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# Public Spaces in Healthy Urban Living Environments According to The Dimensions of Health Places and The Spatial Characteristics of Vital Environments

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## ABSTRACT

The physical and social structure of urban residential areas is affected by public open spaces in positive and negative ways. Public spaces serve as the basis for the growth of urban life that promotes physical activities and social relations. The research addressed the problem of lack of knowledge about the mechanisms that contribute to achieving healthy and lively public places according to spatial characteristics. It aimed to develop and improve public places through a more comprehensive knowledge of the effective spatial characteristics that contribute to enhancing the value of public places. The research assumed the existence of a correlation between vital spatial characteristics and healthy environments. For the purpose of testing the hypothesis, the theoretical framework extracted was applied to models of public places in international countries, Such as Canada, Japan, Algeria. The research adopted a qualitative descriptive approach to verify the hypothesis. The results showed that there is a relationship between health and vital environments that helped provide dynamism to the functioning of urban space and can be used as a criterion for measuring the effectiveness of public places.

**Keywords:** Healthy environments, Public spaces, Vitality, UN-Habitat.

## 1. INTRODUCTION

Most of the world's population lives in cities, and due to changing lifestyles and continuous developments in various fields, the concepts of sustainable urban development have continued. Public spaces are one of the most important formations of cities according to the concept of healthy living and are witnessing a change in the design characteristics to comply with international standards. **(Altaie and Onyelowe, 2024)** presented a vision of the importance of developing simple and complex projects to achieve economic growth according to new standards. **(Ye et al., 2022)** highlighted the importance of adopting the concept and methods of livable cities to complement the shortcomings in the central

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planning approach to urban expansion and stressed that the concept of health is applicable through a change in public policies and urban planning and identified the importance of green public areas, the natural environment, and health services. Social, energy services, public transportation, and taking into account sustainability measures are the most important indicators of a healthy environment.

**(Fathi et al., 2020)** also pointed out the role of urban design in the main formation of the city and encouraging citizens to move, and highlighted the importance of functional, physical, cultural, social, cognitive and visual features in increasing physical activities in urban spaces. In addition**, (Botchwey et al., 2022)** laid out the importance of active living, a healthy diet, environmental exposures, dealing with emergency disasters, quality housing, community development and public safety, and taking into account standards of sustainability, justice and equality in creating healthy environments to the characteristics of the built environment and their impact on physical health. Moreover, **(Carmona, 2019)** referred to places through the spatial value that the place acquires, which is important, as it may be health, social, economic, or environmental, and referred to as the quality of the place, as the place has positive and negative qualities that greatly affect urban life.

The knowledge gap appeared through studies examining the concept of livability in urban development or the concepts of healthy cities, and did not address the existence of a relationship between the concepts of health and vitality through the quality of spatial characteristics, nor did they specifically address public places. This research deals with the concept of healthy places and the concept of vital spaces to derive a theoretical framework for evaluating public places according to healthy and vital concepts.

## 2. URBAN HEALTH CONCEPT

### 2.1 Definition and Origin

The term "health" appeared in 360 BC in Hellenistic Greek culture. Asklepieia represents a place similar to the places of a primitive hospital and serves as a center of worship and healing, which was converted into the first health care center in the world. Restoring health is due to concepts resulting from the interaction between physical, psychological, mental, spiritual, social, environmental and other variables **(Chatzicocoli and Syrakoy, 2009)**. In the 1840s, began using the terms “public health” in slum population development, water supply, and housing improvement and presented his vision of “Hygeia.” The concept of urban health in cities arose in 1842 when the British government held the “Health Conference for Cities” and published a report in which it revealed the living conditions of the population. The government established the Cities Health Association to undertake the task of improving the living conditions of the population and treating health problems in cities from diseases **(Barton and Tsourou, 2013)**. The **(Zagreb Declaration, 2009)** also specified that a healthy city provides a physical and built environment that supports health, leisure, well-being, safety, social interaction, ease of movement, a sense of pride and cultural identity and is accessible to meet the needs of all its citizens **(Barton and Tsourou, 2013; Abdul-Jabbar and Alwehab, 2023).**

Healthy cities are defined as a city that works continuously to improve and create physical and social environments, enhance community resources, and enable people to support each other in performing life functions to the best of their ability **(Dahlgren and Whitehead, 2021). (McCunn and Arnett, 2022)** pointed out that a healthy environment is an

environment that seeks to achieve well-being for its residents, through quality infrastructure, a positive life with social cohesion and a connection to nature.

"Healthy urban environment" is also a term with many meanings. Public health and related issues have been at the heart of the urban planning agenda since the first industrial revolution until now. In the past three decades in particular, the World Health Organization (WHO) has been a leader in promoting "healthy cities". According to the World Health Organization, one of the main goals of healthy cities is to create an environment supportive of health. A healthy urban environment can be achieved not only through health-related issues but also through safety, interaction, accessibility and mobility **(World Health Organization, 2015; Sarkar et al., 2015; AlTalebi and Al-Bazzaz, 2018). (Weston and Bollier, 2013)** expanded the definition of healthy environments to represent a clean and healthy environment and include the terms "appropriate, decent, balanced, biodiverse, resilient, safe, sustainable and viable". As is clear, there is no consistent and specific definition of the term "healthy urban environment".

