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Morphological Aspects and Quality of Urban Life

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ABSTRACT

In most parts of the world, cities have undergone an accelerated process of territorial and population dispersion over the last 50 years. The demand for new quality open spaces, as a result of the urbanization model, and the environmental changes it has caused, has also contributed to the search for a better quality of life in cities. Studies on urban quality of life focus more intensely on variables linked to aspects of human development, socio-economic aspects, and sustainability, but little has been studied on the influence of urban form on quality of life. This work aims to propose a reflection on the relationship between urban form and quality of life in the city, based on a current theoretical framework. The research method focused on a qualitative analysis of the selected theoretical framework. The research findings show that based on the concepts and studies carried out, it was observed that the spatial configuration of cities and their neighborhoods contributes directly contributes to the population, by allowing more sustainable urban spaces and practices. Thus, it has been observed that urban form is not sufficiently explored in quality of life indices and indicators, being presented superficially and on a broader scale. In the same vein, some studies that relate urban form and quality of life, even at the local scale, do not detail how these relate to other urban and human aspects, which may hinder a better understanding of the impact of the built environment on urban sustainability.

KEYWORDS: Urban Morphology. Public Open Areas. Urban Quality of Life.

1 INTRODUCTION

Over the past five decades, cities have undergone an accelerated process of spatial and population dispersion, especially in developing countries. In the mid-1950s, about 1/3 of the world's population (that is, 750 million people) lived in cities. By the early 2000s, half of the world's population (2.8 billion people) lived in urban areas, and by 2017, this figure had reached 4.1 billion out of a total population of 7.5 billion. It is estimated that the urban population will reach 6.7 billion by 2050 (UN Habitat, 2008).

As far as the spatial characteristics of this growth are concerned, the phenomenon can be characterized by a rapid increase in built-up areas, especially on the outskirts of cities; a reduction in building and population density; the process of suburbanization/peripheralization of the urban population; the emergence of so-called distended urban areas, as they have non-contiguous and non-compact areas of expansion; and the dispersion and disconnection of the new urban fabric (Angel; Parent; Civco, 2010).

This process of fragmented urban growth, both demographic and territorial, is associated with a highway model of urban planning throughout the world, one of the consequences of which has been the degradation of public open spaces due to the privileging of car traffic (Jacobs, 1961). In another aspect, there is also a dynamic of dispersion and verticalization based on the process of urban land speculation, which generates spaces that are sometimes occupied (verticalized according to the value of the land), sometimes unoccupied and interspersed with green and stock lands within the legalized urban perimeters (Silveira; Silva, 2018). This context also applies to Brazilian cities, whose development model has had an impact on people's quality of life (Londe; Mendonça, 2014).

Taking a social approach, the city can be understood as a cultural product with specific collective meanings through the use of its physical form. The system of public open areas has a social function, as it is the place for the materialization of community values (Janches, 2012), and is also a catalyst for aspects related to urban performance. The demand for new and better

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open spaces, as a result of the urbanization model, and the changes in the natural and built environment it has caused, has also contributed to the search for a better quality of life in cities (Oliveira; Mascaró, 2007).

Studies on urban quality of life focus more on variables related to data on education, health, housing, income, and well-being, based on indicators related to aspects of human development and sustainability (Lira *et al.*, 2017). Although the relationship between urban form and public open spaces has already been consolidated in different morphological approaches (Oliveira, 2016), it is clear that little has been studied about the influence of urban form on quality of life. It is understood that spatial configuration, at different scales and elements, has the potential to influence social phenomena and, therefore, is also partly responsible for how open areas are appropriated and the patterns of behavior in public life (Hillier; Hanson, 1984).

This way, this research argues whether urban form can contribute, directly or indirectly, to the quality of urban life, and to what extent configurational variables can be considered in studies on public open spaces and quality of life. Based on the above scenario, the main objective of this work is to analyze and reflect on the quality of life in cities from the point of view of urban morphology, through the relationship between morphological aspects and urban efficiency. The research method used in this work was qualitative research, carried out through a literature review selected based on the criteria of relevance and impact factor, carried out through investigative strategies that made it possible to relate the topics covered.

2 MORPHOLOGY AND URBAN FORM: APPROACHES AND CONSTITUTIVE ELEMENTS

There is a consensus that urban morphology is the disciplinary field that studies the physical aspects of urban form, its processes, transformations, and shaping agents (Oliveira, 2016), currently consisting of a set of approaches with different theoretical and epistemological frameworks. Thus, the various understandings of urban form also consider different constituent elements. The study of materiality as a built object can support the understanding of the concept of the city, as well as the activities and experiences of each time and society.

For this reason, investigations of urban elements through the systemic and elementary decomposition of form can translate the complexities, diversities, and intrinsic identities imprinted in the layers that qualify the urban fabric at a given time, as Coelho (2013) argues. In turn, Oliveira (2016) divides urban morphology into four main approaches: historical-geographical; project typology; space syntax theory; and spatial analysis.

