Survey Of Residents Found in a High Percentage of Green Space 1-3km Radius Around their Home and Their Mental Health Status in Obio-Akpor Local Government Area of Rivers State

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Abstract

The objective of the research is to analyse the survey responses of individuals residing within a 1-3km radius of their homes, regarding the prevalence of green spaces, and its correlation with their mental health state in the Obio-Akpor Local Government Area of Rivers State. This research used a correlational design. The study will be conducted in the Obio/Akpor Local Government Area. The study's sample size consists of 118 inhabitants in the Obio/Akpor Local Government Area, selected by a simple random selection approach. The Mental Health Scale used the Stress and Anxiety Scale for the purpose of assessing mental well-being. The quiz employs a 4-point Likert scale and covers the preceding week. The individual components were aggregated to create a cumulative score known as the SAS Total. The internal consistency of this total score was strong, as shown by a high Cronbach's α coefficient of 0.97. The proportion of green cover in the vicinity include urban green spaces, agricultural areas, and natural vegetation. Urban green spaces include vegetable gardens that are larger than 0.1 hectares, sports and leisure areas that are larger than 0.5 hectares, and parks that are larger than 1 hectare. The proportion of green space is determined by measuring the area inside circles with radii of 1 kilometre (km) and 3 km surrounding the individual's place of residence, use a Geographical Information System (GIS). The data will be analysed using Pearson product correlation. The discovery implies that the existence of green areas in individuals' residential surroundings has a significant impact on health as a result of mitigating stress, enhancing physical activity, and fostering enhanced social unity. This study has shown that green space is not only a luxury, but rather an essential component. Consequently, the integration of green space should be given more priority in spatial planning policy.

Keywords: *Survey, residents, high percentage, green space, radius and mental health status*

Introduction

A significant number of individuals see nature as a setting where they may seek solace and rejuvenate themselves from the pressures of everyday life. In our fast-paced culture, there is an increasing need for nature as a means of relaxation and leisure. However, the appreciation of nature is no longer readily apparent. Urban regions have lately seen a decrease in both the quality and quantity of their green spaces. According to the United Nations Population Division, around 50% of the global population now resides in urban regions. However, it is projected that during the next three decades, almost 66% of the world's population will be living in urban areas (Vlahov, 2002). Throughout the 20th century, there was a significant increase in the urban population, resulting in a decline in possibilities for individuals to interact with the natural environment. Green settings are believed to have health implications due to their association with both physical and mental well-being (Triguero-Mas et al., 2015). Several factors are believed to be responsible for the positive impact of green space, including improvements in air quality, increased physical activity, enhanced social cohesiveness, and reduced stress levels.

As to the US Environmental Protection Agency (2018), green space refers to any terrain covered with vegetation, such as agricultural areas, lawns, woods, wetlands, and gardens. The phrase 'natural environment' encompasses the non-artificial surroundings and circumstances in which all living and non-living entities coexist on Earth.

Concerning mental health The accumulation of information about the positive impacts of green space is hindered by the limited availability of high-quality research and the variation in how green space is defined and assessed for exposure. Due to the growing urbanisation and a spatial planning strategy that promotes densification, a larger number of individuals are confronted with the possibility of living in residential areas that have limited access to green resources. Individuals belonging to low socioeconomic classes, particularly those without the means to relocate to more environmentally friendly regions outside urban centres, will see the most impact. This might result in environmental inequity in terms of the allocation of public green areas. While the belief in the positive impacts of neighbouring green space has existed for a long time, it is only in recent years that this belief has been supported by controlled, experimental studies. Previous research has mostly concentrated on establishing the correlation between being exposed to green settings and experiencing a sense of well-being (Hartig, 2003). There is a limited number of epidemiological research investigating the correlation between nature and health. A Netherlands-based epidemiological research revealed that individuals living in neighbourhoods with ample green space generally experience improved overall health. The study conducted by De Vries et al. (2003) revealed a clear and significant correlation between this positive connection with those who are old, housewives, and from lower socioeconomic backgrounds.