Healthy environments can be defined procedurally as environments in which healthy cities seek to enhance human health and society by creating an environment supportive of health and developing and improving the relationships between the physical, social, economic, environmental, aesthetic environments, etc., by improving the quality of the built environment and at a planning level that seeks to diversify its uses. Land, density, transportation, and a level perceived by the user seeks to enhance the aesthetic aspects, amenities, safety, cleanliness, organization, and provide the elements that humans need and the quality of pedestrian infrastructure, and the mechanisms for achieving this through attention to buildings and the internal environments of buildings and external environments, including public places and attention to natural environments of green spaces and water. Biodiversity, resilience, security and sustainability so that it is viable and contributes to enhancing the general health of the population.

As is clear, we defined "healthy urban environment" in this study as a term for the variables of "clean, socially functioning, safe, and organized urban environment" because these variables are often associated with a healthy environment in the literature, and the research used healthy place indicators as indicators of healthy environments. We also used "urban vitality" and "vibrant urban environment" in our study, which refers to "the activity and vitality of cities" and used spatial indicators to enhance the vitality of public places.

## 2.2 Healthy Places

Researchers and theorists conduct varied studies on the characteristics of a healthy place. It pointed to the quality of the place by giving the place priority to its users in meeting them and maintaining healthy, socially rich, and economically productive lifestyles that have an impact on the urban environment, found that many research studies define what they mean by "place," "urban design," "urban quality," "the concept of environmental quality," or a whole host of other qualities of the built environment that create vitality and life for cities **(Carmona, 2019)**.

**(London, 2020)** also addressed the healthy place and pointed to six principles that can be divided into two groups, three scales that give importance to planning and include (urban planning, walkable communities, and neighborhood building blocks) and three connecting concepts (which are transportation, the influence of movement networks, and environmental integration, And community empowerment (in order to create healthy urban environments where different measures are integrated to be more effective.

UN-Habitat also developed programs to evaluate places at a local level, to achieve five dimensions of healthy public places, namely use and user. This dimension focuses on the quality of public space for all, in addition to taking into account the different types of users for each place. Accessibility, this dimension is concerned with access to the site in terms of perception and movement. Amenities and furniture focus on the quality of the designed furniture while providing service facilities such as toilets, seating areas, kiosks and waste bins. In addition, there is a psychological factor represented by comfort and safety, as well as interest in the green environment. This dimension deals with the environmental aspects that enhance Health and well-being through air quality, green coverage, and water management **(Scruggs, 2020)**.

Healthy places can be defined procedurally as public places in the urban environment that have the quality of spatial characteristics of the physical and social environment through activities, diversity of users, uses, and community events, which contribute to supporting the health of the physical and social environment and enhancing cohesion and social communication. It aims to enhance green infrastructure and take into account aspects of sustainability whether preserving natural resources or using technology in an alternative energy source to reduce pollution, which constitutes an environment that supports health and enhances the health aspect of the population in general.

## 3. VITAL PUBLIC SPACES (SPATIAL CHARACTERISTICS)

**(Lynch, 1964)** referred to the visual aspects through the quality of clear planning and simplicity of formation, which gives possibility and perception of the built environment, the well-known elements represented by the sign with a number, name, or landmark contribute to giving clarity and creating cohesion in the space. While the invisible aspects stimulate other senses to perceive the physical environment, and the sound, texture, and spatial location of the elements contribute to giving clarity to the urban environment, which contributes to enhancing cohesion **(Bogucka, 2021)**. **(Whyte, 1980)** highlighted the motivational elements (sitting space, sunlight, trees, water features, food, street access, and triangulation).

Moreover, studies have dealt with clarifying the design conditions for achieving influential urban spaces, namely, the axial, enclosing, and active edges, where pointed out the importance of enclosing spaces with a series of buildings that demarcate the boundaries of private and public places and form the skyline of the city, excluding the roads entering them **(Salingaros and Pagliardini, 2016)**. It also emphasized that visual information requires the importance of linear continuity and that fractal cities consist of a main structure with associative secondary structures that give a coherent structure characterized by hierarchical scales, and the human scale appears in all its parts. They are also living cities that have a larger number of hierarchical connections between spaces than is found in modern cities **(Salingaros, 2001).**

Furthermore, it is considered that the quality of urban life lies in creating mental perceptions of the importance of safety and comfort available in public places, which contributes to security in the continuity of life and reduces crime **(Hillier et al., 1986; Salingaros and Pagliardini, 2016)**. There is a set of studies that confirm the indicator of protection from environmental conditions using trees or roofs is one of the most important factors for achieving the quality of spaces and the health of users **(Neisiani et al., 2016)**.