2.1 Historical-geographical approach

Although the term "morphology" was proposed between the 18th and 19th centuries, urban morphology, as a disciplinary field that studies the shape of cities and their physical transformations, emerged between the late 19th and early 20th centuries, from the perspective of German geography (Oliveira; Monteiro, 2014). Conzen (1960), the main exponent of the historical-geographical approach, starts from the premise that the urban landscape is composed of three elements: the urban plan, subdivided into streets, lots, and buildings; the built fabric;

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and the use of land and buildings.

These elements are associated with a process of urban development delimited by three key concepts: the bourgeois parcel cycle, the peripheral belts, and the morphological regions (Whitehand, 2013). The three elements of the physical structure of the city, described by Conzen (1960), would be constantly used in other approaches. According to Oliveira (2016), the bourgeois parcel cycle refers to the process of a) ownership of a given parcel, b) progressive construction of the parcel, and c) a period of inactivity of construction and expansion that precedes a new cycle of development. Peripheral belts are formed with the growth of a city and consist of a series of expansions of the residential area separated by moments of pause in which this land use is absent. The morphological region includes a given territory whose urban configuration presents a unity that distinguishes it from its surroundings. The constituent elements of urban form and their concepts form the basis for studying the processes of production and reproduction of urban space and for understanding the physical-social interfaces of the city.

Parallel to the historical-geographical approach, Lynch (1960) and Cullen (2009) presented another perspective on the urban landscape through visual elements. Common to Conzen's (1960) approach are the paths that make up the street network.

2.2 Typological design approach

This approach is based on the studies of Muratori (1959), who deals with the concepts of type, typological process, fabric, organism, and operative history (Oliveira, 2016). According to Costa and Netto (2015, p. 116-117), Muratori's approach has both similarities and differences with Conzen's work. The authors observed the English and Italian schools and pointed out that the methodology developed by each school diverged and converged. They diverged in that the English school began its studies at the larger scale of the city and successively reduced the scale to look at urban fabrics and plots; and the Italian school proposed the reverse process, starting with the building, expanding the scale to include fabrics and finally the territory. This convergence is explained by the fact that both schools recognized that varying scales of observation of formal elements and knowledge of cultural processes over time were fundamental to understanding cities and traditional urban forms (Costa and Netto, 2015). It can be understood that, with the characteristics mentioned above, the morphological studies developed in the late 1950s and early 1960s proposed to analyze the urban form taking into account the free public spaces, exemplified by the streets.

For Coelho (2013), studies that try to read the urban fabric are often deficient because they focus on more or less simplistic models compared to the complexity of the real-built city. Thus, the author argues that the material interpretation of the city should be based on two approaches: the analysis of its form at a given time (space) and its justification based on the events that gave rise to it (culture and society). The segmentation of the fabric can be identified based on its "homogeneity", resulting in formal and spatial patterns of urban fractions, and its detailed study can be based on decomposition: systemic (fabric, layout, lot, and grid) and elementary (place, fabric, layout, block, plot, common building, singular building, street, square).

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2.3 Space Syntax Theory

The Space Syntax Theory was developed in the late 1970s to study the relationship between space and society. The methodology considers a systemic approach, that analyzes the arrangement of the system of public open spaces through metrics, based on mathematical models of centralities, correlating them with social phenomena. The methodological foundations were laid in the 1980s with the definition of key concepts such as axial lines, integration, and depth (Hillier; Hanson, 1984).

The structuring elements of urban form, in spatial syntax, are streets and buildings. The city is explored as a set of barriers (buildings) and permeabilities (streets), whose spatial arrangement is the main force-generating human movement (Hillier *et al.*, 1993). Thus, although space syntax theory also explores the built environment, its main focus is on open spaces as the central locus of urban social transactions.

In recent developments, space syntax has been addressing cognitive aspects of the perception of urban public open areas in more detail, which has led to the introduction of new concepts such as angular analysis (Turner, 2000), lines of continuity (Figueiredo; Amorim, 2005), as well as the combination of spatial syntax with agent-based models (Turner; Penn, 2002), the latter tools of the spatial analysis approach.

2.4 Spatial analysis approach

The spatial analysis approach emerged in parallel with space syntax in the late 1970s, with Tobler's studies on cellular automata in the design of new geographical models (Oliveira, 2016). The approach is characterized by the use of computational tools and mathematical models. The introduction of GIS (Geographic Information Systems) software has allowed a greater development of spatial analysis, which can be used in complex systems and the simulation of future scenarios (Batty *et al.*, 1998).

The morphological elements used are streets and blocks/parcels, on which complex spatial and mathematical modeling is carried out. The main concepts used are cellular automata; agent-based models, which simulate the decision-making of autonomous agents; and fractals, which are complex geometric shapes. Batty and Longley (1994) argue that the spatial configuration of cities is fractal, and complex and follows a logic of self-organization. The concepts, applied to urban environments, allow for the simulation of socio-spatial phenomena, taking into account morphological aspects.

These approaches to urban morphology show an evolution in the perception of public open areas, from being constitutive elements of the urban and historical landscape to structuring elements of urban social phenomena. Other authors, whom Oliveira (2016) does not include in these approaches, have delved deeper into the basic elements of urban form: Lamas (2004) deals with the block as one of the three central elements, while the parcel (lot) is its subdivision; Panerai *et al.* (2013) also analyze the importance and evolution of the block in the process of city production; on the scale of the building and the block.

