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HEALTH IMPLICATIONS OF ARCHITECTURAL AND URBAN DESIGN IN THE PORT HARCOURT METROPOLIS

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Abstract: This study examined the Effect of Architectural Designs, Built Environments and Health Care of Occupants in Port Harcourt Metropolis. The population of this study was made up of federal and state ministries of land and housing and federal and state ministries of health. However, the researchers adopted the convenience sampling technique to draw a total of 150 respondents (50 from Rivers State ministry of land and housing, 50 from ministry of health, 30 from federal ministry of land and housing and 20 from federal ministry of health). The study adopted both the descriptive statistics in the analysis of data. Primary data were analyzed using the simple percentage and frequency distribution. The study found that architectural designs, spaces to the built environment affect the health of occupants, that there is strong relationship between architectural designs, public open spaces for physical activities and the health of occupants. That architectural designs and quality of the built environment affect the health of occupants and built environment affect health of occupants. The study recommends that architect and building professionals should revisit the built environment and ensure that it comprises a carefully styled hard and soft infrastructure, built spaces and the natural spaces to produce a habitable environment and that government and architect to investigate providing a built environment that is healthy and design to the urban slum dwellers..

Keywords: Architectural Designs, Built Environments, Health Care, Occupants, Port Harcourt Metropolis

INTRODUCTION

According to Rapoport (1979) the purpose of architectural designs goes beyond the shelter function of modifying the micro-climate. Architectural designing can provide settings for certain activities; remind people of what these activities are; signify power, status, or privacy; express and support cosmological beliefs;

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communicate information; help establish individual or group identity; and encode value systems (Bakel, 1995). If shelter were the only, or even the principal, function of architecture, it would find less variation in forms. Goals of architecture have been expressed in the Vitruvian terms of solidity, usefulness, and delight. In more current language these values would be Stability, function, and aesthetics (Moore, 1979). Architecture is a synthetic discipline, and architects are more and more using self-imposed constraints (Daru & Daru, 1992) consciously or unconsciously closely related to engineering, the social sciences, and the arts respectively to obtain satisficing solutions (Simon, 1975). It was therefore not surprising that the participants and organizers of the 1962 conference on design methods (Jones, 1963) included building scientists, engineers, industrial designers, artists and even psychologists, all representatives of different disciplines.

Lawson (1978) opined architectural designing is production of a three-dimensional structure of space and form to accommodate an abstract structure of related human activities and Alexander (1963) described architectural designing as finding the right physical components of a physical structure. According to Rowe (1987) noted that architectural designing is that design is to be seen as a normative enterprise in which the resulting proposals are about what is proper. He suggests that we must ask ourselves what the source is of the design ideas.

The notion that features of the living environment may be related to psychological stress and mental health has a long history. In the past few decades, there has been increasing interest in the epidemiology and public health literature about how residential environments may have influences on a variety of health outcomes, and evidence has shown that the living environment has a great impact on people's mental health (Maantay, 2019). The connection between public health and the built environment became increasingly apparent as hundreds of thousands of workers crowded into unsanitary, industrial cities with a resulting increase in disease and epidemics and a decrease in life expectancy. The built environment can be modified to promote healthy behaviors and reduce the risk of contracting a disease. The installation of comprehensive sewer systems, improvements in building designs to ensure that residents had light and fresh air, and the movement of residential areas away from noxious industrial facilities all brought significant improvements in health.

It has been acknowledged that industrialization not only highlighted the connection between the built environment and public health, but it also established the dominant view that population concentration and proximity between businesses and residences were unhealthy. This view was reflected in the esthetics of the City Beautiful movement as well as in the social agenda of many in the early 20th-century housing-reform movement (Jackson, et al., 2018). The built environment influences the public's health, particularly in relation to chronic diseases. There is good evidence to indicate that the burden of chronic disease in the population can be reduced through an active lifestyle, proper nutrition, and reduced exposure to toxic conditions. However, many urban and suburban environments are not well designed to facilitate healthy behaviors or create the conditions for health. Health officials can provide information about healthy living, but if people live in poorly designed physical environments, their health will suffer. To understand the effect of the built environment on health, it is necessary to examine the major health threats facing Americans. The leading causes of death in the United States today are heart disease, cancer, cerebrovascular diseases including stroke, chronic lower respiratory diseases (such as asthma, bronchitis, and emphysema), and unintentional injuries.

