freq (%)	Freq (%)	Freq (%)	Freq (%)		
1	Neighbourhood congestion	23 (8.2)	60 (21.4)	91 (32.4)	**78 (27.8)**	**29 (10.3)**	3.11	Good
2	Neighbourhood distance	33 (11.7)	49 (17.4)	88 (31.3)	**83 (29.5)**	**28 (10)**	3.09	Good
3	Available green area	**45 (16.0)**	**71 (25.3)**	93 (33.1)	63 (22.4)	9 (3.2)	2.71	**Poor**
4	Public transport accessibility	10 (3.6)	20 (7.1)	40 (14.2)	**160 (56.9)**	**51(18.1)**	3.79	Good
5	Access to local amenities	9 (3.2)	16 (5.7)	58 (20.6)	**158 (56.2)**	**40 (14.2)**	3.73	Good
6	Good road and walkable street	10 (3.6)	49 (17.4)	96 (34.2)	**97 (34.5)**	**29 (10.3)**	3.31	Good
7	Access to health services	9 (3.2)	31 (11.0)	71 (25.3)	**151 (53.7)**	**19 (6.8)**	3.50	Good
8	Access to Education Facilities	6 (2.1)	28 (10.0)	49 (17.4)	**161 (57.3)**	**37 (13.2)**	3.69	Good
9	Drainages and sewage system	**31 (11.0)**	**69 (24.6)**	87 (31.0)	73 (26.0)	21 (7.5)	2.94	**Poor**
10	Access to Water Supply	13 (4.6)	17 (6.0)	105 (37.4)	116 (41.3)	30 (10.7)	3.47	Good
11	Access to Electricity	14 (5.0)	32 (11.4)	**127 (45.2)**	82 (29.2)	26 (9.3)	3.26	**Fair**
12	Access to telecommunication	27 (9.6)	29 (10.3)	55 (19.6)	**124 (44.1)**	**46 (16.4)**	3.47	Good

Also, the findings of residents' perceived evaluations of neighbourhood qualities (Table 2) suggest a low degree of neighbourhood safety (49.1 %), cleanness (50.2%), aesthetics quality (56.4%), and cohesiveness (49.8%). Residents' perceptions of the neighbourhood's reputation (46.4 %) were modest.

Table 2 Residents Response on Perceived Neighbourhood Characteristics in Kubwa

S/N	Perceived Neighbourhood Characteristic	Not at all	Very low	Low	Moderate	High	Very high
		Freq (%)	Freq (%)	Freq (%)	Freq (%)	Freq (%)	Freq (%)
1	Neighbourhood Safety	20(7.1)	**39 (13.9)**	**99 (35.2)**	95 (33.8)	17 (6.0)	11 (3.9)
2	Neighbourhood cleanness	16 (5.7)	**28 (10.0)**	**113 (40.2)**	96 (34.2)	21 (7.5)	7 (2.5)
3	Neighbourhood aesthetics quality	15 (5.3)	**30 (10.7)**	**103 (36.7)**	97 (34.5)	28 (10.0)	8 (2.8)
4	Neighbourhood reputation	7 (2.5)	19 (6.8)	88 (31.3)	**117(41.6)**	36(12.8)	51(18.1)
5	Neighbourhood cohesion	15 (5.3)	**43 (15.3)**	**97 (34.5)**	82 (29.2)	33 (11.7)	11 (3.9)
6	Neighbourhood level of attachment	17 (6.0)	21 (7.5)	65 (23.1)	**116 (41.3)**	42 (14.9)	20 (7.1)

Source: Authors' Fieldwork, 2021

Perceived Residents Stress in Kubwa

The response level of anxiety experienced per week was assessed in order to determine the prevalence level of stress among resident in the neighbourhood. The result shows that 32.7% residents sometimes experience anxiety, 21.7% experienced anxiety often, while 6.8% always experience anxiety. However, 32.0% residents rarely experience anxiety while 6.8% very rarely or never experience anxiety. In other word, 61.2% residents of Kubwa experience the feeling of anxiety, while 38.8% rarely experience anxiety.