Moreover, **(Jacobs, 1961)** showed that areas characterized by diversity and density are more attractive and distinctive. Similarly, studies focused on environments with spatial

characteristics such as density, land-use diversity and consideration of design aesthetics to enhance walkability and increase the intensity of movement **(Lu et al., 2017)**. **(Whyte, 1980)** showed that edges and hierarchy contribute to creating flexibility when moving between the edges of urban space and attract and stop people, and behavioural studies have indicated that people tend to move at the edges, so the edges can be invested in creating nodes for human activities and promote commercial movement**. (Hillier et al., 1986; Batty, 2022)** explained the concept of integration by the degree of interconnection of spaces or their isolation relative to the outer space, the space that is more accessible than other spaces is the most integrated space and is best for gatherings and social interaction. **(Whyte, 1980; Hillier, 2007; Salingaros, 2015)** discussed the importance of the concept of permeability for the physical environment down to living spaces and lies through balancing the total movement of vehicle permeability and partial movement and pedestrian permeability with giving priority to pedestrian movement**.**

The concept of coherence is one of the quantifiable normative concepts of urban morphology. **(Çalışkan and Mashhoodi, 2017)** proposed spatial proximity and consistency as the main indicators for measuring the cohesion of the urban fabric. In general, **(Hillier, 1999)** introduced the centralization index by emphasizing the importance of centralization of economic and recreational activities represented by (markets, retail places, restaurants... etc) topologically, in order to achieve equity in opportunities their quality is measured through the complementarity of access to these centres because of their attractiveness to people and utilitarian or recreational needs, which contributes to the strengthening of economic and social mobility. Centralization is also one of the aspects of assessing urban sustainability as indicated by the sustainable development goals (SDG) **(McGranahan and Satterthwaite, 2003; Badai, 2023; Mohammed and Abaas, 2024).**

Living environments can be defined procedurally as environments that, through their spatial characteristics, seek to enhance urban vitality and include clarity, motivation, inclusion, security, density, diversity, gradation, active edges, connectivity, permeability, continuity, integration, centralization, cohesion and take into account aspects of sustainability, whether in terms of the use of technology or green and blue infrastructure. Therefore, the indicators of the theoretical framework for assessing vital sanitary public places as in **Table Table 1.** Primary and Secondary Indicators related to the Intellectual Aspect.

**Table 1.** Primary and Secondary Indicators related to the Intellectual Aspect.

| **Dimensions of health places** | **Standard (Spatial characteristics of vital spaces)** | **Secondary indicators** | |
|---|---|---|---|
| **Comfort & Image** | Stimulus | Visible | Site elements |
| | | | Texture |
| | | | color |
| | | invisible | sound |
| | | | Texture |
| | | | smell |
| | Legibility | Visible landmarks | |
| **Sociability** | Enclosure | Defining public spaces with a series of buildings | |
| | Safety and Security | Reducing crime, lighting, natural surveillance, cameras | |
| | | Environmental treatments, roofing | |
| | Density | Movement intensity | |

| | | |
|---|---|---|
| | Diversity | Diversity of land uses |
| | | Diversity of paths |
| | | Diversity of users |
| **Uses & Activities** | Hierarchy | Diversity of measurements used in visual elements and surfaces |
| | Edges | Promoting trade (a decade of human activities) |
| | | Parking |
| **Access & Linkages** | Connectivity | The connection of space with the urban context is visual and kinetic |
| | | There are no barriers to access |
| | Continuity | Continuity of visual information from elements or interfaces |
| | Integration | The amount of space connection with other spaces |
| | Permeability | Pedestrian permeability |
| | | Permeability of compounds |
| | Coherence | Spatial proximity and amount of contact with the urban context |
| | Centers | Topologically centralized space |
| | | Equity of access |
| **Natural environment** | Greenery | |
| | water | |
| | Biodiversity | Color |
| | | Texture |
| | | Endurance |
| **Sustainability** | Nature conservation | |
| | Materials are recycled | |
| | Energy renewable sources | |

## 4. METHODS AND TECHNIQUES

From the above, we find that the goal of the research to achieve a lively healthy environment has been studied in many researches and studies. Therefore, the research hypothesis will be tested through a qualitative descriptive approach, and many public places were chosen as international and Arab examples in order to evaluate the development of public places according to indicators of lively healthy places.

### 4.1 Evaluation of The Hisaya-Odori Garden City Project

Japan has sought to achieve population balance within different cities, develop land use patterns, deal with the ageing of society and ageing infrastructure, respond to sudden risks such as earthquakes and tsunamis, and attach importance to recreational places to enhance social aspects **(Edgington, 2000)**, Nagoya is the third largest population centre and the fourth most populous city in Japan, and the city centre of "Aichi Prefecture", located on the southern side of the island of "Honshu" and is a city of historical importance with a castle dating back to 1525. It has a population of about 2,258,908 **(Vichiensan and Nakamura, 2021)**. The park was created after the destruction caused by the Second World War, in order to create a green space in the city centre. The park serves as a central recreation area within the downtown area. It is about 2 km long and stretches approximately from North to South.