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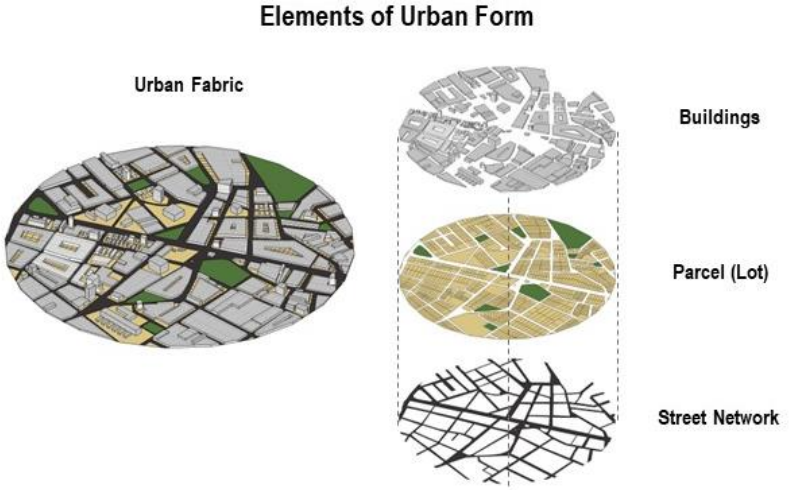
Pont and Haupt (2009) studied building density concerning the typology of the urban fabric and certain formal patterns derived from historical contextualization, theoretical urbanistic influences on design, or inductive cultural and environmental aspects. However, their analysis is based on quantitative spatial indicators, such as occupancy rate, utilization index, gauge, open spaces, networks, and tare, among others, which can be compared in graphs according to their built patterns in samples of urban fractions.

All these approaches have in common that they consider the street network as one of the main constituent elements of the urban form. Parcels, buildings, and blocks are defined and delimited by the system of public open areas (Oliveira, 2016). The basic tripod of morphology is also represented as streets, parcels/blocks, and buildings, as seen in Figure 01.

Figure 01 – Elements of Urban Form, based on Oliveira (2016).



Source: Authors, 2023.

3 PUBLIC OPEN AREAS

Public open areas can be understood as plural and systemic and can be integrated with other types of urban spaces, whose activities are characterized as hybrid, suggesting a diversity It is understood that free areas in the urban context are those intended for the movement and permanence of people, such as streets, sidewalks, parks, squares, and preservation areas, among others, or that can support work or recreational activities. Dias Coelho (2013) divides the city into public space (streets, sidewalks, parks, squares, conservation areas) and private space (the built environment, regardless of its function). It is an approach that integrates with the understanding of space in many other analytical theories, such as Bill Hillier's space syntax, because it also starts from the analysis of the open, continuous, and accessible environment, the streets and other free areas and, in a way, indifferent to the architectural or even aesthetic component, because it deals with free space in its raw state.

Some terms related to the types of open spaces refer to leisure areas and circulation areas (Macedo, 1995). Complementing this concept, Queiroga and Benfatti (2007) state that open spaces constitute a system that presents relationships of connectivity, complementarity, and hierarchy, exercising functions of circulation, drainage, leisure activities, public conviviality, landmarks, memory, comfort, and environmental conservation. In this way, public open spaces

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are characterized by the absence of construction, allowing the use of various elements without de-characterizing the unbuilt space (Magnoli, 2006). In addition, public open spaces are home to various social practices, reflect the culture and customs of their users, and their vitality is linked to the potential for appropriation (Rosaneli *et al.*, 2016).

The concept of public open area can be inserted into a larger context of public space. This is characterized by a transitional zone called "hybrid space", which is a part of the public space that is connected to private space (plot), allowing uses and connections between the public open space system and the built environment (Karssemberg *et al.*, 2016). Hybrid spaces thus allow for the connection of the three constituent elements of urban form: street, parcel/lot, and building.

Loboda and De Angelis (2005) state that although the literature provides clear definitions of open spaces, there is still an association between them and green areas, placing them as synonyms. To prevent open and green areas from being understood as the same concept, Rubira (2016) defines that for an open area to be considered a green area, 70% of its vegetation cover must be permeable soil. There are other concepts related to open spaces that allow us to describe the complexity of urban space, such as invaded space, accessory space, consumer space, and private-public space (Čavić; Beirão, 2014). In this sense, the concepts presented on public open spaces confirm the definitions of some of the elements of urban form presented above, in which roads, important elements for the urban fabric, are understood as public open areas (Custódio *et al.*, 2011).

Regarding the importance of public open areas for the city, their relevance depends on their social representation and the function developed by the space in different dimensions. Some types of public spaces, such as urban parks, also have environmental functions. According to Martins and Araújo (2014), parks have an important environmental function, both in terms of preserving forests and watercourses and in terms of urban drainage, as they are permeable areas that retain and infiltrate rainwater and act as compensation for the invariable waterproofing of the built environment, a fact also confirmed by Sakata (2016).