Relationship between Perceived and Physical Neighbourhood Characteristics, and Residents Stress in Kubwa

Table 3 shows the results of the Spearman correlation analysis, which was used to determine whether there is a significant relationship between neighbourhood characteristics (both perceived and physical) and residents' stress in Kubwa. The findings show that neighbourhood characteristics (both perceived and physical) and residents' stress are both significantly and weakly negatively correlated. Residents' stress and perceived neighbourhood characteristics were negatively and significantly correlated (r = -.172, N = 281, p.01), while physical neighbourhood characteristics and residents' stress were negatively significantly correlated (r = -.153, N = 281, p.05). This finding supports previous research (Ruiz et al., 2019, Momtaz and Elsemary, 2015) that neighbourhood characteristics are the combination of various elements that give neighbourhoods distinct personalities, and thus are extremely important to overall perceptions of neighbourhood quality (CEQR Technical Manual, 2014).

Table 3 Result of the Test between Neighbourhood Characteristic and Residents Stress

Perceived Neighbourhood Characteristics	Correlation Coefficient	1		
	Sig. (2-tailed)	.		
	N	281		
Physical Neighbourhood Characteristics	Correlation Coefficient	.340**	1	
	Sig. (2-tailed)	0	.	
	N	281	281	
How frequent is your feelings of anxiety over the past week	Correlation Coefficient	**-.172****	**-.153***	1
	Sig. (2-tailed)	**0.004**	**0.01**	.
	N	281	281	281

Source: Authors' Fieldwork, 2021

The Spearman correlation analysis of the link between perceived (independent variable) and stress among Kubwa residents is presented in Table 4. The findings reveal that neighbourhood cohesiveness (r = -.190, p 0.01), neighbourhood safety (r = -.118, p 0.05), and neighbourhood attachment (r = -.141, p 0.05) all have a negative and significant correlation with resident stress in Kubwa. However, neighbourhood cleanness (r = -.115, p > 0.05), aesthetics quality (r = -.114, p > 0.05), and reputation (r = -.066, p > 0.05) were not significantly associated with stress among Kubwa residents (p-value >.05).

Furthermore, Table 5 presents the Spearman Rank correlation analysis of the relationship between physical (independent variables) and stress (dependent variables) among Kubwa residents. The results reveal a negative significant relationship between available green area (r = -.121, p 0.05), good drainage and sewage system (r = -.150, p 0.05), and stress among Kubwa residents. Other physical neighbourhood characteristics include access to health facilities (r = -.116, p > 0.05), access to local amenities (r =.042, p > 0.05), access to public transportation (r =.022, p > 0.05), education facilities (r =.035, p > 0.05), access to telecommunication (r = -.097, p > 0.05), neighbourhood congestion (r = -.006, p > 0.05), neighbourhood distance (r =.067, p > 0.05), access to water supply (r = .003, p > 0.05) do not have any relationship significantly with stress among residents in Kubwa.

Table 4 Result of the Correlation Test between perceived Neighbourhood Characteristic variables and Residents Stress

			Perceived Neighbourhood Characteristic						How frequent is your feelings of anxiety over the past week
			safety	cleanliness	aesthetic quality	reputation	cohesion	Neigh. attachment	
Spearman's rho	Neighbourhood safety	Correlation Coefficient	1.000	.431**	.436**	.418**	.294**	.287**	-.118*
		Sig. (2-tailed)	.	.000	.000	.000	.000	.000	.049
		N	281	281	281	281	281	281	281
	Neighbourhood cleanliness	Correlation Coefficient	.431**	1.000	.555**	.418**	.236**	.285**	-.115
		Sig. (2-tailed)	.000	.	.000	.000	.000	.000	.054
		N	281	281	281	281	281	281	281
	Neighbourhood aesthetic quality	Correlation Coefficient	.436**	.555**	1.000	.316**	.232**	.206**	-.114
		Sig. (2-tailed)	.000	.000	.	.000	.000	.001	.057
		N	281	281	281	281	281	281	281
	Neighbourhood reputation	Correlation Coefficient	.418**	.418**	.316**	1.000	.403**	.266**	-.066
		Sig. (2-tailed)	.000	.000	.000	.	.000	.000	.272
		N	281	281	281	281	281	281	281
	Neighbourhood cohesion	Correlation Coefficient	.294**	.236**	.232**	.403**	1.000	.656**	-.190**
		Sig. (2-tailed)	.000	.000	.000	.000	.	.000	.001
		N	281	281	281	281	281	281	281
	neighbourhood attachment	Correlation Coefficient	.287**	.285**	.206**	.266**	.656**	1.000	-.141*
		Sig. (2-tailed)	.000	.000	.001	.000	.000	.	.018
		N	281	281	281	281	281	281	281
	How frequent is your feelings of anxiety over the past week	Correlation Coefficient	**-.118***	**-.115**	**-.114**	**-.066**	**-.190****	**-.141***	1.000
		Sig. (2-tailed)	**.049**	**.054**	**.057**	**.272**	**.001**	**.018**	.
		N	281	281	281	281	281	281	281