The practical actions includes:

- The project was divided into a grid manner according to the idea of the Taik Castle, the park was divided into five squares, and the creation of a "vista line" of transport in conjunction with the redevelopment of the park runs from North to South.
- Within the park is located the symbol of the famous TV tower (built in 1954), as well as trees, water fountains and works of modern art such as sculptures, among others.
- The edges of the park have been treated with the construction of 24 commercial buildings to represent the nodes of human activities in which economic movement and social presence are active, and commercial buildings are connected to rooftops and pedestrian walkways.
- The renovated design took into account the sequence of facilities taken into account when deciding on the placement of buildings to ensure that the picnic will be enjoyable and there are places where visitors can choose to spend time, near the TV tower area. Moreover, the project passes through different parts of the city, stretching from the vibrant shopping and entertainment district of Sakai to the quiet area of sotobori-Dori near Nagoya Castle.
- The project is characterized by the density of construction, the diversity of tenants and the layout of the square with intersecting paths, which gave a connection and proximity between the park and the neighboring urban context.
- Find a state of integration of various elements: the Vista line of transport, public squares, shopping spaces where people can enjoy parking, vertical connections with the subway and the underground shopping center, horizontal extension.
- Open terraces and pergolas were used with irregular external walls, which create their shades and colors of various aesthetic manifestations in pedestrian transit areas between the park and its service facilities.
- Overgrown trees were treated in the redevelopment process, which continued to grow for 60 years, cutting off the light from the garden, healthy trees were moved and those that remained were selected, in order to restore a healthy growing environment and turn the garden into a place full of bright sunlight. The project idea and views of the project are shown in **Fig. 1.**

### 4.2 Street Catherine Street West and Philips Square / Provencher_Roy

Montreal is a Canadian city, the largest city in the province of Quebec and the largest Canadian city until the 1970s. With a population of 1,016,376, while the metropolitan area has a population of 3,326,510, Montreal is one of the world's largest inland seaports and the main transportation hub in Canada. It is also a major centre of Canadian business, industry, culture and education. It is the second largest metropolitan area in Canada after Toronto. About 11% of Canada's population lives in Greater Montreal.

The project is located in downtown Montreal, St. Catherine Street West, as well as place Philips and Place du Frere Andre, blending the past and the present. The area has a rich architectural heritage full of contrasts and based on the desire to enhance the unique identity of the street, the urban redevelopment process has simplified and organized the street and its surroundings. The design has made it more readable than the common working business artery between various public places and historical buildings that line it, thereby enhancing economic vitality, user experience, festive atmosphere and mobility. **(Kemble, 1989; Drummond, 2004; Lang and Marshall, 2016)** also highlighted the important role that

supermarkets and high-profile stores played in the historical emergence of this street and its commercial success.