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The built environment affects health in several ways. It is not sufficient to educate people regarding healthy lifestyles; the built environment must promote, or allow for, engaging in healthy behaviors. Law can be used as a tool to accomplish this goal (Colmers & Fox, 2003). The law can be a potent tool in creating a built environment that is conducive to public health. Legislatures design broad policies and parameters, including processes for making decisions that affect the built environment. The decisions of legislatures are carried out and enforced by more specialized bodies such as planning boards, zoning boards, and administrative agencies. Public health practitioners can best influence decisions by intervening early in the process, when broad policies are being made about population density, land-use configurations, transportation, and other important issues. The five main legal avenues that affect the built environment and architectural design are environmental regulation to reduce toxic emissions; zoning ordinances that designate an area for a specific use and related developmental requirements; building and housing codes that set standards for structures; taxing to encourage or discourage activities or behaviors; and spending to provide resources for projects that enhance the built environment.

Furthermore, an architect makes a drawing or sketch; he gathers information about human needs and a decision about how the built environment can best serve these needs. In many cases this information often guides or influences the decision-making process, and the resulting building is not evaluated to find out how well it works to suit the intended end user. In practice each architectural design project is a separate event that often brings the major participants together for the first time: owner, architects, engineers, contractors, and subcontractors. This system of temporary relationships works only because, through the years, methods of working together have become relatively standardized. The impact of the living environment on mental health can be exerted on different spatial scales. At the micro-scale, housing is the fundamental component of the living environment (Williams, 2013). Poor housing conditions and inadequate housing are likely to create multiple health risks that are responsible for considerable disease and deaths. While the above ideas about architectural designs, built environments are well established in the advanced architectural environments, the process is still at its cradle in developing architectural environment like Nigeria; therefore, this study examined the effect of architectural designs, built environment and health care of occupants in in Port Harcourt metropolis.

REVIEW OF RELATED LITERATURE The Built Environment

According to Barton (2009) a built environment has to do with the planned and structured aspects of surroundings, which include buildings, transit routes, and parks. Frank and Engelke (2005) define the built environment as an environment with all the physical structures in which we live, work, travel, and play such as houses, apartments, offices, parks, streets, shopping centres, parking lots, factories, superhighways, transit stations, and so on. The Glasgow Centre for Population Health (2013), the built environment is the physical structures engineered and designed by people to live, play, and socialize. While Williams (2013) acknowledged these definitional perspectives of the built environment which according to him comprises hard infrastructure like houses; he argues that there is no need for the neglect of the role of soft infrastructure like walkable routes in the built environment. According to him, these routes encourage interactions as well as make goods and services accessible. The inference from the assertion of Williams is that there should be a

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connection between the natural environment and the built environment to create a more conducive environment. Writing about this Glasgow Centre for Population Health (2013) added that the connection between the built infrastructural spaces and a range of natural features should be an integral part of the built environment. Indeed, the above has called our attention to the fact that the built environment is not just the place we live and work, it is much more than that and should comprise carefully styled hard and soft infrastructure, which is a combination of the built and the natural spaces.

The importance of designing a carefully styled built environment that has the above qualities is paramount because it will positively influence people's lives (Bergman, 2018). Bergman (2018) advanced that the built environment, overall, plays a vital role in influencing people's lives and their overall performances. Williams (2013) stated that the components of the built environment affect our daily decisions and the way we live our lives. Further to this, Frank and Engelke (2005) explained that the technique used to design and build our environments has significant impacts on the decisions we make, our health, and quality of life. Moreover, Williams (2013) confirms that the design and layout of the built environment can significantly contribute to our psychological and physiological health and wellbeing.

Thus, these authors have reminded us of the connection between the built environment, the health and wellbeing of the people as well as our daily decisions and possible productivity. From this, one can conclude that most health and wellbeing challenges that people face are traceable to the environment they found themselves. These scholarly definitions above show that the built environment is supposed to be a well-planned, duly structured, conscientiously engineered, and nicely designed quality environment where people can comfortably live, work, play, socialize/interact, travel, walk, and spend their entire lives. In addition, it is arguable that every built environment is made by the people and for the people habitations and comforts, and its designs and features have a considerable impact on the health and wellbeing of the occupants. In all, the built environment possesses specific attributes that can either hamper or enhance the health and wellbeing of the people depending on some factors. Moreover, the definitions show that building professionals do have a significant role to play in getting the built environment right because it is more dangerous not to get it right. Getting it right here means ensuring that there are not only places to live, but also places to work, play, socialize/interact, walk, and travel as stipulated by the scholars above.