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

Source: Authors' Fieldwork, 2021

Table 5 Result of the Correlation Test between Physical Neighbourhood Characteristics and Residents Stress

			Physical Neighbourhood Characteristic												
			1	2	3	4	5	6	7	8	9	10	11	12	13
Spearman's rho	1	Correlation Coefficient	1.000												
		Sig. (2-tailed)	.												
		N	281												
	2	Correlation Coefficient	.242**	1.000											
		Sig. (2-tailed)	.000	.											
		N	281	281											
	3	Correlation Coefficient	-.010	.059	1.000										
		Sig. (2-tailed)	.868	.328	.										
		N	281	281	281										
	4	Correlation Coefficient	.033	-.131*	.251**	1.000									
		Sig. (2-tailed)	.587	.029	.000	.									
		N	281	281	281	281									
	5	Correlation Coefficient	-.116	.103	.054	.236**	1.000								
		Sig. (2-tailed)	.053	.085	.369	.000	.								
		N	281	281	281	281	281								
	6	Correlation Coefficient	-.167**	.024	.205**	.165**	.295**	1.000							
		Sig. (2-tailed)	.005	.690	.001	.006	.000	.							
		N	281	281	281	281	281	281							
	7	Correlation Coefficient	.040	-.069	.090	.239**	.310**	.289**	1.000						
		Sig. (2-tailed)	.509	.248	.134	.000	.000	.000	.						
		N	281	281	281	281	281	281	281						
	8	Correlation Coefficient	.072	.061	-.030	.165**	.287**	.285**	.398**	1.000					
		Sig. (2-tailed)	.227	.312	.617	.005	.000	.000	.000	.					
		N	281	281	281	281	281	281	281	281					

9	Correlation Coefficient	-.209**	.017	.199**	.106	.210**	.364**	.350**	.182**	1.000				
	Sig. (2-tailed)	.000	.772	.001	.077	.000	.000	.000	.002	.				
	N	281	281	281	281	281	281	281	281	281				
10	Correlation Coefficient	-.111	.011	.051	.086	.226**	.133*	.190**	.328**	.374**	1.000			
	Sig. (2-tailed)	.062	.856	.395	.153	.000	.026	.001	.000	.000	.			
	N	281	281	281	281	281	281	281	281	281	281			
11	Correlation Coefficient	.039	.130*	.143*	.218**	.146*	.230**	.216**	.377**	.136*	.300**	1.000		
	Sig. (2-tailed)	.516	.029	.017	.000	.014	.000	.000	.000	.023	.000	.		
	N	281	281	281	281	281	281	281	281	281	281	281		
12	Correlation Coefficient	-.192**	-.160**	.098	.293**	.154**	.214**	.199**	.170**	.075	.150*	.179**	1.000	
	Sig. (2-tailed)	.001	.007	.101	.000	.010	.000	.001	.004	.207	.012	.003	.	
	N	281	281	281	281	281	281	281	281	281	281	281	281	
13	Correlation Coefficient	**.006**	**-.067**	**-.121***	**.022**	**.042**	**-.072**	**-.116**	**.035**	**-.150***	**.003**	**-.077**	**-.097**	1.000
	Sig. (2-tailed)	**.922**	**.262**	**.042**	**.716**	**.484**	**.230**	**.053**	**.557**	**.012**	**.955**	**.198**	**.106**	.
	N	281	281	281	281	281	281	281	281	281	281	281	281	281