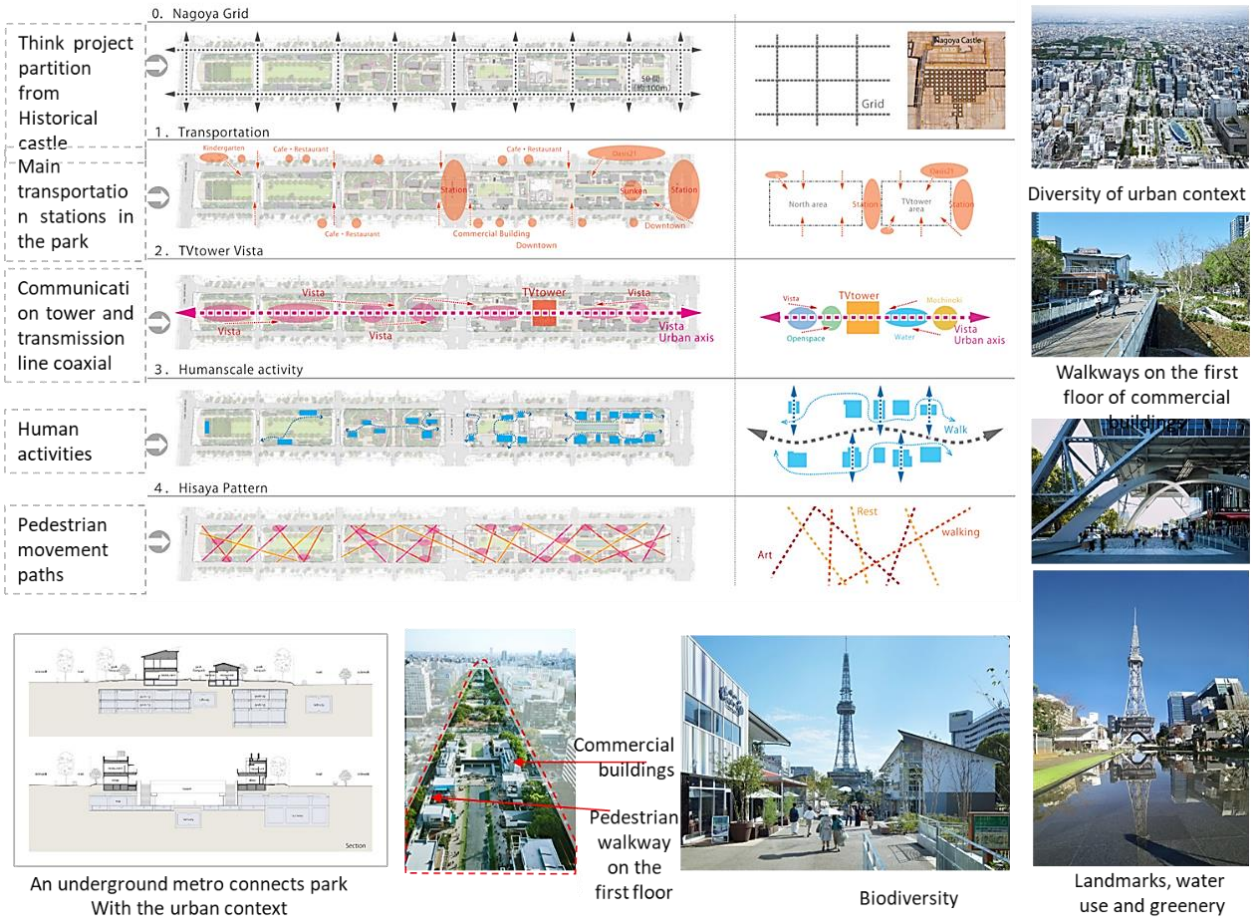


**Figure 1.** The idea of the project at the level of transportation, TV tower, human scale activities, movement pattern **(Abdel, 2020)**.

The practical measures:

- Cancel street parking and significantly expand sidewalks, to turn them into a place where people are. The new street creates a linear square that connects the previously dismantled network of squares, monuments and historical buildings, creating a coherent urban landscape.
- The bronze plaques placed on the street as urban signs give an advantage to the department stores and buildings dating back to the turn of the century, which give this area an ancient heritage touch.
- The newly laid pavement features modular paving to define the different spaces and their uses. The color of the paving ranges from dark grey to light grey, it notifies pedestrians of the presence of a vehicle path or a safe pedestrian zone. The changing colors emphasize areas intended exclusively for walking and distinguish them from areas for cars and cyclists, creating a safe environment while maintaining a cohesive and unified public space.
- The design also worked to re-centralize Philips Square as an integral part of the city center as in the Philips plan of 1841, the space was newly expanded thanks to wider sidewalks,

green vegetation and open sight lines that provide stunning views of the built environment and the surrounding landscape.

- The monument to Edward VII erected in 1914 was presented with new lighting and surrounded by integrated urban furniture and a programmable water feature.
- Increase green spaces in order to enhance the pedestrian experience and double the number of trees to increase the vegetation cover to 46% from what was previously, with the selection of species that are characterized by rigidity, flexibility and tolerance to urban pollution.
- Promoting biodiversity with attention to the existing species, adding trees along the edge of the street to reshape and evoke the spirit of Victorian gardens with the placement of flower beds with diversity in color and texture.
- Other sustainability measures have been developed, namely the use of sustainability in the irrigation system, including the reuse and recycling of water, and the use of highly reflective local materials to mitigate the effects of heat islands. As well, as using LED lighting to reduce light pollution. The figure also shows the project and development annexes for the square **(Lang and Marshall, 2016),** as shown in the **Fig 2.**

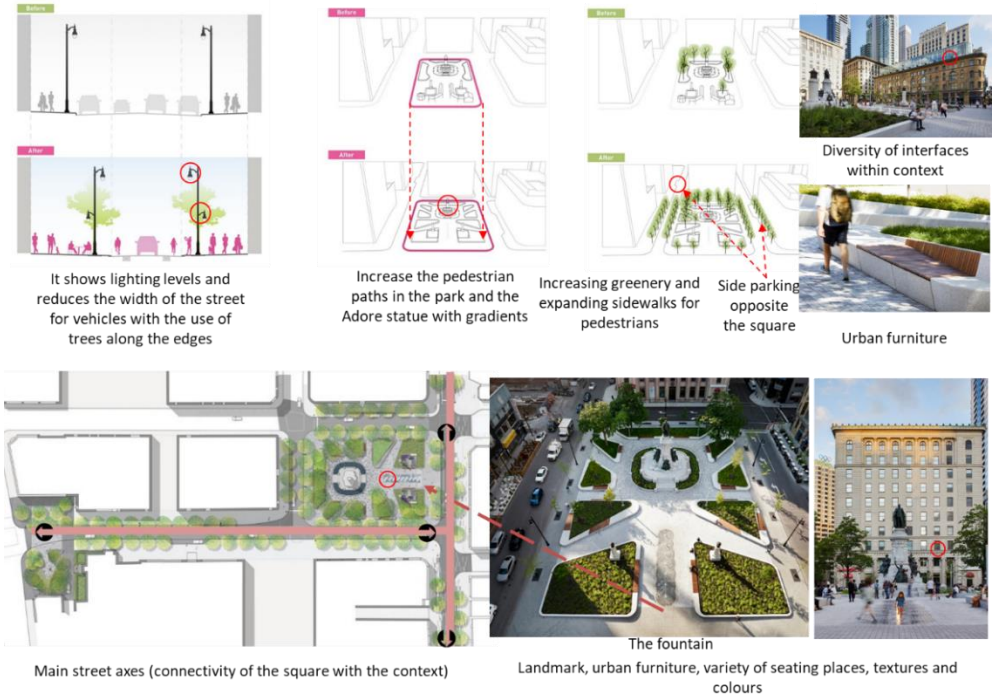


**Figure 2.** Project and development attachments for the square **(Pintos, 2020)**.

### 4.3 Theater Square in The Center of Batna

The city of Batna is located in the central depression of the Oras mountains northeast of Algeria. The origin of the Batna City theatre dates back to the twentieth century, which turned into a theater in 1987. BATNA is a medium-sized city located in the north-east of the state, 409 km from Algiers, and covers an area of 99,381 hectares.Theater Square is located between two parallel streets, fedayeen Street and formerly gambit Street (East and Ibn Badis Street West, it is bordered on two opposite sides of the square by buabsa brothers Street north and Mohammed bin Abbas Mohammed Al-Sadiq Street south, the square divides the busy Republic street parallel to them, and it has eight entrances, two main entrances from Republic Street and six secondary entrances on each side of each part, where there are