Additionally, several research indicate that the positive impact of green space may only apply to certain age groups, and that gender might potentially play a role in mitigating this benefit (Mitchell

et al., 2014). The moderating effects of age and gender, while examined sporadically, have hardly been investigated within a single research. A longitudinal research conducted in Japan shown a correlation between residing in a neighbourhood that has an abundance of easily accessible green spaces and a reduced risk of death (Takano et. al., 2002). Aside from these research, there is less knowledge on the magnitude of the correlation between local green areas and health. This is further shown by a recent study from the Health Council of the Netherlands (2004), which states that there are significant gaps in our present understanding of the connection between green spaces and health, as well as the underlying processes of this connection. This research aims to address the gaps in existing understanding on the strength of the relationship between green space and health. In addition, the correlation was examined separately for urban and rural regions, since it was anticipated that the strength of the correlation could differ depending on the level of urbanisation. The disparity in health outcomes between urban and rural communities has been well recognised for a considerable period of time. These variations are often attributed to causes such as pollution and lifestyles that are closely associated with urbanisation and selective migration. Nevertheless, the correlation between health disparities in urban and rural areas and the presence of green spaces in the surroundings has seldom been explored. We conducted a study to examine the impact of green areas located within a 1 and 3 km radius of participants' homes on their mental well-being. This study builds upon prior research conducted in the Netherlands by De Vries et al. in 2003.

Statement of the Problem

Inadequate air and water quality, along with close proximity to facilities that generate or store dangerous substances, can adversely affect health. Additionally, substandard housing conditions can expose residents to lead paint, mould, dust, or pest infestation. Furthermore, limited access to nutritious foods and safe areas for physical activity, when combined with concentrated exposure, can have a detrimental effect on health. Concerning mental health, the growing body of research supports the positive impact of green space. However, the lack of high-quality studies and the variation in the definition of green space and exposure evaluation hinder the ability to draw definitive conclusions. Furthermore, several research indicate that the positive impact of green space may be limited to certain age demographics, and that gender might potentially play a role in mitigating this benefit. The moderating effects of age and gender have been explored seldom and rarely within the same research. The current research examines the correlation between green spaces and mental well-being, focusing on their closeness.

Aim and Objectives of the Study

The aim of the present study is to examine the survey of residents found in a high percentage of green space 1-3km radius around their home and their mental health status in Obio-Akpor Local Government Area of Rivers State. Specifically, the objectives are;

1. determine the relationship between residents in a high percentage of green space 1-3km radius and stress in Obio-Akpor Local Government Area of Rivers State.
2. find out the relationship between residents in a high percentage of green space 1-3km radius and anxiety in Obio-Akpor Local Government Area of Rivers State.

Research Questions

The following research questions guided the study;

1. What is the relationship between residents in a high percentage of green space 1-3km radius and stress in Obio-Akpor Local Government Area of Rivers State?
2. What is the relationship between residents in high percentage of green space 1-3km radius and anxiety in Obio-Akpor Local Government Area of Rivers State?

Literature Review

The strength of the relationship between green space and health

Research indicates that in regions where 90% of the surroundings around the residence consists of vegetation, only 10.2% of the inhabitants report feeling unwell, in contrast to regions where just 10% of the surroundings are green, where 15.5% of the residents report feeling unwell (De Vries et al., 2003). People living in rural settings often exhibit superior overall health. Furthermore, it demonstrates that the quantity of green space has a greater correlation with perceived overall health than the level of urbanisation. This implies that the presence of green areas may have a distinct impact on individuals' health regardless of the level of urban development. If this statement were accurate, the health impacts of green space would be expected to manifest even when analysing distinct levels of urbanisation independently. The study conducted by De Vries et al. (2003) demonstrates that the impact of green space is evident across all levels of urbanisation. However, in highly urbanised locations, only green spaces within a 3 km radius of the residence are associated with perceived overall health. Regarding the category of green space, the presence of agricultural greenery is most closely associated with perceived overall health across all levels of urban development. The presence of green spaces within a 3 km radius of metropolitan areas has a consistently detrimental impact on people's health, regardless of the level of urban development. This phenomenon is likely attributed to the proximity of those living on the outskirts or in smaller municipalities, who have ample access to urban green spaces, to more developed urban municipalities. Consequently, their own municipality is unlikely to possess significant amounts of urban green space. This is corroborated by the observation that the quantity of urban green space has an inverse correlation with the overall quantity of green space within a 3 km radius. In order to conduct a more thorough examination of the correlation between green spaces and health, Triguero-Mas et al. (2015) conducted a study to assess the influence of a green environment on the perceived overall health of individuals from various socioeconomic statuses and age groups. The presence of a more environmentally friendly setting seems to have a notable positive impact on all educational cohorts. People with a secondary education level benefit most from green space. Examinations of various educational groups across different levels of urbanisation indicate that a more environmentally friendly setting is only associated with improved health for those with a secondary level of education, regardless of the degree of urbanisation. Individuals with a high level of education get exclusive advantages from green spaces located in densely populated metropolitan areas, particularly within a 1km radius. The studies indicate that individuals with lower levels of education are more responsive to physical environmental attributes. Influence of a more organic habitat on ageing Examinations of the impacts of green areas on various age categories (youth: 0–24, adults: 25–64, elderly: 65 or over) reveal that the well-being of all age groups experiences substantial advantages from the presence of green spaces. Greater availability of green space positively impacts the perceived health of individuals across all age demographics. Upon analysing the impact of green space on various age groups across varying levels of urbanisation, it becomes

evident that the correlation is most reliable among the elderly. Green space in all urban places is advantageous for the elderly. Green spaces in highly urbanised regions seem to mostly help the elderly and the young. The correlation is more pronounced for green areas located within a 1-kilometer distance. Green space provides benefits to individuals of all age groups in highly, moderately, and modestly urbanised places.