**. Correlation is significant at the 0.01 level (2-tailed). *. Correlation is significant at the 0.05 level (2-tailed)

Source: Authors' Fieldwork, 2021

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Note:
1= Neighbourhood congestion
2 = Neighbourhood distance
3 = Available green area
4 = Public transport accessibility
5 = Access local amenities
6 = Good Road and walkable street
7 = Access health services
8 = Access education facilities
9 = Good drainage and sewage disposal
10 = Access to water supply
11 = Access to electricity
12 = Access to telecom
13 = How frequent is your feelings of anxiety over the past week

The findings are consistent with the findings of Cutrona *et al.* (2015), who said that the features of low-quality neighbourhoods' impact mental health disorders that impose stress, which can lead to depression. The stress created by bad neighbourhoods contributes to depression in addition to the consequences of the individual's own particular stresses, such as poverty and unfavourable occurrences in the family or employment. Neighbourhood influences, according to Kim (2008) and Mair *et al.* (2008), may be key independent contributions to the study of depression.

Association between Perceived and Physical Neighbourhood Characteristics, and Residents Satisfaction in Kubwa

Table 6 shows the results of a Spearman correlation study to see if there is a significant relationship between neighbourhood attributes (both perceived and physical) and neighbourhood satisfaction among Kubwa residents. The findings establish a few positive but not statistically significant correlations between neighbourhood attributes (perceived and physical) and neighbourhood satisfaction among Kubwa inhabitants. The perceived neighbourhood characteristics (r =.251) and the physical neighbourhood characteristics (r =.223) strongly ($p < 0.01$) correlate with neighbourhood satisfaction. According to the findings, Kubwa residents' neighbourhood satisfaction is related to both perceived and physical neighbourhood characteristics.

Table 6 Result of the Correlation Test between Neighbourhood Characteristic and Satisfaction
Satisfaction

Spearman's rho		PNC	PENC	NS
Physical Neighbourhood Characteristics	Correlation Coefficient	1.000		
	Sig. (2-tailed)	.		
	N	281		
Perceived Neighbourhood Characteristics	Correlation Coefficient	.340**	1.000	
	Sig. (2-tailed)	0	.	
	N	281	281	
Neighbourhood Satisfaction	Correlation Coefficient	**.223****	**.251****	1.000
	Sig. (2-tailed)	**0**	**0**	.
	N	281	281	281

Note: PNC= Physical Neighbourhood Characteristics; PENC= Perceived Neighbourhood Characteristics
NS= Neighbourhood Satisfaction
**. Correlation is significant at the 0.01 level (2-tailed).
Source: Authors' Fieldwork, 2021

Table 7 shows the Spearman correlation analysis of the relationship between perceived independent variable and residents' neighbourhood satisfaction. The results suggest that neighbourhood attachment (r =.230, $p < 0.01$), safety (r =.226, $p < 0.01$), cleanliness (r =.202, $p < 0.01$), neighbourhood reputation (r =.200, $p < 0.01$), and neighbourhood cohesiveness (r =.190, $p < 0.01$) are positively connected but have a weak correlation. While the results reveal that the visual quality of the neighbourhood (r =.085, p > 0.05) is not related to neighbourhood satisfaction in Kubwa. This demonstrates that visual quality has a limited influence on perceived neighbourhood features in Kubwa.

Similarly, Table 8 shows the Spearman Rank correlation analysis of the relationship between physical independent variable and residents' neighbourhood satisfaction. The results show that access to educational facilities (r =.159, $p < 0.01$), access to electricity supply (r =.159, $p < 0.01$), neighbourhood distance (r =.143, $p < 0.05$), availability of good drainage and sewage system (r =.136, $p < 0.05$), access to good road and walkable street (r =.133, $p < 0.05$), access to local amenities (r =.130, p 0.05), access to health facilities (r =.129, However, access to water supply (r =.102, p > 0.05), public transportation (r =.039, p > 0.05), telecommunication (r =.014, p > 0.05), and neighbourhood congestion (r = -.018, p > 0.05) do not correlate with neighbourhood satisfaction in the research region. According to the findings, Kubwa residents' satisfaction is related to physical neighbourhood features. This conclusion is consistent with the findings of Mouratidis (2020), Maleki et al. (2015), and Jason and Wang (2016), who discovered that neighbourhood features influence neighbourhood satisfaction (physical and perceived). Thus, measuring neighbourhood characteristics is critical for urban growth and sustainability.