Another issue related to the function of public space is the degree of social encounter, regardless of the status of the property, whether it is public or private. According to Andrade and Baptista (2015, p. 144), the type of interaction and the way it takes place can make a space that is called public.

The qualification of public open spaces in terms of sanitation, microclimatic suitability, low pollution, and promotion of physical and recreational activities contribute to the creation of spaces for citizenship. All these factors contribute to public open spaces being vectors of urban quality of life (Nucci; Cavalheiro, 1998; Queiroga, 2011).

The concept of urban quality of life is multidisciplinary and is addressed in Economics, Social Sciences, Statistics, Architecture and Urbanism and Geography. These areas have carried out various studies on the subject, addressing specific concepts, definitions, and methodological tools, implying a multiplicity of meanings (Roggero; Luchiari, 2015). Research on the promotion of urban quality of life is an important issue in the field of urban design and development, whose subject is complex, as it includes factors, variables, and multidimensional aspects associated with the built urban environment (Wey; Wei, 2016). In this way, understanding the quality of life involves understanding different points of view, variables, and indicators.

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4 QUALITY OF URBAN LIFE

According to Silva and Lollo (2013), the concept of quality of life emerged in the 1960s concerning social indicators, in contrast to studies that analyzed economic growth and social development solely based on economic indicators, such as gross domestic product, which did not address important issues to study the progress of society, such as the degree to which the population's basic needs were met. Nahas *et al.* (2006) add that this situation highlighted the fact that economic progress may not generate what is known as "social well-being", thus necessitating the creation of new instruments to measure the quality of life with a social focus, to bring to light characteristics that could not be described by the economic approach used at the time.

For El Din *et al.* (2013), the term quality of life is related to the relationships, dynamics, and associations between the physical aspects of the city, and refers to human satisfaction with different urban attributes, such as transportation conditions, quality of public open areas, leisure opportunities, land use patterns, population and building density, and ease of access to basic goods, services, and public facilities.

Therefore, quality of life consists of the psychological and physical well-being of the population and is linked to concepts such as satisfaction, human development, happiness, and well-being. In this sense, it consists of aspects of human life that are the focus of research in the social and medical sciences, and the aspect that deals with place, including cities, is generally conceptualized as the quality of urban life (Marans, 2014).

4.1. Variables, indices, and indicators

Studies on the quality of life in Brazil deal with objective aspects of the subject, in addition to assessing the degree of satisfaction of the population with living conditions, which in turn includes subjective aspects (Roggero; Luchiari, 2015). Thus, according to Nahas *et al.* (2006), the quality of life in cities currently needs to include three fundamental elements in its measurement: a) measuring equity in social and spatial access to goods and services; b) assessing the environmental quality of the urban environment; and c) discussing the sustainability of human development.

Urban indicators play an important role in territorial management, as they can support public decisions and policies, including participatory and community policies, based on a more assertive understanding of the impacts (positive and negative) on complex systems such as cities.

Even though human development indicators and indices predominate, some studies include other variables, such as green areas, which can influence human development. According to Londe and Mendes (2014), the quality of the urban environment depends on the quality of green areas, which must have adequate infrastructure and facilities accessible to the population. Regarding the relationship between urban quality of life and green areas, Loboda and De Angelis (2005, p. 131) state that urban quality of life is directly linked to various factors, including infrastructure, economic and social development, and those linked to the

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environment. In the case of the environment, public green areas are essential elements for the well-being of the population, as they tend to have a direct influence on physical and mental health.

Corroborating this statement, Londe and Mendonça (2014, p. 150) add that urban planning, by neglecting the issue of public open areas, generates dysfunctions in the quality of life of the population. This occurs when there is no concern for the equal distribution of urban facilities in the territory, leading to the emergence of neighborhoods that lack services and public facilities, such as squares and parks. As a result, the population does not enjoy the opportunities provided by public open areas.

Certain development issues, as opposed to urban problems, can constitute related starting points for the identification and formulation of indicators of urban sustainability of the city, whose systems include tools that make it possible to evaluate efficient and sustainable processes in cities (Martins; Cândido, 2015). In this context, the quality of urban life can be presented as an indicator of sustainability, since, according to Nahas *et al.* (2006, p.2), the term has been shaped by human development indicators, which can show the results of the process of growth and global development of cities, through concepts linked to social well-being, quality of life and the environment, relations of poverty and social inequality and sustainable development.

In compiling some of the urban quality of life indices that have been developed, the main variables used are education, health, housing, income, and infrastructure, which are covered in human development indicators. It can be seen that spatial configuration is not explored, and public open areas are considered in urban infrastructure and the environment.

5 MORPHOLOGICAL ASPECTS OF QUALITY OF LIFE

As we have seen, urban morphology and public open areas are explored in the conventional indicators of urban quality of life that have already been developed and in studies that seek to relate aspects of spatial configuration (including public open spaces) to urban quality of life or aspects inherent to it. Based on the analysis of the theoretical framework, three main aspects of the formal component that have an impact on the quality of life are observed: compactness, roads, and public open spaces.