Green space and stress

Extensive study has been conducted to investigate the correlation between neighbourhood attributes and personal welfare (Macintyre & Ellaway, 2000). Historically, the primary emphasis of this study has been on sociological and psychological elements, including social cohesiveness, social capital, and feeling of community (Gee & Payne-Sturges, 2004). Nevertheless, there is an increasing acknowledgment of the significance of physical neighbourhood conditions as both stressors and potential support systems for inhabitants in managing stress (Diez-Roux, 1998). Green space has garnered significant interest from academics and policymakers as a potentially influential physical resource in neighbourhoods. The results of current European Union research programmes on urban green spaces substantiate their contribution to enhancing the quality of life for individuals (De Ridder, 2003). Parks and other green spaces, similar to other public locations, have the potential to promote physical exercise and foster social unity (Kaczynski & Henderson, 2007; Maas, Verheij, Spreeuwenberg, & Groenewegen, 2008).

Nevertheless, green spaces possess a distinct attribute that is absent in other public areas: interaction with green space may provide rejuvenation from stress and cognitive exhaustion. The purported "restorative quality" of nature is supported by findings from national surveys conducted in many countries, which consistently demonstrate that individuals see interaction with nature as one of the most effective methods for alleviating stress (Grahn & Stigsdotter, 2003). The rejuvenating impacts of green space are often elucidated via an evolutionary lens. The prevailing argument among these explanations is that modern humans, having evolved over millions of years in natural environments, possess a genetic predisposition to respond favourably to habitable settings that were conducive to the well-being and survival of pre-modern individuals (Kellert & Wilson, 1993). It is worth noting that people are often more inclined to react favourably to natural surroundings when it comes to livable settings. However, this inclination is not typically seen in relation to most constructed habitats and materials (Ulrich, 1993). A significant consequence of individuals' inclination to react favourably to nature is that their focus is readily and very instantly captivated by natural landscapes. The phenomenon of natural environments capturing one's attention is often known as 'soft attraction' (Kaplan & Kaplan, 1989). Soft curiosity is believed to have a significant impact on the healing aspect of nature. According to Parsons (1991), when individuals are captivated by nature, their executive systems responsible for controlling focused attention may relax, preventing gloomy thoughts and replacing bad feelings with pleasant ones. Extended exposure to pristine natural environments might potentially prompt contemplation on existential matters, such as personal values, objectives, and one's role within the broader context of existence (Mayer, Frantz, Bruehlman-Senecal, & Dolliver, 2009). This might assist an individual in discovering fresh meaning and purpose in their life. A limited although expanding collection of meticulously conducted empirical studies provides concrete evidence of the rejuvenating impact of green spaces (Health Council of the Netherlands, 2004; Van den Berg,

Hartig, & Staats, 2007). Overall, this study has shown that natural environments elicit more favourable emotive, cognitive, and physiological reactions in comparison to constructed settings. The favourable effects have been documented in many environments, ranging from isolated wilderness locations (Hartig, Mang, & Evans, 1991) to local green places like gardens (Ottosson & Grahn, 2005). Importantly, individuals may benefit from nature's rejuvenating abilities without having to go outside. Simply seeing green space from a window may already provide rejuvenating benefits (Faber Taylor, Kuo, & Sullivan, 2002).

The results of field research are supported by laboratory tests where individuals experiencing stress are randomly allocated to situations including the observation of visual simulations of nature and urban surroundings (e.g. Berto, 2005; Ulrich et al., 1991; Van den Berg, Koole, & van der Wulp, 2003). The trials regularly demonstrate that seeing slides or movies of natural surroundings results in a quicker and more thorough recuperation from stress compared to observing developed environments. Overall, several research studies have consistently shown that exposure to genuine or simulated natural surroundings may effectively alleviate stress and mental exhaustion.