Table 7. Result of the Correlation Test between Independent perceived variables and Satisfaction

		Safety	Cleanness	Aesthetic quality	reputation	cohesion	Level of attachment	Satisfaction
Neighbourhood safety	Correlation Coefficient	1						
	Sig. (2-tailed)	.						
	N	281						
Neighbourhood cleanness	Correlation Coefficient	.431**	1					
	Sig. (2-tailed)	0	.					
	N	281	281					
Neighbourhood aesthetic quality	Correlation Coefficient	.436**	.555**	1				
	Sig. (2-tailed)	0	0	.				
	N	281	281	281				
Neighbourhood reputation	Correlation Coefficient	.418**	.418**	.316**	1			
	Sig. (2-tailed)	0	0	0	.			
	N	281	281	281	281			
Neighbourhood cohesion	Correlation Coefficient	.294**	.236**	.232**	.403**	1		
	Sig. (2-tailed)	0	0	0	0	.		
	N	281	281	281	281	281		
Level of attachment with neighbourhood	Correlation Coefficient	.287**	.285**	.206**	.266**	.656**	1	
	Sig. (2-tailed)	0	0	0.001	0	0	.	
	N	281	281	281	281	281	281	
Neighbourhood Satisfaction	Correlation Coefficient	**.226****	**.202****	**0.085**	**.200****	**.190****	**.230****	1
	Sig. (2-tailed)	**0**	**0.001**	**0.154**	**0.001**	**0.001**	**0**	.
	N	281	281	281	281	281	281	281

**. Correlation is significant at the 0.01 level (2-tailed)

Source: Authors' Fieldwork, 2021

Table 8. Result of the Spearman Correlation Test between Independent physical variables and Satisfaction

			Neighb. congestion	Neighb. distance	Available green area	Public transport accessibilit	Access to local amenities	Good road and walkable	Access to health services	Access to education facilities	good drainage and sewage	Access to water supply	Access to electricity	Access to telecom	Neighb_ Satisfaction
Spearman's rho	Neighbourhood congestion	Correlation Coefficient	1.000												
		Sig. (2-tailed)	.												
	Neighbourhood distance	Correlation Coefficient	.242**	1.000											
		Sig. (2-tailed)	.000	.											
	Available green area	Correlation Coefficient	-.010	.059	1.000										
		Sig. (2-tailed)	.868	.328	.										
	Public transport accessibility	Correlation Coefficient	.033	-.131*	.251**	1.000									
		Sig. (2-tailed)	.587	.029	.000	.									
	Access to local amenities	Correlation Coefficient	-.116	.103	.054	.236**	1.000								
		Sig. (2-tailed)	.053	.085	.369	.000	.								
	Good road and walkable street	Correlation Coefficient	-.167**	.024	.205**	.165**	.295**	1.000							
		Sig. (2-tailed)	.005	.690	.001	.006	.000	.							
	Access to health services	Correlation Coefficient	.040	-.069	.090	.239**	.310**	.289**	1.000						
		Sig. (2-tailed)	.509	.248	.134	.000	.000	.000	.						
	Access to education facilities	Correlation Coefficient	.072	.061	-.030	.165**	.287**	.285**	.398**	1.000					
		Sig. (2-tailed)	.227	.312	.617	.005	.000	.000	.000	.					
	Good drainage and sewage disposal	Correlation Coefficient	-.209**	.017	.199**	.106	.210**	.364**	.350**	.182**	1.000				
		Sig. (2-tailed)	.000	.772	.001	.077	.000	.000	.000	.002	.				
	Access to water supply	Correlation Coefficient	-.111	.011	.051	.086	.226**	.133*	.190**	.328**	.374**	1.000			
		Sig. (2-tailed)	.062	.856	.395	.153	.000	.026	.001	.000	.000	.			
	Access to electricity	Correlation Coefficient	.039	.130*	.143*	.218**	.146*	.230**	.216**	.377**	.136*	.300**	1.000		
		Sig. (2-tailed)	.516	.029	.017	.000	.014	.000	.000	.000	.023	.000	.		
	Access to telecom	Correlation Coefficient	-.192**	-.160**	.098	.293**	.154**	.214**	.199**	.170**	.075	.150*	.179**	1.000	
		Sig. (2-tailed)	.001	.007	.101	.000	.010	.000	.001	.004	.207	.012	.003	.	
	Neighb_Satisfaction	Correlation Coefficient	**-.018**	**.143***	**.122***	**.039**	**.130***	**.133***	**.129***	**.159****	**.136***	**.102**	**.159****	**.014**	1.000
		Sig. (2-tailed)	**.761**	**.017**	**.041**	**.513**	**.029**	**.025**	**.030**	**.007**	**.022**	**.089**	**.008**	**.813**	.