Health, Wellbeing, and the Built Environment

The World Health Organization (WHO) defines health as a state of complete physical, mental, and social wellbeing of the people, not just the absence of disease. According to Barton (2009), this definition explained health in its wholesome perspective, associating it with the social, economic, and the environmental aspect of life. Pineo and Rydin (2018) showed that the urban environment has long been recognized as an essential determinant of the health and wellbeing of the residents, a situation where the more significant part of the health and wellbeing of the people hugely depends on their environment. The definitions have shown us that health may be seen as physical, mental, and social completeness, which is associated with the social, economic, and environmental aspects of life. It could be deduced from the above that social, economic, and environmental factors could trigger health and wellbeing-related challenges.

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Characteristics of the Health and Wellbeing-Enhancing Built Environment

The built environment is everywhere both in the rural areas, main cities, informal settlements, and urban slums. Although there may not be any perfect built environment, its impacts on the health and wellbeing of the occupants depend hugely on how developed the area is and the features, designs, and structure of the built environment. This means that there may be a level of health and wellbeing issues connected to every built environment no matter the location. However, this study does not pretend to cover all these areas. Its focus is on the urban slums-built environment. Without a doubt, understanding the impacts of the built environment on the health and wellbeing of the people who reside in urban slums should be of paramount importance to the policymakers, governing authorities, as well as the building professionals. The reason is that there are several conditions in urban slums-built environment that can threaten the health and wellbeing of the people, and some of these conditions require urgent eradication. Moreover, it is essential to state here that the conditions in an urban slum-built environment can be said to be much more deplorable when compared to the built environment in most of the main cities. Pineo and Rydin (2018) confirmed that lack of air pollution, the presence of green, and walkable spaces for increased physical activity are among the factors that should be found in a built environment. Writing on the need for physical activity in a built environment, Williams (2013) suggested that for a built environment to be capable of promoting physical activity it should make provision for safe pedestrian routes, connected street networks, ample street lighting, dynamic land-use mix, and recreational centers.

In confirmation of the need for the provision of spaces for physical activity in the built environment and the need for designing street networks, some other scholars add that there should also be walking and cycling routes (Freeman et al., 2011). Kent and Thompson (2012) noted that there should be the creation of an environment for social cohesion. Thus, the expression of social cohesion has emerged in this study, and it is vital to explain it before moving forward, albeit in brief. According to Dempsey (2008), the study of social cohesion or 'the social glue of a society' is a long-standing study which centers in examining society and social relations in a variety of social settings. To Mannakkara and Wilkinson (2013), a cohesive society is a society that 'hang together', partly through social interaction. According to them, this integration of individuals can partly be achieved through residents interacting with one another and getting to know neighbors, and the absence of these results in people being stuck in loneliness and living their separate lives in the same area (this is social isolation). These elaborations have shown that it is good for the built environment to enhance social cohesion instead of social isolation because social isolation can have devastating effects on health and wellbeing.

Kent and Thompson (2012) found that social isolation and obesity are among the significant risk factors for many of the chronic diseases facing contemporary society. Therefore, instead of social isolation, the built environment must connect to enhance social cohesion amongst communities, to strengthen communities, neighborhood, social relations, and social networking (Freeman et al., 2011; Kent & Thompson, 2012). Glasgow Centre for Population Health (2013) adds that the designs and the quality of the built environment affect social connections, accessibility, and physical activity levels. Thus, the emphasis on the importance of getting the features, designs, and quality of the built environment right has been laid. Moreover, Pineo and

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Rydin (2018) stated that the urban built environment needs to have reasonable access to healthy food through the reduction of fast-food centers around school environments. There should be the retention of peri-urban agricultural lands to enable the ease assessment of affordable healthy food as well as put measures in place to encourage the establishment of community and farmers gardens. The essence of this is to ensure that people live in a suitable environment as well as have easy access to the required diet from their environment.

