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EFFECT OF URBAN GREEN SPACES ON RESIDENTS' WELL-BEING IN ABUJA MUNICIPAL AREA COUNCIL, NIGERIA

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Abstract
Participation in activities in urban green areas and parks has a substantial impact on the physical, social, and mental health of the residents. The aim of the research is to assess how green spaces in cities affect the well-being of residents in the Abuja Municipal Area Council. This research was done using a cross-sectional method with a focus on the urban green spaces and parks in AMAC. A total of 430 residents from estimated population of 1,775,432 in 2021 were randomly sampled using structured questionnaires. The collected data were analysed using descriptive statistics (frequency, percentage, and mean), and the relationship between accessibility and utilization of urban green spaces on the well-being of residents (Physical, social and mental well-being) were tested using Bi-variate analysis (Spearman rank correlation (r_s) and logistic regression in Statistical Package for Social Sciences (SPSS). The findings reveals that the distance to the nearest urban green space and parks positively affect well-being ($\beta = .111$, $p < .05$), whereas the length of stay at the urban green spaces and parks has significant negative effect on the resident's well-being ($\beta = -.342$, $p < .001$) in AMAC. In overall, the result of the study reveals that the amount of public participation in urban green spaces has a significant positive impact on the well-being of residents. Participants who often visit urban green areas and parks report increased satisfaction with their physical, social and mental well-being.

Keywords: Park accessibility, Residents' Well-Being, Urban Green Spaces, Abuja Municipal Area Council

Introduction

Urban greening is considered to be a crucial part of solving the environmental problems that cities are now experiencing. According to Beatley (2011), as nature has a way of accomplishing that, even little natural spaces may help bring out the best in us. More than half of all individuals live and work in urban areas. The desire for suitable living conditions and a feeling of belonging in an urban environment for work, play, and leisure is a growing problem. A busy and overpopulated city lacks a lot of open space because different uses, such as new residences and green initiatives, fight for urban space. Nature is more than simply a thing or place that we sometimes visit; rather, it is an environment, ideally a ubiquitous background, that delights, soothes, calms, replenishes, inspires, and uplifts us in our daily urban lives (Beatley. 2011). A city that actively searches out opportunities to fix, replenish, and creatively integrate nature is said to be biophilic.

Additionally, as a consequence of climate change, there are also growing difficulties related to the dynamic evolution of cities. There is also a rising awareness of how dependent people are on urban environments. Urban green spaces are more crucial than ever since they influence our quality of life and are also becoming increasingly significant as location criteria for hiring and business choices. Urban greenspaces are often neglected while making choices on land use in municipalities (McKinney, Kowarik, & Kendal, 2018). More and more land is being taken up by roads, structures, and infrastructure facilities. Urban nature enhances health and promotes social cohesion, so it is important to preserve it on both public and private property with its many diverse near-natural and cultural features.

Compared to rural populations, city dwellers are often more exposed to extreme heat, fine dust (particulate matter), and noise. For instance, morbidity and mortality rates significantly rise when there are summer heat waves. Urban vegetation can significantly lower peak summer temperatures; records show that on hot, windless days, a green space 50 to 100 meters wide is 3 to 4 °C cooler than the nearby built-up area (Zhu, Ji, & Li, 2017; Gallay et al., 2023). Nature's health benefits are more visible in residential settings. We are encouraged to be active, engage in sports, and spend time outside in green places. Studies

have shown that exposure to nature lowers stress, fosters the reduction of hostility and anxiety, and improves performance and focus (Qiu et al., 2023). Numerous ecosystem services provided by urban nature improve the quality of life and safeguard the health of city dwellers.

Green spaces, which are linked to a variety of advantages like health and relaxation and are an important indicator of how liveable an urban area is (Honey-Rosés, & Zapata, 2023), have been the subject of research on access to nature for more than 20 years. Most research focuses on the value of green spaces for human health and well-being (Wood, et al., 2022), but in recent years, research has turned its attention to figuring out what motivates city dwellers to interact with and use green spaces (Ali et al., 2022). Residents derive different benefits from urban green spaces, including improved air quality, noise reduction, health benefits, improved aesthetics, and buffer zones, depending on how intensely they interact with the green spaces. Positive opinions of green areas are significant indicators of neighborhood satisfaction (Jiang, & Huang, 2022; Mouratidis & Yiannakou, 2022).