**. Correlation is significant at the 0.01 level (2-tailed). *. Correlation is significant at the 0.05 level (2-tailed). N = 281

Source: Authors' Fieldwork, 2021

Conclusions and Recommendation

This analysis contributes to the study on built environment and stress. The findings from the study suggest that individuals living in a neighbourhood with poorly perceived and physical characteristics experience more stress. Kubwa have good physical neighbourhood characteristics such as access to public transportation, local amenities, education facilities, health services, water supply and telecommunication, good road and walkable street. However, access to electricity was fair, but the available green open spaces, drainage and sewage systems were poor. Similarly, neighbourhood qualities such as safety, cleanness, aesthetics quality, and cohesiveness in Kubwa were perceived to be low. However, the residents' perception on neighbourhood reputation and their level of attachment is moderate. The findings reveal a negative relationship between the neighbourhood characteristics (Perceived and Physical) and residents stress in Kubwa suggesting that quality neighbourhood characteristics reduce resident perceived stress. Also, result shows a positive and weak significant association between neighbourhood characteristics (Perceived and physical) and neighbourhood satisfaction among residents in Kubwa. In view of the findings, It is recommended that the urban authorities and communities should engage in the design and building of sustainable neighbourhood that provide green spaces, good drainage and sewage system, clean environment, aesthetic quality and reputation to improve the quality of life and enhance livability for all residents in Kubwa. The study contributes to growing knowledge and recognition that neighbourhood environment can also profoundly affect resident's well-being and satisfaction.

REFERENCES

Bancila, D., Bak, C. K., & Tanggaard, P. (2012). *International Journal of Mental Health Ethnic differences in stress among residents in a deprived neighbourhood in Denmark*. December 2014, 37–41. https://doi.org/10.1080/14623730.2012.692558

City Environmental Quality Review (CEQR) (2014). Neighborhood Character, Chapter 21.CEQR Technical Manual, March 2014 Edition. City Environmental Quality Review Technical Manual 21-7. Mayor's Office of Environmental Coordination, New York City. www.nyc.gov/.../21_Neighborhood_Character_2014.pdf.

Cobbinah, P. and Amoako, C. (2012). Urban Sprawl and the Loss of Peri Urban Land in Kumasi, Ghana. *International Journal of Social and Human Sciences.* 6. 388 - 397.

Cohen-Cline, H., Beresford, S. A., Barrington, W. E., Matsueda, R. L., Wakefield, J., & Duncan, G. E. (2018). Associations between neighbourhood characteristics and depression: a twin study. *J Epidemiol Community Health*, *72*(3), 202-207.

Dowdall, N., Ward, C. L., & Lund, C. (2017). The association between neighbourhood-level deprivation and depression: evidence from the south African national income dynamics study. *BMC psychiatry*, *17*(1), 1-10.

James, S. L., Abate, D., Abate, K. H., Abay, S. M., Abbafati, C., Abbasi, N., & Briggs, A.M. (2018). Global, regional, and national incidence, prevalence, and years lived with disability for 354 diseases and injuries for 195 countries and territories, 1990–2017: a systematic analysis for the Global Burden of Disease Study 2017. *The Lancet*, *392*(10159), 1789-1858.

Jason, X., & Wang, D. (2016). Landscape and Urban Planning Environmental correlates of residential satisfaction : An exploration of mismatched neighborhood characteristics in the Twin Cities. *Landscape and Urban Planning*, *150*, 26–35. https://doi.org/10.1016/j.landurbplan.2016.02.007

Karpenka, E., and Boriskevich, A. (2019). "Growth factors of the average life expectancy," *University Economic Bulletin, Pereiaslav-Khmelnytskyi Hryhorii Skovoroda State Pedagogical University, Faculty of Finance and Humanities*, issue 41, pages 154-162, March.