5.1. Compactness

Jenks and Burgess (2004) state that the degree of compactness of the urban fabric can be directly related to an increase in the quality of urban life. The distension of the urban fabric in peripheral areas tends to reduce the quality of life of the poor, as well as cause environmental degradation. However, the authors do not describe which aspects of urban quality of life benefit from compactness.

Ewing *et al.* (2014) point out the benefits of urban compactness on the health of the population. According to the authors, there is a negative correlation between indices of urban sprawl and obesity, diabetes, and heart disease, among others, indicating that controlling the sprawl of the urban fabric in peripheral areas has salutary effects on obesity and chronic control

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diseases. However, the study used data on a regional scale. At the urban scale, Stevenson *et al.* (2016) observed that, when simulating scenarios of compact cities, characterized by greater heterogeneity in land use, higher population density, reduced public transport distances, and the use of non-motorized means of transportation, there was an improvement in the health of people with cardiovascular and respiratory diseases and diabetes, due to the new potential habits generated by urban compactness.

In an opposing view, Wojan and Hamrick (2015) find that, according to the analysis of general activity levels, residents of more compact cities do not expend more energy than residents of larger cities, indicating that those living in compact cities do not necessarily have a preference for more physical activity. The endogenous treatment model is consistent with walking or cycling to work having an independent effect on Body Mass Index (BMI), as unobserved factors that contribute to a greater likelihood of active commuting are not associated with lower BMI. In other words, urban compactness has the potential to improve health, but this may not be realized if other public policies, such as encouraging the use of non-motorized means of transportation, are not implemented.

Nevertheless, compact cities may have other positive socioeconomic effects. Ewing *et al.* (2016) studied the relationship between urban sprawl and social mobility, (change in social class). The findings of the study showed that social ascension is greater in compact areas than in sprawling areas. The direct effect of compactness is attributed to better access to jobs in more compact cities. Furthermore, as compactness doubles, the likelihood of social advancement increases by around 41%.

Other economic benefits can be indirectly attributed to compactness. Leinberger and Rodriguez (2016) analyzed the degree of walkability, along with socioeconomic indicators in 30 metropolitan regions in the United States. The results indicated that the most walkable cities have a 30% higher GDP per capita. In 55% of the cities, there is a positive correlation between walkability and educational attainment (which is higher in walkable cities), and in 60% of the cities, there is a positive correlation between walkability and social equity. In constructing the methodology, the research took into account the Walk Score method (WALK SCORE, 2014), in which one of the variables used is the number of intersections and the size of the blocks. Thus, it can be understood that morphology can play an important role in the socioeconomic behavior of a city.

5.2. Road network

According to Romice *et al.* (2016), the major contribution of urban design (which is consequently related to urban form and the street network) to the quality of life covers different dimensions, from the scale of the city to the scale of the pedestrian, through the distribution of basic services, the design of streets and blocks and their combination, in terms of walkability, a complex term including spatial convenience (permeability), environmental quality (safety, appearance, interest, environmental comfort) and general legibility. In other words, urban form contributes to people's quality of life because its main elements (street network, blocks, and lots) distribute urban facilities, amenities, and services. The configuration of the street network can also have a positive impact on health. According to Watts *et al.* (2015), the connectivity and

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integration of streets influence cognitive functions and, consequently, the spatial orientation of elderly people with dementia.

Pont and Haupt (2009) analyze network density (N) in a given urban area. The indicator refers to the concentration of internal and external networks in an urban fraction (Sample: Block, Fabric, or District). The density of a network is defined as the length of the network per square meter of base area (m/m2) and is calculated as the sum of the total internal network and half the length of the network used to demarcate the base land area. The unit of the result is meters of network per square meter of fabric area and can indicate the degree of presence of roads in a complex, as opposed to open and built-up areas.

5.3 Public open areas

According to Florindo *et al.* (2017), the presence of at least two public open spaces (squares or parks) within a radius of 500m increases the time spent walking for leisure, which contributes to improving the quality of life of the community adjacent to the space. The size of the radius is considered a reference value in studies on pedestrians (FARRET, 1984), which may indicate that not only the existence of public leisure spaces is sufficient to promote quality of life, but also the ease of pedestrian access to these public open spaces has direct implications for their potential.

For Londe and Mendes (2014), green areas contribute to improving the quality of life in cities through social development, adding benefits related to the well-being, and physical and psychological health of the population, when they provide a connection between man and the natural environment and have infrastructure that favors recreational activities. Therefore, public open spaces with green areas, when provided with adequate infrastructure, can become potential generators of quality of life.

Another health-related benefit is the relationship between public open areas and mental health. According to Wood *et al.* (2017), the amount, size, and distribution of public green spaces were significantly associated with improved mental well-being among users, with findings supporting a dose-response relationship. Thus, positive mental health was not only associated with nature-focused parks but also with green spaces characterized by recreational and sporting activities. The study demonstrates that adequate provision of public green areas in local neighborhoods and within walking distance is important for positive mental health, confirming Londe and Mendes (2014).

In turn, the results of the studies by Buller *et al.* (2017) affirm that a greater presence of public open spaces, with shading, contributes to the prevention of skin cancer. These data were empirically studied in the United States and Australia, in places with high solar incidence, which would make it easier to replicate the studies and results in other countries with hot climates, such as Brazil.