The wellbeing of urban residents are significantly influenced by green areas utilization. Vick (2007) emphasized the need for the parks and recreation department to have site-specific plans for each of their facilities in addition to a system-wide master plan for parks and recreation. All plans ought to be created with input from engaged citizens and updated every five to ten years. The sad reality of today is that the majority of urban activities are vying for limited space. As a result, areas once reserved for agriculture, recreation, and green space are now being converted to other land uses, primarily of a commercial and residential nature. This study therefore, looks at how parks and other green spaces affect the health and happiness of people living in the Abuja Municipal Area Council (AMAC) FCT.

Urban Green Spaces and Well-being
Mawson's Theory, developed by Thomas Hayton Mawson (1861–1933), is renowned for identifying five essential components of urban green systems. These components are: quadrangles and circuses for magnificence and grandeur (town squares), small recreation parks and playgrounds, public parks, reservations, connecting parkways, drives, and boulevards. He suggested that there should be a natural and

intentional construction of open green spaces densely populated regions close to the city centre. The preservation of natural scenery recreational grounds is connected to the form landscape. The term "informal landscape" refers to a landscape that develops in response traditional and environmental circumstance (Cseply-Knorr, 2011). Urban ecology will enable better urban designs for both humans and wildlife (Paris, 2018). Landscape ecology, on the other hand, is based on the idea that landscape supports intricate networks of ecological processes that have an impact on biodiversity and the human environment. According to the Attention Restoration Theory (ART) proposed by Stephen and Rachel Kaplan in 1989, exposure to natural settings may help people regain their capacity to focus. Thus, exposure to urban green space may have a positive psychological, emotional, and cognitive impact that lessens stress and attention fatigue. As a result, the natural world has a calming impact on physiological reactions, including reducing heart rate and cortisol levels. Natural and manmade elements were seen by Wang et al. (2019) as two interrelated factors that influence how open green space is used. However, urban green areas may differ and not always have the same qualities (Brace et al., 2021). Open green areas are given poor attention and ineffective implementation in Africa (Eshetu et al., 2021). For instance, in Nigeria, wide green areas with vegetation are fairly abundant and serve as a part of the country's architectural identity (Sati et al., 2016). This implies that distinguishing and recognizing urban green space and parks depends on natural characteristics, particularly vegetation. Some could include cutting-edge infrastructure and landscape features, while others might be built to showcase the locals' diverse cultures.

Urban green spaces provide a variety of advantages, but despite this, there is ongoing rivalry for available space in urban centers, with the majority of these areas being converted to other purposes at the expense of the urban population. According to the World Health Organization, urbanization reduces space per person, which also results in a reduction in urban green areas (World Health Organization, 2017). As a result of ignoring society's competing demands, the government frequently prioritizes necessities such as housing, education, and health (Mensah, 2014). On the one hand, society is not adequately informed about concerns connected to

urban green space. The legal and regulatory framework policies are not successfully executed (Eshetu et al., 2021). This might be the cause of the general lack of interest in, demand for, or inclination to engage in open-space activities. In Nigeria, Olumuyiwa et al. (2021) bemoaned the lack of urban parks and planned open green areas. Therefore, a major difficulty is the delayed uptake and availability of green areas, as well as people's misunderstanding of their advantages (Emechebe, 2020). Alabi (2020) acknowledges that a number of variables affect how urban green spaces are used, including resident's perception, family income, ineffective urban development regulation, management costs, and driving distances. The high percentage of illiteracy among people has an impact on how they see urban green open space, and this perspective is represented in how they use and care for urban green open space. In addition, most Nigerian towns' physical development plans are haphazard and vague, making it difficult to provide green space while taking the urban population into account. According to Zakka et al. (2017), the majority of city master plans were outdated, and the local authorities lacked the motivation to follow them, particularly with regard to green spaces, which led to their distortion, encroachment, and conversion to other uses. In light of concerns about climate change, this situation presents an important challenge to metropolitan environments. They emphasized that whereas other cities had relatively low percentages of green space allocation, only Abuja City had 32.87% of the entire area set aside for urban green spaces.

This study is therefore being conducted to evaluate the influence of the accessibility and usage of urban green spaces on the well-being of inhabitants in AMAC Abuja in light of the well-being of the citizens.