multiple land uses inside and contains a cafe and a number of newsstands, the Square is bordered by several multi-use buildings **(Benaicha et al., 2023)**.

The Theater Square in the center of Batna, Algeria, was chosen for its strategic location in the city center, being the most prestigious squares, containing social activities and celebrations, having important elements of public space, and for providing many basic activities according to well-known square designs, which distinguished the characteristics of its structural structure from other spaces., as **Fig. 3**.


**Figure 3.** Location of the theater square **(Benaicha et al., 2023).**

The practical procedures were:

- The Theater Square is characterized by a rectangular shape with right angles, it contains service facilities, it has a variety of urban furniture from seating areas, lighting, cleanliness and durability, the presence of aesthetic elements, and water elements that surround the Square and surrounded by trees and water bodies, which encouraged conversations and enjoying the sun, especially in the evening.
- The streets are characterized by a gradient in scale, so the Square is divided into two parts from a Main Street 15 m wide and the streets adjacent to the square 12 m wide and connected by sidewalks 3 m wide, corridors that meet the facades of buildings with the same tiling of the square to create continuity and visual unity, the Square is surrounded by high buildings and a classic style of facades, and due to the height of buildings and trees relative to the width of the square achieved containment, which made it conform to the human scale and the sense of containment increases when approaching the boundaries of the square. The arena can be accessed through 8 ports, 2 of which are Main and 6 secondary ports.
- The residential buildings surrounding the square contain commercial activities on the ground floor and the upper floors are residential, which creates a constant presence of residents and thus enhanced the safety factor in the Square, and the square relies in its

design on a design idea based on the structural characteristics of accessibility, integration, monitoring, control, visibility and visual field are among the most important factors found in the Square, which enhanced vitality and people flocked to it continuously.

- Theater Square is a favorite destination for young people, elders and elders of Batna city, as they come from nearby neighborhoods, regardless of what most users exchange. It also contains stalls selling some simple goods, as well as witnessing social and national activities at national events, cultural activities and theaters for adults and children at the opening of the international or national festival.

## 5. RESULTS AND DISCUSSION

The study aimed to apply the indicators of the extracted theoretical framework for public places according to the concept of healthy and lively environments. Three development projects for public places were selected. A project in Asia included Japan's Hisaya Park, being one of the world's most health-conscious and sustainable **(UN-Habitat and World Health Organization, 2020)**. And a project in North America, Canada, the St. Catherine West project and Phillips Square, are among the countries most seeking to create healthy, pedestrian-friendly and sustainable environments, like the city of Frankfurt and Montreal **(Ghanem et al., 2021)**. And an Arab city project to develop Theater Square in the center of Batna. The results showed a relationship between health places and vital environments, and attention was paid to visual characteristics more than other sensory aspects, and an interest in enhancing identity. The research also found that attention to nature, sustainability measures, and spatial characteristics are among the most important goals pursued by a healthy and urban environment. The following **Table 1** shows the most important achievements in global development projects:

**Table 2.** Check vocabulary in global development projects.

| Dimensions of health places | Standard (Spatial characteristics of vital spaces) | 1 Hisaya Park | 2 St. Catherine West and Phillips Square | 3 Theater Square in the center of Batna |
|---|---|---|---|---|
| **Comfort & Image** | **Stimulus** | The presence of the TV tower and sculptures, which creates visual continuity from the beginning of the garden to the end, the diversity of furniture and texture. | Monument to Edward, the classic character of the buildings, the bronze markers, the sound of flowing water. | The stage and character of the buildings are classic, containing furniture and stalls. |
| | **Legibility** | | | |
| **Sociability** | **Enclosure** | The park is surrounded by a series of buildings on the external level and internally the park is surrounded by commercial buildings. The presence of the TV tower provided | Trees were placed along the edges and basins, sidewalks were transformed into pedestrian areas, and lighting was provided. | The height of the buildings surrounding the square, The intensity of cultural, national and social activities, especially at |
| | **Safety and Security** | | | |
| | **Density** | | | |