From the research analyzed, it can be seen that the studies that seek to relate the spatial configuration and the quality of urban life have compactness and public open areas as their main morphological aspects. Compactness is one of the most present elements in the studies, related to the expansion of the network of streets and parcels. The street network is related both to its spatial arrangement (syntax and configuration of space) and to its property

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of delimiting plots. Public open spaces are related to the quality of life both because of their properties and because of their location and arrangement within the street network. In general, studies relate urban form to benefits mainly related to health and the economy, aspects that are addressed in urban quality of life indicators.

Comparing the concepts presented in the theoretical framework with the morphological approaches in the studies described above, it is understood that the elements of urban form articulate with each other, formulating the foundations of urban space. Thus, it can be said that the physical-spatial aspects of the city have interfaces with variables related to health, education, income, and housing indicators, formulating the quality of urban life.

5. FINAL CONSIDERATIONS

The configuration is one of the most important aspects of the city, since it structures the physical and social space of the city, through its constituent elements (street network, lots, and buildings), in their different types of use that make up the urban space. Based on the concepts and studies researched, it was observed that: a) spatial configuration is highlighted as a possible direct contribution to understanding the qualitative aspects of an urban fraction or fabric, thus being able to study and propose the improvement of the population's quality of life, by enabling urban spaces and praxis; b) Indices and Indicators can condense raw and complex information (primary data and data analysis), pointing to more palatable and simplified (and comparable) systems and processes for users and managers, and can also point to guidelines for planning and managing the territory; and c) the formal aspects of the built environment should be explored in urban indicators and indices, since this determines, for example, the degree of compactness, proportion and layout of road networks, or the proportion of open and built spaces in a block, neighborhood or district/city. When it comes to urban sustainability or environmental and quality of life in cities, the spatial component is neglected, especially in Brazilian urban studies.

The quality of urban life is addressed here both in the form of indices and indicators, that seek to measure the level of satisfaction and social well-being of the population, and through quantitative and qualitative aspects related to health, income, education, and access to housing, facilities, goods and urban services. In both approaches, the issue is related to urban sustainability, human development, and the physical structure of the city. Recent indices developed for Brazilian cities show a tendency to consider both physical and social aspects when measuring human well-being.

In this sense, it was also observed that even when considering the physical aspects of the city and the urban fabric, urban morphology (the built environment) is not properly explored in most of the indices and/or quality of life indicators analyzed, being presented superficially and at a broader scale - with general urban data, without details at the block or neighborhood scale. Some studies that relate urban form to quality of life, even on a local scale, do not detail how urban form relates to other urban and human aspects. Even though the positive relationship between spatial configuration and quality of life has been demonstrated, urban form remains a variable that is still approached without considering most of the concepts and constituent elements.

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It is considered that for urban design and architecture, the intensity of the occupation of the block interferes, for example, with the permeability of the soil, the layout of green areas, public areas, and facilities, and the visibility of the street and people. Excessive densification, as well as low-density sprawl, produces local impacts - on visibility, urban canyons, environmental, climatic, and psychological impacts, the degree of conviviality between neighbors, the vitality and accessibility of streets and public spaces, and global impacts - on the urban whole as a whole, whether in the fragmentation of spaces and neighborhoods, or the increase in the cost of urban systems and maintenance. This has implications for global sustainability and impacts on the surrounding system.

This work has attempted to shed light on the relationship between spatial configuration and quality of life, based on the relationship between the concepts, indices, indicators, and studies presented. Thus, evidence has been found that can relate urban morphology to other aspects of quality of life, that are not explored in conventional concepts of urban quality of life. As part of the continuity of this work, it is recommended that further studies be carried out on the relationship between urban form and quality of life, also in dialogue with other concepts such as quality of the public space and quality of public life, as well as the application of studies in urban samples with indices and indicators that take into account the formal component associated with the quality of life and the environment of cities.

REFERENCES

ANDRADE, L.T.; BAPTISTA, L.V. Espaços Públicos: Interações, Apropriações e Conflitos. **Sociologia, Revista da Faculdade de Letras da Universidade do Porto**, v. 29, p. 129-146, 2015.

ANGEL, S.; PARENT, J.; CIVCO, D.L. **The Fragmentation of Urban Footprints**: Global Evidences of Sprawl, 1990-2000. Lincoln Institute Working Paper. Cambridge: Lincoln Institute, 2010.

BATTY, M. *et al.* GIS and Urban Design. **CASA Working Paper Series**, v. 3, p. 1-28, 1998.

BATTY, M.; LONGLEY, P. **Fractal Cities**: A Geometry of Form and Function. London: Academic Press, 1994.

BULLER, D.B. *et al.* Open Public Space Attributes and Categories – Complexity and Measurability. **Arhitektura, Raziskave**, v.2014, n.2, p. 15-24, 2014.

ČAVIĆ, L.; BEIRÃO, J. N. Open public space attributes and categories—Complexity and Measurability. **Arhitektura, Raziskave / Architecture**, Research, v. 2014, n.2, p. 15–24, 2014.