Kashef, M. (2016). Urban livability across disciplinary and professional boundaries. *Frontiers of Architectural Research.* 5. 10.1016/j.foar.2016.03.003.

Kim, H. S., Sherman, D. K., & Taylor, S. E. (2008). Culture and social support. *American psychologist*, *63*(6), 518.

Koslowsky, M., Kluger, A. N., & Reich, M. (2013). Commuting stress: Causes, effects, and methods of coping. *Springer Science & Business Media.*

Mair, C., Roux, A. D., & Galea, S. (2008). Are neighbourhood characteristics associated with depressive symptoms? A review of evidence. *Journal of Epidemiology & Community Health*, *62*(11), 940-946.

Malhi, G. S., & Mann, J. J. (2018). Depression. *The Lancet.* doi:10.1016/s0140-6736(18)31948-2

Marcuse, P., and Van Kempen, R., (ed.) 1. (2011). *Globalizing Cities a New Spatial Order?* Wiley. *Blackwell publishing*, ISSN 9781444399615

Momtaz1, R. & Elsemary, Y. (2015). Qualitative Conceptions of Livability between Theory and Applications in Egypt. International Conference on IT, Architecture and Mechanical Engineering (ICITAME'2015) Dubai (UAE). http://dx.doi.org/10.15242/IIE.E0515046.

Mouratidis, K. (2020). Land Use Policy Neighborhood characteristics, neighborhood satisfaction, and well-being: The links with neighborhood deprivation. *Land Use Policy*, *99*(January), 104886. https://doi.org/10.1016/j.landusepol.2020.104886

Norouzian-Maleki, S., Bell, S., Hosseini, S. B., & Faizi, M. (2015). Developing and testing a framework for the assessment of neighbourhood liveability in two contrasting countries: Iran and Estonia. *Ecological Indicators*, *48*, 263-271.

Putrik, P., de Vries, N. K., Mujakovic, S., van Amelsvoort, L., Kant, I., Kunst, A. E., ... & Jansen, M. (2015). Living environment matters: relationships between neighborhood characteristics and health of the residents in a Dutch municipality. *Journal of community health*, *40*(1), 47-56.

Rautio, N., Filatova, S., Lehtiniemi, H., & Miettunen, J. (2018). Living environment and its relationship to depressive mood: a systematic review. *International journal of social psychiatry*, *64*(1), 92-103.

Ruiz, C., Hernández-Fernaud, E., Rolo-González, G., & Hernández, B. (2019). Neighbourhoods' Evaluation: Influence on Well-Being Variables. Frontiers in Psychology*, 10.* doi:10.3389/fpsyg.2019.01736

Satu, S. A., & Chiu, R. L. (2019). Livability in dense residential neighbourhoods of Dhaka. *Housing Studies*, *34*(3), 538-559.

Scott, S. B., Munoz, E., Mogle, J. A., Gamaldo, A. A., Smyth, J. M., Almeida, D. M., & Sliwinski, M. J. (2018). Perceived neighborhood characteristics predict severity and emotional response to daily stressors. *Social science & medicine (1982)*, *200*, 262–270. https://doi.org/10.1016/j.socscimed.2017.11.010

Fujita, Y., Tsuruga, I., & Takeda, A. (2013). Policy Challenges for Infrastructure Development in Africa-The Way Forward for Japan's Official Development Assistance (ODA). *For Inclusive and Dynamic Development*, 195.

Veenhoven, R. (2014). In Alex C. Michalos (Ed.) Encyclopaedia of Quality of Life and Well-Being Research Springer, Dordrecht, Netherlands. *Springer Reference Series*, pp. 3645-3647. Doi: 10.1007/978-94-007-0753-5_1669.

Voigtländer, S., Razum, O., & Berger, U. (2013). Methods to measure neighbourhoods and analyse their impact on health: an overview. *Neighbourhood structure and health promotion*, 93-115.

Wang, R., Helbich, M., Yao, Y., Zhang, J., Liu, P., Yuan, Y., & Liu, Y. (2019). Urban greenery and mental wellbeing in adults: Cross-sectional mediation analyses on multiple pathways cross different greenery measures. *Environmental research*, *176*,108535.

City Mayor Statistics(2021).World's fastest-growing cities and urban areas from 2006 to 2020 ". City Mayors. Retrieved 2022- City Mayors: World's fastest growing urban areas