| | | | | |
|---|---|---|---|---|
| | | continuity of movement and a feeling of security with the presence of lighting. | | events and festivals, due to their presence near the theatre. |
| | **Diversity** | The area enjoys a diversity of commercial, recreational and historical uses and is intended for various segments of society. | The uses in the area are diverse and have a commercial and recreational character. | The area's uses are diverse, its users are diverse, and it is the preferred destination for young people, elders, and seniors in the city. |
| **Uses & Activities** | **Hierarchy** | The variety of furniture and aesthetic aspects to encourage pedestrians in the wall. | Trees along the street, lighting poles on two levels and plant beds. | The streets are characterized by gradual street measurements. |
| | **Edges** | Commercial buildings were built on the outskirts of the park. | | |
| | | Position at the parties. | Canceling parking lots and expanding pedestrian sidewalks. | Parking ledges. |
| **Access & Linkages** | **Connectivity** | The Vista Transportation Line provided the park's connection with the city's urban context. | The square is connected to a main street. | Connection with context. |
| | | Guided walkways, intersecting lines for pedestrians. | Easy access with simple configuration and pivoting. | Simplicity of formation and centrality. |
| | **Continuity** | Walkway for people on the top floor of commercial buildings. | Unity of elements used in the square and the main street. | Continuation of the classical plan of the facades and height of the buildings surrounding the square. |
| | **Integration** | The Vista Transport Line connects the square with the city. | The square is connected to an integrated main street within the area. | Integrated with the urban context. |

| | | | | |
|---|---|---|---|---|
| | **Permeability** | Car parking is at the outskirts of the square, and movement is limited to pedestrians only inside the park. | Pedestrian and car traffic influence on the main street. | Pedestrian access from 8 exits and vehicles at the outskirts of the square and the middle street that divides the square. |
| | **Coherence** | The paths are designed in a criss-crossing manner to shorten the access distance and enhance convergence and co-existence to enhance community cohesion. | The square is elongated and connected to the main street. | The square is rectangular and divided into two parts by a main street. |
| | **Centers** | The park is located in the city center. | The square is located in a heritage area. | Central location in the city. |
| **Natural environment** | **Greenery**<br>**water**<br>**Biodiversity** | It contains water, greenery, and a variety of plants. | It contains water and greenery, and the plants vary in color, texture and hardiness. | It contains water, greenery and diversity. |
| **Sustainability** | **Nature conservation**<br>**Materials are recycled**<br>**Energy renewable sources** | Trees that conflict with the development have been moved | Recycling water and using LED lighting and local highly reflective materials. | Sustainability aspects were not taken into account |

The results show that there is a relationship between the dimensions of healthy places and spatial characteristics to form social urban phenomena and enhance activities and events. The design of public places is often directed according to the visible aspects through landmarks and elements, but there are invisible aspects that enhance the identity of the place and help remember the place and make it mentally readable through the sound of the place and the smell. Through the type of flowers or trees or through barbecue places, these aspects help to activate the other senses as sensory stimuli that enhance the connection to the place and enhance the user experience. Social communication is one of the most important vital aspects of public places, and sociability in its intensity is one of the most important factors that improve the psychological and mental aspects and enhance the human need to belong and enhance community cohesion, which is one of the most important health aspects that healthy environments seek to achieve.

The diversity of uses of the neighborhood also enhances the diversity of users, and the economic and recreational activity contributes to the diversity of genders, ethnicities, and age groups that visit public places. This requires providing spatial characteristics that enhance their presence, regulate pedestrian movement, and create nodes at the edges of the

square and make them flexible points of influence into public places, in addition. To provide places for rest and create visual comfort characterized by a hierarchy that does not tire and enhances the human feeling. Therefore, it was found that the continuous use of the TV tower in the park enhanced the continuity of presence and the feeling of security.
In addition, providing advance planning and design for public places, which facilitates visual and physical access without obstacles and facilitates access for users and the continuity of pedestrian flow. Therefore, this factor is considered one of the most important spatial characteristics necessary for the continuity of urban vitality, and the quality of the pedestrian and vehicular transportation infrastructure contributes to enhancing the dimensions of sustainable healthy environments. Moreover, sustainability measures through the use of technology to reduce pollution and damage and preserve nature are among the most important dimensions of the healthy environments that healthy cities seek. The following table shows the extent to which spatial characteristics are achieved in global development projects. Also shown in **Table 3.** It represents a verified sign✓, And the mark is not achieved •.

**Table 2.** Evaluates the theoretical aspect of global development projects.

| Dimensions of health places | Standard (Spatial characteristics of vital spaces) | Secondary indicators | | 1 Hisaya Park | 2 Street Catherine West and Phillips Square | 3 Theater Square in the center of Batna |
|---|---|---|---|---|---|---|
| **Comfort & Image** | Stimulus | Visible | Site elements | ✓ | ✓ | ✓ |
| | | | Texture | | | |
| | | | color | | | |
| | | invisible | sound | • | ✓ | • |
| | | | Texture | | | |
| | | | smell | | | |
| | Legibility | Visible landmarks | | ✓ | ✓ | ✓ |
| **Sociability** | Enclosure | Defining public spaces with a series of buildings | | ✓ | ✓ | ✓ |
| | Safety and Security | Reducing crime, lighting, natural surveillance, cameras | | ✓ | ✓ | ✓ |
| | | Environmental treatments, roofing | | ✓ | ✓ | ✓ |
| | Density | Movement intensity | | ✓ | ✓ | ✓ |
| | Diversity | Diversity of land uses | | ✓ | ✓ | ✓ |
| | | Diversity of paths | | ✓ | ✓ | ✓ |
| | | Diversity of users | | ✓ | ✓ | ✓ |
| **Uses & Activities** | Hierarchy | Diversity of measurements used in visual elements and surfaces | | ✓ | ✓ | ✓ |
| | Edges | Promoting trade (a decade of human activities) | | ✓ | ✓ | ✓ |