Methodology
The Study Area

The Federal Capital City (FCC) is situated in the centre of the nation, with coordinates between the latitudes of 8°25'N and 9°25'N and longitudes of 6°45'E and 7°45'E, respectively. It covers an area of about 250 km2 and was designed by the International Planning Associates (IPA) in the early 1980s. The Master Plan of Abuja provided green spaces that were either developable or undevelopable. The developable, such as open spaces, recreational facilities, parks and gardens, children's playgrounds, outdoor games, sport centres, golf courses, polo grounds, race courses, national, district, and neighbourhood parks, and some incidental open spaces (Jibril, 2010). Undevelopable areas, on the other hand, are green stretches along fragile hillsides, valleys, streams or rivers, flood plains, and open lands that are kept to protect the top soil from erosion and landslides (Olukoya & Olukoya, 2018). The area designated for various functional spaces and for the entire greenery was twenty-five percent (25%) and seven percent (7%) was for parks (IPA, 1979). The master plan for Abuja was designed to be built in 4 phases, with phase I covering 7076 hectares, of which 18% was set aside for "green" development. The Abuja Master Plan provided for the development of adequate green areas and other recreational facilities within the Federal Capital City (FCC), especially those within each neighbourhood (FCDA, 1979), to promote outdoor recreation and improve residents' health. One major activity that reduces stress arising from daily hassles and struggles for existence and also enhances the liveability of cities is recreation. Research has established that being around green elements in the landscape affects health and well-being. (Payne et al., 2010).
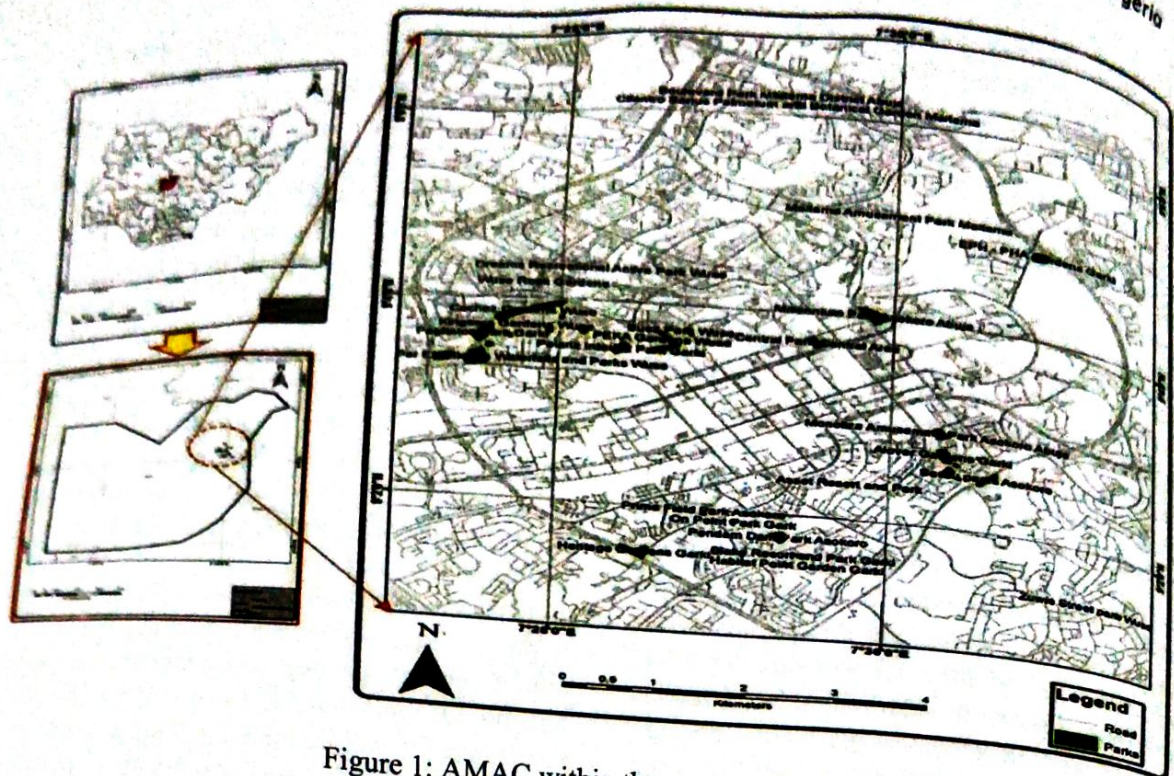
Figure 1: AMAC within the context of Abuja.