Green Space and Anxiety

The majority of the listed research primarily investigated depression, with just two studies specifically examining comorbid depression and anxiety (Brown et al., 2009, Maas et al., 2009). In their study, Maas et al. (2009) discovered that the occurrence of anxiety was reduced in areas with 10% more green space than the norm within a 3 km radius of the home address. However, they did not find a similar reduction in the occurrence of depression. Additionally, both anxiety and depression were shown to be less prevalent within a 1 km radius. Currently, there is little information to differentiate the impact of the urban environment on anxiety and depression individually. This task may prove challenging due to the frequent co-occurrence of both symptoms. While it is well acknowledged that the occurrence of psychological distress differs according to gender and age, just two articles provided distinct findings for females and males. The study conducted by Mair et al. in 2010 presented a measure of average difference, whereas the study by Berke et al. in 2007 used the odds ratio, rendering the calculation of the female/male ratio unfeasible.

Methodology

This research used a correlational design. The study will be conducted in the Obio/Akpor Local Government Area of Rivers State. The research includes a total of 118 participants residing in the Obio/Akpor Local Government Area. The participants were selected using a simple random selection procedure. The mental health was assessed using the Stress and Anxiety Scale. The questionnaire employs a 4-point Likert scale to assess responses, including the previous week. The individual components were aggregated to create a cumulative score, referred known as the SAS Total. The internal consistency of this total score was strong, with a Cronbach's α coefficient of 0.97. The percentage of surrounding greenness include urban green spaces, agricultural green areas, and natural green landscapes. Urban green spaces include vegetable gardens that are larger than 0.1 hectares (ha), sports and leisure areas that are larger than 0.5 ha, and parks that are larger than 1 ha. The proportion of green space is determined by analysing areas within a radius of 1 kilometre (km) and 3 km surrounding the individual's place of residence, with a Geographical Information System (GIS). The data will be analysed using Pearson product correlation.

Results

Research Question 1: What is the relationship between residents in high percentage of green space 1-3km radius and stress level in Obio-Akpor LGA?

Table 1: Pearson correlation showing the relationship between residents in high percentage of green space 1-3km radius and stress level

Variables		Percentage of green space	Stress level
Percentage of green space	Pearson Correlation		-.829**
	Sig. (2-tailed)		.000
	N	118	118
Stress level	Pearson Correlation	-.829**	
	Sig. (2-tailed)	.000	
	N	118	118

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

Table 1 shows that the correlation co-efficient (r) was -0.829, indicating a high negative relationship between residents in a high percentage of green space 1-3km radius and stress level. Also, the negative direction of the relationship indicates that as the percentage of green space increases the stress level reduces.

Research Question 2: What is the relationship between residents in high percentage of green space 1-3km radius and anxiety in Obio-Akpor LGA?

Table 2: Pearson correlation table showing the relationship between high percentage of green space 1-3km radius and anxiety

Variables		Anxiety	Percentage of green space
Anxiety	Pearson Correlation		-.804**
	Sig. (2-tailed)		.000
	N	118	118
Percentage of green space	Pearson Correlation	-.804**	
	Sig. (2-tailed)	.000	
	N	118	118

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

Table 2 revealed that there is a high positive correlation between anxiety and Percentage of green spacet, $r = -0.804$, $p<.05$. In addition, the negative direction of the relationship indicates that as the percentage of green space increases the anxiety decreases. As a result, anxiety is related to percentage of green space in Obio-Akpor LGA.

Conclusion

In conclusion, this research posits that the inclusion of green spaces in individuals' residential surroundings has a significant impact on health since it reduces stress, promotes higher levels of physical activity, and enhances social cohesiveness. Research has shown that green space is not only a luxury, but rather an essential component that should be given more importance in spatial planning policy. Effective urban design should include provisions for green spaces, and policymakers should consider the quantity of green spaces in the residential area while striving to enhance the health conditions of vulnerable populations such as the elderly, young, and lower socioeconomic status groups.

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"STRESS ANXIETY SCALE" (SAS)

Section A: Bio-Data
Instruction: Please tick (√) as applicable to you
1. **Gender**: Male ( ) Female ( )
2. **Marital Status:** Married ( ) Single ( )

Instruction: Please tick (√) the following options as it affects you on the following levels of scale

Anxiety

S/N		SA	A	D	SD
1	I gets nervous easily				
2	I get worried over workload				
3	I like when things are done perfectly				
4	I am thoughtful ponder				
5	I do not gets nervous easily				

Stress

S/N		SA	A	D	SD
6.	I feel run down and drained of physical or emotional energy				
7	I have negative thoughts about myself				
8	I am enthusiastic about my myself				
9	In the last year, I have grown healthier				
10	I feel stressful				
11	I feel that I have no one to talk to.				