Architectural Designs and Spaces to the Built Environment

According to Williams (2013) for a built environment to enhance the health and wellbeing of the people, there is a need to integrate the natural environment to the built environment to make the environment more conducive and stress-reducing instead of a boring and a stress-generating environment. Glasgow Centre for Population Health (2013) added that the built infrastructural spaces and a range of natural features should be an integral part of the built environment. However, a look at the section that deals with the meaning of urban slums reveals the lack of the integration of the natural spaces to the built environment. The resultant effect is the generation of different health and wellbeing issues.

Architectural Designs and Public Open Spaces for Physical Activities

For a built environment to enhance the health and wellbeing of the people there needs to be walkable and cycling spaces for enhanced physical activities. These spaces should also include safe pedestrian routes, connected street networks, ample street lighting, and recreational centres (Williams, 2013). According to Williams, any built environment with the provision of places meant for physical activities can facilitate the health and wellbeing of the people, and this can be vice versa. This is because physical activities can facilitate the development of muscles and increases physical strength, thereby enhancing the health and mental wellbeing of the people. Therefore, it is arguable, however, that such health and wellbeing-enhancing factors of a built environment are lacking in urban slums. The reason is that the level of congestion and overcrowding of the area with perhaps not enough space to create open spaces, walkable, and cycling routes affects the availability of such facilities.

Architectural Design sand Quality of the Built Environment

The features, designs, and quality of the built environment play a significant role in either enhancing the health and wellbeing of the people or endangering it. Glasgow Centre for Population Health (2013) affirms that it is the design and the quality of the built environment that affects social connections, accessibility, and physical activity levels. According to the report of the Chartered Institute of Building (CIOB), quality is critical and about the greater public good expected from buildings to promote human health, safety, and wellbeing as well as addressing the many social, cultural, environmental, and economic concerns of today. It is arguable from the definition of the urban slums above that its environment lacks no designs, excellent features, and quality and this could raise the height of their health and wellbeing challenges.

Methodology

The population of this study is made up of federal and state ministries of land and housing and federal and state ministries of health. However, the researchers adopted the convenience sampling technique to draw a total of 150 respondents (50 from Rivers State ministry of land and housing, 50 from ministry of health, 30 from federal ministry of land and housing and 20 from federal ministry of health). In generating he primary

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data for the study, a questionnaire designed in 4-point semantic differential scale was used. The study adopted both the descriptive statistics in the analysis of data. Primary data were analyzed using the simple percentage and frequency distribution.

DATA PRESENTATION AND ANALYSIS

The source of data for this study was the primary data which were sourced through the questionnaires administered to employees of federal and state ministries of land and housing and federal and state ministries of health. Out of the One hundred and fifty (150) questionnaires, one hundred and three (103) were successfully filled, retrieved, and used for analysis which represent

69.3%, 33 questionnaires were not retrieved due to time and other constraints which represents 21.3%, while 14 questionnaires were found faulty to be used in the analysis which represent 9.3%. The table below gives the detail.

Table 1   Analysis of questionnaires administered.

S/No	Questionnaires	No Retrieved	%
1	Questionnaires retrieved	104	69.3
2	Questionnaires not Retrieved	32	21.3
3	Faulty questionnaires	14	9.3
	Total	**150**	**100**

Source: Field survey (2023)

Table 2: Architectural Designs, Spaces to the Built Environment and the health of Occupants

S/No	Responses	No of Respondents	% Distribution
1	Strongly Agree	27	25.96
2	Agree	21	20.19
3	Strongly Disagree	39	37.5
4	Disagree	17	16.3
	Total	**104**	**100**

Source: Field Data (2023)

Question one was asked to examine the effect of architectural designs, spaces to the built environment and the health of occupants, the responses revealed that 27 respondents representing 25.96% strongly agree that architectural designs, spaces to the built environment affect the health of occupants. 21 respondents representing 20.19% agree architectural designs; spaces to the built environment affect the health of occupants. 39 respondents representing 37.5% strongly disagree that architectural designs, spaces to the built environment affect the health of occupants. 17 respondents representing 16.3% disagree that architectural designs, spaces to the built environment affect the health of occupants. The researcher, therefore, inductively concludes that architectural designs, spaces to the built environment affect the health of occupants.