Data and Analysis

The design of this research was cross-sectional. Data are gathered from residents using a formal survey. AMAC (under which FCC is classified) had 776,298 people living there as of the 2006 Census, according to the National Population Commission. The exponential model was used to predict that the population to 1,775,432 in 2021 at a 4% growth rate. 430 residents were sampled using Dilman's (2011) sample size, and a stratified random sample technique was used to distribute the questionnaire to the inhabitants. The strata were residents within a 500-meter radius for small parks and an 800-meter radius for larger parks (Hassen, 2016). Three indicators were selected to assess residents' well-being: physical, social, and mental (Krekel *et al.*, 2016; Ma *et al.*, 2019; Jabbar & Mohd Yusoff, 2022). The indicators were determined using a 5-point Likert scale (1 = Very dissatisfied to 5 = Very Satisfied). We hypothesised that indicators of the frequency of visitation, length of stay, and distance to urban green spaces and park would emerge as significant explanatory variables in predicting residents' well-being (physical, social, and mental well-being) in AMAC using logistic regression in the Statistical Package for Social Sciences.

Results and Discussion

Accessibility and Utilization of the Urban Green Spaces in AMAC

The results of residents' park visits to the urban green spaces and parks are shown in Table 1. We evaluated how often residents used parks and urban green areas. According to the study findings, 19.3% of respondents visit an urban green space every day, 19.5% visit green spaces once to three times per week, 2.3% visit urban green spaces roughly four to six times per week, 20% visit parks just once per week, and 38.4% visit parks only once per month. This suggests that the majority of the residents frequents parks at least once a month. Additionally, the average amount of time spent in the park during each visit was evaluated. It was found that 68.8% of residents spent between 1 and 2 hours in the park, compared to 7.7% who spent between 30 minutes and an hour there. This suggests that AMAC people use parks at a high rate. Furthermore, the distance to the next park or other open space has a significant impact on usage. The results show that 47 percent of the population lives within 0.5 to 1 kilometre of a park or other open space, 24.9% live within 1 to 1.5 kilometres of the closest park, 15.6% live within 0.5 to 1 kilometre, 11.9% live from 1.5 to 2 kilometres, and 0.7% live beyond 2 kilometres. The frequency of visits and the use of amenities like green areas and services might be affected by distance.

Table 1: Level of Urban Green Spaces and park Accessibility and Utilization

Variables	Duration	Frequency	Percent
Level of visitation	Daily	83	19.3
	1 – 3 times per week	84	19.5
	4 – 6 times per week	10	2.3
	Once per Week	88	20.5
	Once per Month	165	38.4
Length of stay at the park	Less than 30 minutes	101	23.5
	30 – 60 minutes	33	7.7
	60 -120minutes	296	68.8
Distance to Nearest Park	< 500metres	67	15.6
	500m -1000metres	202	47
	1000m -1500metres	107	24.9
	1500 – 2000metres	51	11.9
	> 2000 metres	3	0.7

Impact of Urban Green Spaces and Parks on Residents' Well-being in AMAC

Researchers looked into how parks and green spaces in cities affect the quality of life of the people who live there. This research shows that individual participation in and use of urban green spaces have unique benefits for people's wellbeing. A multiple regression model was used to analyse the effect of urban green spaces and parks based on independent factors (degree of visiting, duration of stay, and distance to the closest urban green spaces and parks) and a dependent variable (i.e., inhabitants' physical, social, and mental well-being) as shown in Table 2. As a consequence, the outcome variable's variance was explained by 23.3% with an R^2 value of 0.233 and a $F (3, 426) = 43.253$ (p.001). The results showed that the length of stay at urban green spaces and parks has a significant negative effect on the residents' well-being ($\beta = -.342$, p.001), while the distance to the nearest urban green space and park positively predicted physical well-being ($\beta =.16$, p.05), and the length of visitation positively predicted physical well-being ($\beta =.111$, p.05) among residents in AMAC.

Table 2 Regression coefficient of Distance to park, Level of visitation and Length of stay at UGS and Parks on Residents physical Well-being in AMAC

Variables	Unstandardized Coefficients		Standardized Coefficients	t	p	95.0% Confidence Interval for B	
	B	Std. Error	β			Lower Bound	Upper Bound
1 (Constant)	2.444	.244		10.025	.000	1.965	2.923
Distance to parks	.132	.048	.160	2.743	.006	.038	.227
Level of visitation	.052	.020	.111	2.586	.010	.012	.092
Length of stay	-.302	.052	-.342	-5.855	.000	-.404	-.201

Table 3 shows the effect on residents' social well-being in AMAC of the frequency of visits, the distance to the closest urban green areas and parks, and the length of time spent there. The independent variables were able to account for 5.5% ($R^2 = .055$) of the variation in the outcome variable, with $F (3, 426) = 8.2$ (p < .001). The results showed that duration of stay ($\beta =.26$, p.001), distance to the closest urban green space and park ($\beta =.30$, p.001), and duration of visits to the urban green spaces and parks ($\beta =.11$, p >.001) all positively predicted social well-being.

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