COELHO, C. D. (2013). O Tecido: Leitura e Interpretação. *In:* COELHO, C. D. (Org.). **Cadernos de Morfologia Urbana: Os elementos urbanos.** Vol. 1. Lisboa: Argumentum, 2013.

CONZEN, M. R. G. **Alnwick, Northumberland**: A Study in Town-Plan Analysis. London: Institute of British Geographers Publication 27, 1960.

COSTA, S. A. P.; NETTO, M. M. G. **Fundamentos de Morfologia Urbana**. Belo Horizonte: C/Arte, 2015.

CULLEN, G. **Paisagem Urbana**. Lisboa: Edições 70, 2009.

CUSTÓDIO, V. *et al.* Espaços Livres Públicos nas Cidades Brasileiras. **Revista Geográfica de América Central**, EGAL, p. 1-31, 2011.

EL DIN, H.S. *et al.* Principles of Urban Quality of Life for a Neighborhood. **HBRC Journal**, v.9, p. 86-92, 2013.

ISSN 2318-8472, v. 12, n. 85, 2024

EWING, R. *et al.* Does Urban Sprawl Hold Down Upward Mobility? **Landscape and Urban Planning**, v.148, p. 80-88, 2016.

EWING, R. *et al.* Relationship Between Urban Sprawl and Physical Activity, Obesity, and Morbidity – Update and Refinement. **Health & Place**, v.26, n.2014, p. 118-126, 2014.

FIGUEIREDO, L., AMORIM, L. Continuity Lines in the Axial System. In: Space Syntax Symposium, 5, Delft, 2005. **Proceedings...** Delft: Technische Universiteit Delft, 2005.

FLORINDO, Alex Antonio *et al*. Public open spaces and leisure-time walking in Brazilian adults. **International journal of environmental research and public health**, v. 14, n. 6, p. 553, 2017.

HILLIER, B.; HANSON, J. **The Social Logic of Space**. Cambridge: Cambridge University Press, 1984.

HILLIER, B. *et al.* Natural Movement: or, Configuration and Attraction in Urban Pedestrian Movement. **Environment and Planning B**, v.20, p. 29-66, 1993.

JACOBS, J. **The Death and Life of Great American Cities**. New York: Vintage Books, 1961.

JANCHES, F. **Public Space in the Fragmented City**: Strategy for Socio-Physical Intervention in Marginalized Communities. Buenos Aires: Nobuko, 2012.

JENKS, M.; BURGESS, R. **Compact Cities**: Sustainable Urban Form for Developing Countries. London: Spoon Press, 2004.

KARSSEMBERG, H. *et al.* **The City at Eye Level**. Delft: Eburon, 2016.

LAMAS, R.M.G.C. **Morfologia Urbana e Desenho da Cidade**. 3ª Ed. Porto: Fundação Calouste Gulbenkian: 2004.

LEINBERGER, C.B.; RODRIGUEZ, M. **Foot Traffic Ahead**: Ranking Walkable Urbanism in America's Largest Metros 2016. Washington, D.C.: The George Washington University, 2016.

LIRA, A. H. C. *et al.* Avaliação da qualidade de vida urbana nos condomínios horizontais da cidade de João Pessoa, PB. **Ambiente Construído**, v. 17, n. 4, p. 285-304, 2017.

LOBODA C.R.; DE ANGELIS, B.L.D. Áreas Verdes Públicas Urbanas: Conceitos, Usos e Funções. **Ambiência**, v.1, n.1, p. 125-139, 2005.

LONDE, P.R. ; MENDES, P.C. A Influência das Áreas Verdes na Qualidade de Vida Urbana. **Hygeia: Revista Brasileira de Geografia Médica e da Saúde**, v.10, n.18, p. 264-272, 2014.

LONDE, P.R.; MENDONÇA, M.G. Espaços Livres Públicos: Relações entre Meio Ambiente, Função Social e Mobilidade Urbana. **Caminhos de Geografia**, v.15, n.49, p.138-151, 2014.

LYNCH, K. **The Image of the City**. Cambridge: MIT Press, 1960.

MACEDO, S.S. Espaços Livres. **Paisagem Ambiente: Ensaios**, n.7, p. 15-56, 1995.

MAGNOLI, M.M. Espaço Livre – Objeto de Trabalho. **Paisagem Ambiente: Ensaios**, n.21, p. 175-198, 2006.

MARANS, R.W. Quality of Urban Life & Environmental Sustainability Studies: Future Linkage Opportunities. **Habitat International**, v.30, p. 1-6, 2014.

MARTINS, R.T.P.; ARAÚJO, R.S. Benefícios dos Parques Urbanos. **Perspectivas Online**, v.10, n.4, p. 38-44, 2014.

MARTINS, M.F.; CÂNDIDO, G.A. Modelo de Avaliação do Nível de Sustentabilidade Urbana: Proposta para as Cidades Brasileiras. **Urbe: Revista Brasileira de Gestão Urbana**, v.7, n.3, p.397-410, 2015.

MURATORI, S. **Studi per una Operante Storia Urbana di Venezia I**. Palladio 3-4, 1959.