| | | | | | |
|---|---|---|---|---|---|
| | | Parking | ✓ | • | ✓ |
| **Access & Linkages** | Connectivity | The connection of space with the urban context is visual and kinetic | ✓ | ✓ | ✓ |
| | | There are no barriers to access | ✓ | ✓ | ✓ |
| | Continuity | Continuity of visual information from elements or interfaces | ✓ | ✓ | ✓ |
| | Integration | The amount of space connection with other spaces | ✓ | ✓ | ✓ |
| | Permeability | Pedestrian permeability | ✓ | ✓ | ✓ |
| | | Permeability of compounds | ✓ | ✓ | ✓ |
| | Coherence | Spatial proximity and amount of contact with the urban context | ✓ | ✓ | ✓ |
| | Centers | Topologically centralized space | ✓ | ✓ | ✓ |
| | | Equity of access | ✓ | ✓ | ✓ |
| **Natural environment** | Greenery | | ✓ | ✓ | ✓ |
| | water | | | | |
| | Biodiversity | Color | | | |
| | | Texture | | | |
| | | Endurance | | | |
| **Sustainability** | Nature conservation | | ✓ | ✓ | • |
| | Materials are recycled | | | | |
| | Energy renewable sources | | | | |

## 6. CONCLUSIONS

Healthy environments are one of the global trends to achieve sustainable cities. Healthy environments can be achieved by paying attention to the physical structural aspect of the built environment. The design and planning process contributes to achieving the general health of the population, and is at two levels: a global level, which is concerned with the quality of the spatial characteristics of the built environment, and a local level, concerned with the user and the visual-aesthetic perceptual aspect of urban environments. The study addressed the importance of public spaces in creating healthy environments and focused on the characteristics of the built environment to promote urban health and vitality. We find that international examples dealt with levels in the first development that focused on transportation, land use, communications, and access to public spaces, and an urban level related to the cognitive aspect, represented by the landmarks perceived by humans (water, greenery, sculptures, urban furniture, human activities) that aesthetically stimulate the passing landscape, which makes the park achieve presence. Shared and social interaction. Paying attention to aspects of the natural environment is a catalyst for improving the spiritual and psychological aspects, which enhances mental health. In addition, the examples

focused on the social aspect and various activities to enhance social cohesion. Modern technologies can also be used to support sustainability through rationalization and reuse of local materials, lighting and other aspects that increase the efficiency of the urban environment. The research indicated several recommendations that addressed aspects of the built environment and others that were societal, design, and environmental, as follows:

• The importance of creating pedestrian-friendly environments contributes to enhancing physical activity and reducing inactivity.

•Encouraging community participation in decision-making processes in urban development projects.

•Paying attention to the design aspect of creating a comfortable and appropriate atmosphere for the user that increases the user's connection to the place and enhances identity.

•Using modern technology to achieve aspects of sustainability in order to reduce environmental pollution and save energy.

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## Credit Authorship Contribution Statement

Sabreen Mohammed contributed primarily to developing the research methodology, as well as analyzing, interpreting and writing up the international projects. Zaynab Radi Abaas provided significant support in analyzing and interpreting the data, drafting and validating the study findings, and providing critical insights during manuscript preparation and editing.

## Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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# الاماكن العامة في البيئات الحضرية الصحية الحية وفق ابعاد الاماكن الصحية والخصائص المكانية للبيئات الحيوية

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**الخلاصة**

تتأثر البنية المادية والاجتماعية للمناطق السكنية الحضرية بالأماكن العامة المفتوحة بطرق إيجابية وسلبية. وتعمل الاماكن العامة كأساس لنمو الحياة الحضرية التي تعزز الأنشطة البدنية والعلاقات الاجتماعية. تناول البحث مشكلة النقص المعرفي بالآليات التي تساهم في تحقيق اماكن عامة صحية وحيوية وفق الخصائص المكانية. وهدف الى تنمية وتحسين الاماكن العامة من خلال معرفة أكثر شمولية بالخصائص المكانية الفاعلة التي تسهم في تعزيز قيمة الاماكن العامة، وافترض البحث وجود علاقة ارتباط بين الخصائص المكانية الحيوية والبيئات الصحية، ولغرض اختبار الفرضية تم تطبيق الإطار النظري المستخلص على نماذج من الاماكن العامة في دول عالمية مثل كندا واليابان الجزائر . واعتمد البحث منهج وصفي نوعي للتحقق من الفرضية. اظهرت النتائج وجود علاقة بين البيئات الصحية والحيوية ساعدت على تقديم ديناميكية لعمل الفضاء الحضري ويمكن ان تعتمد كمسطرة قياس فاعلية الاماكن العامة.

**الكلمات المفتاحية:** البيئات الصحية، الفضاءات العامة، الحيوية، موئل الأمم المتحدة UN–Habitat.