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Table 3: Architectural Designs and Public Open Spaces for Physical Activities and the health of Occupants

S/No	Responses	No of Respondents	% Distribution
1	Strongly Agree	76	73.07
2	Agree	4	3.84
3	Strongly Disagree	15	14.4
4	Disagree	9	8.65
	Total	**104**	**100**

Source: Field Data (2023)

The purpose of research question two was to examine the relationship between architectural designs and public open spaces for physical activities and the health of occupants, from the table above 76 respondents representing 73.07% strongly agree that there is relationship between architectural designs and public open spaces for physical activities and the health of occupants. 4 respondents representing 3.84% agree that there is relationship between architectural designs and public open spaces for physical activities and the health of occupants. 15 respondents representing 14.4% strongly disagree that there is relationship between architectural designs and public open spaces for physical activities and the health of occupants. 9 respondents representing 8.69% disagree that there is relationship between architectural designs, public open spaces for physical activities and the health of occupants. The researcher, therefore, concludes that there is strong relationship between architectural designs, public open spaces for physical activities and the health of occupants.

Table 4: Architectural Designs and Quality of the Built Environment and the health of Occupants

S/No	Responses	No of Respondents	% Distribution
1	Strongly Agree	93	89.42
2	Agree	8	7.69
3	Strongly Disagree	1	0.96
4	Disagree	2	1.92
	Total	**104**	**100**

Source: Field Data (2023)

Question three was asked to examine the effect of architectural designs and quality of the built environment and the health of occupants. The responses revealed that 93 respondents representing 89.42% strongly agree that architectural designs and quality of the built environment and the health of occupants. 8 respondents representing 7.69% agree that architectural designs and quality of the built environment and the health of occupants. 1 respondent representing 0.96% strongly disagree that architectural designs and quality of the built environment and the health of occupants. 2 respondents representing 1.92% disagree that architectural designs and quality of the built environment and the health of occupants. The researcher, therefore, inductively concludes that architectural designs and quality of the built environment affect the health of occupants.

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Table 5:   The Built Environment and the Health of Occupants

S/No	Responses	No of Respondents	% Distribution
1	Strongly Agree	43	41.3
2	Agree	22	21.15
3	Strongly Disagree	32	30.77
4	Disagree	7	6.73
	Total	**104**	**100**

Source: Field Data (2023)

The purpose of question three above was to examine the effect of the built environment on the health of occupants. The responses revealed that 43 respondents representing 41.3% strongly agree that the built environment affect health of occupants. 22 respondents representing 21.15% agree that the built environment affect health of occupants. 32 respondents representing 30.77% strongly disagree that the built environment affects health of occupants. 7 respondents representing 6.73% disagree that the built environment and affect health of occupants. The researcher, therefore, concludes that built environment affect health of occupants.

CONCLUSION AND RECOMMENDATIONS Conclusion

This study examined how Architectural Designs and built environment affect health care occupants in Port Harcourt metropolis.   The study found that Architectural Designs and built environment have significant effect on health care occupants in Port Harcourt metropolis. The findings of the study are expected and in line with rules and regulations on Architectural Designs and built environment such as building registration codes. Empirically, the findings are in line with Pineo and Rydin (2018) that many urban environments lack safe open spaces that encourage exercise and easily accessible nutritious food and promote the use of alcohol and tobacco products through outdoor advertising. A spread-out suburban design facilitates reliance on automobiles, increasing pollution and decreasing the time spent walking from place to place. Williams (2013) noted that urban areas frequently lack adequate safe playgrounds and green spaces. The open space that exists may be vacant lots covered with garbage and debris, which attracts vermin and can harbor criminal activities. A web of federal and state laws regulates the emission of toxic substances or pollutants that degrade the environment. These measures are aimed at improving the built environment by reducing pollutants and ensuring the quality of air and water. In the literature, it was found that annoyance caused by the environment such as noise and air pollution was associated with lower sleep quality and mental disorders for residents.

Recommendations

i.   The study recommends that architect and building professionals should revisit the built environment and ensure that it comprises a carefully styled hard and soft infrastructure, built spaces and the natural spaces to produce a habitable environment.

ii.   Therefore, it is advisable for the architects to put these in place to help eradicate some of the built environment-induced health and wellbeing challenges that are prevalent in the urban cities.

iii.   Therefore, it is recommended for the government and architect to look into providing a built environment that is healthy and design to the urban slum dwellers.

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