ISSN 2318-8472, v. 12, n. 85, 2024

NAHAS, *et al.* Metodologia de Construção do Índice de Qualidade de Vida Urbana dos Municípios Brasileiros (IQVU-BR). In: Encontro Nacional de Estudos Populacionais, 15, Caxambu, 2006. **Anais...** Caxambu: ABEP, 2006.

NUCCI, J.C.; CAVALHEIRO, F. Espaços Livres e Qualidade de Vida. **Paisagem Ambiente: Ensaios**, n. 11, p. 277-288, 1998.

OLIVEIRA, V. Morfologia Urbana: Diferentes Abordagens. **Revista de Morfologia Urbana**, v.4, n.2, p. 65-84, 2016.

OLIVEIRA, L.A.; MASCARÓ, J.J. Análise da Qualidade de Vida Urbana sob a Ótica dos Espaços Públicos de Lazer. **Ambiente Construído**, v.7, n.2, p.59-69, 2007.

OLIVEIRA, V.; MONTEIRO, C. As Origens da Morfologia Urbana e a Geografia Alemã. **Revista de Morfologia Urbana**, v.2, n.1, p.37-46, 2014.

PANEIRAI, P.; CASTEX, J.; DEPAULLE, J. **Formas Urbanas**: A dissolução da Quadra. Porto Alegre: Bookman, 2013.

PONT, M. Y. B.; HAUPT, P. A. **Space, Density and Urban Form**. Delft: Technische Universiteit, 2009.

QUEIROGA, E.F. Sistemas de Espaços Livres e Esfera Pública em Metrópoles Brasileiras. **Resgate**, v.19, n.21, p. 25-35, 2011.

_____. Da Relevância Pública dos Espaços Livres: Um Estudo Sobre Metrópoles e Capitais Brasileiras. **Rev. Inst. Estud. Bras.**, v. 58, p. 105-132, 2014.

QUEIROGA, E.F.; BENFATTI, D.M. Sistemas de Espaços Livres Urbanos: Construindo um Referencial Teórico. **Paisagem Ambiente: Ensaios**, n.24, p.81-88, 2007.

ROGGERO, M.A.; LUCHIARI, A. As Perspectivas de Análise de Qualidade de Vida Urbana no Brasil e na Geografia Brasileira. **Revista de Geografia**, v.32, n.1, p. 66-79, 2015.

ROMICE, O. *et al.* Urban Design and Quality of Life. In: POL, E., (Org.) **Handbook of Environmental Psychology**: ISQOL/Handbook of Quality of Life Research Book. New York: Springer, 2016.

ROSANELI, A.F. *et al.* Apropriação do Espaço Livre Público na Metrópole Contemporânea: O Caso da Praça Tiradentes em Curitiba/PR. **Urbe: Revista Brasileira de Gestão Urbana**, v.8, n.3, p. 359-374, 2016.

RUBIRA, F.G. Definição e Diferenciação dos Conceitos de Áreas Verdes/ Espaços Livres e Degradação Ambiental/ Impacto Ambiental. **Caderno de Geografia**, v.26, n. 45, p. 134-150, 2016.

SAKATA, F.G. O Parque Urbano Brasileiro do Século XXI. **Cidades Verdes**, v.03, n.07, p. 17-27, 2016.

SILVA, P.D.D.O.; LOLLO, J.A. O Estudo de Impacto de Vizinhança como Instrumento para o Desenvolvimento da Qualidade de Vida Urbana. **HOLOS Environment**, v.13, n.2, p. 151-162, 2013.

SILVEIRA, J.A.R. & SILVA, G.J.A. **Ensaios urbanos: configurações e deslocamentos na cidade.** João Pessoa-PB: Ed. CCTA/UFPB, 2018.

STEVENSON, M. *et al*. Land use, transport, and population health: estimating the health benefits of compact cities. **The lancet**, v. 388, n. 10062, p. 2925-2935, 2016.

TURNER, A. Angular Analysis: A Method for the Quantification of Space. **CASA Working Paper Series**, v.23, p.1-20, 2000.

Turner, A.; PENN, A. Encoding Natural Movement as an Agent-based System: An Investigation into Human Pedestrian Behaviour in the Built Environment. **Environment and Planning B**, v.29, n.4, P.473-490, 2002.

UN HABITAT. **State of the World's Cities 2010/2011**: Bridging the Urban Divide. London, Sterling: Earthscan, 2008.

WATTS, A. *et al.* Neighborhood Integration and Connectivity Predict Cognitive Performance and Decline. **Gerontology & Geriatric Medicine**, v.2015, n.1, p. 1-9, 2015.

ISSN 2318-8472, v. 12, n. 85, 2024

WEY, W.M.; WEI, W.L. Urban Street Environment Design for Quality of Urban Life. **Soc. Indic. Res**., v.126, p. 161-186, 2016.

WHITEHAND, J.W.R. Morfologia Urbana Britânica: a Tradição Conzeniana. **Revista de Morfologia Urbana**, v.1, n.1, p.45-52, 2013.

WOJAN, T.R.; HAMRICK, K.S. Can Walking or Biking to Work Really Make a Difference? Compact Development, Observed Commuter Choice and Body Mass Index. **PLoS ONE**, v.10, n.7, p. 1-20, 2015.