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Investigating the Role and Significance of Sustainable Urban Development in Shaping Citizens' Environmental Behavior: A Case Study of Tehran's 1st District

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ABSTRACT

Background: Urban spaces that are designed in line with the principles of sustainability play a big role in creating green behavior patterns among citizens. This research aims to investigate the position of environmental design and compliance with the principles of sustainability in cities on the environmental model of citizens.

Methods: The research uses a quantitative and qualitative and practical approach. The sample size consisted of 884 people, and data was collected through a questionnaire and analyzed with SPSS software. Also, the UCL Depthmap software and the space layout method were used to evaluate the structure of the spatial configuration, which has a significant correlation with the design of urban residential areas as indicated by previous studies.

Results: The results showed that the highest average depth is related to the main entrance streets to Valiasr Street, Tajrish, and Chamran Highway in Tehran with a numerical value of 3.86, while the lowest numerical value recorded was 0.05. The high level of depth value shows that access to other spaces is done by passing through many intermediate spaces, and these spaces lack a clear and direct connection with each other. As a result, these spaces are characterized by limited movement patterns. Among the factors considered by citizens, the most influential factor was "no urban air pollution", with a coefficient of 0.91, followed by the index of "cleanliness of urban roads" with a weight of 0.86. The lowest weight belongs to the "Urban open spaces" index, which scored 0.59.

Conclusion: In conclusion, the establishment of sustainable urban development indicators can prompt behavioral changes in citizens, leading them to align their behavioral patterns with environmental considerations. Certain indicators, such as emphasizing air quality, implementing effective waste management practices for green spaces and urban parks, and promoting the presence of tourist attractions in the city, are more important compared to other factors.

1. Introduction

Today, the people of the world pay more attention to the protection of the environment and biological resources. This sensitivity has intensified to the point that even the owners of industries are trying to take an effective step toward the acceptability of their products to customers and use environmental considerations as a competitive advantage (Wang et al., 2017). Green and sustainable development plays an important role in this regard. Considering that our lifestyle has a great impact on the environment, choosing a sustainable and responsible lifestyle can help preserve

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natural resources and reduce harmful effects on the environment (Zandi, 2015). This includes economic performance, energy consumption, waste management, conservation of water and soil resources, protection of biodiversity, and use of sustainable transport. By choosing a sustainable lifestyle, we can help reduce air, water, and soil pollution, waste generation, and unsustainable energy consumption (Zakerhaghighi, 2019). Furthermore, such a lifestyle can improve the quality of life for people and society by incorporating green architecture, green space, and renewable energy sources, thereby improving the environment. In general, a sustainable lifestyle plays an important role in green management and sustainable development and makes us respond to our current and future needs as well as environmental requirements. Since humans are at the core of any study, their needs, inspirations, and contributions are the main motivation for scientists and researchers (Zheng et al, 2018). The daily lives of individuals are directly influenced by their surroundings, and regular contact with nature is essential for their mental well-being. People spend most of their efforts, time, and money on renovating and decorating their living spaces, which have a great influence on their owners (Zali & Rahimpoor, 2016). Urban residential spaces encompass the areas and resources used for the residence and daily life of people in cities, and sustainable urban development aims to improve the quality of life in terms of the capacity of the environment and respond to the needs of the current generation (Li et al., 2017). Although sustainable development initially emerged within environmental discourse, it has transcended this realm and now extends to cultural, social, and economic domains. Also, the term "identity" has replaced "culture", leading to the the identification and designation of "cultural neighborhoods" where a "critical mass" of culture-related activities fosters more cohesive and interconnected uses (Mohammadpour et al., 2016). Consequently, urban residential spaces and cultural identity have become two significant factors in shaping cities and communities, as well as fostering sustainable urban development. Therefore, research on "green management and sustainable development of urban residential spaces and identity" is urgently needed today. This research will focus on the mentioned aspects of green management and sustainable development and the role of lifestyle in the design of urban residential spaces (Rahbar Attaran, 2014). Sustainable development in urban design assumes great importance in creating sustainable, livable, and healthy environments for local communities. This approach is used in urban design to improve the quality of life for citizens, preserve natural resources, reduce air and water pollution, increase renewable energy, and create green spaces and water sports in cities (Sarbandi Farahani et al., 2014). Some methods of green management and sustainable development in urban design include the use of public and private green spaces, the establishment of public parks and gardens, the use of smart irrigation systems, and the integration of renewable energy sources. Also, this approach seeks to promote the use of public transportation, create walking and cycling routes, and develop public spaces for recreational and leisure activities (Li et al., 2017 & Ebadzadeh et al., 2021). Green management and sustainable development in urban design require cooperation between different professionals, including urban planning engineers, architects, environmentalists, and urban officials. By implementing this approach, significant improvements can be achieved in the quality of life for citizens, as well as environmental preservation (Yu et al., 2017). The model of green management and sustainable development plays an important role in urban design, especially from the perspective of researchers. This model has been studied by researchers and experts in order to create sustainable and environmentally friendly cities. Through this model, efforts are made to improve environmental, economic, and social factors in city design by using green and sustainable approaches. This model includes the use of green design principles, optimization of energy consumption, protection of water resources, waste management, the creation of green spaces, and the improvement of urban air quality (Li et al., 2017; Rahbar Attaran, 2014). Moreover, this model considers the social and economic needs of citizens. By using this model, cities can experience significant improvements in the quality of life of citizens, environmental protection, and the creation of green and beautiful spaces. This model also guarantees the improvement of the sustainability of cities against economic and social changes. In general, the model of green management and sustainable development from the perspective of researchers in urban design plays an important role in improving the quality of life of citizens and protecting the environment (Zakerhaghighi, 2019; Yu et al., 2017). This research seeks to achieve the importance and role of environmental design by investigating the impact of sustainable urban development indicators on the environmental behavior of citizens. Basically, the research question aims to ascertain the influence of sustainable urban development on citizens' environmental behavior.

1.1 Literature Review

Today, with the increase in environmental issues such as the energy crisis, climate change, waste and destruction of natural resources, and the increase in waste materials caused by the development of urbanization, the effect of man on the environment is one of the most challenging issues that scientific societies are concerned with today. Research on the sustainable development design of urban residential spaces and identity is urgently needed today to explore how places are imbued with personal and social meanings. The environment is closely related to the interests of society, including health and hygiene, whose protection depends on public participation (Sarbandi Farahani et al., 2014; Tehraei Nasrabadi et al., 2023). On the other hand, residential areas have been and are the core of study for a large number of researchers due to their important impact on "individual and social meaning". From that point, this research will focus on "identity" in the design of sustainable development of urban residential spaces from the following aspects: 1- The issue of

gaining control over space in order to feel a positive identity. 2- The matter of using, arranging, or decorating that space to create psychological comfort and reflect personal identity or well-being. 3- Preservation of significant places of the past, so that the sense of control and identity experienced at a younger age is supported by reproducing the essence of a significant past environment. 4- Lifestyle indicators can also have a significant impact on the scientific progress of urban planning. Because people's lifestyle and how they deal with the urban environment determines their demands and needs. 5- Sustainable transportation: Using public transportation, cycling, and walking instead of private cars can lead to a reduction in traffic and air pollution. 6- Green space: Creating green areas and parks in cities improves air quality, lowers temperature, and increases the mental and psychological peace of citizens. 7- Active public spaces using technology: Using technology and creating active and attractive public spaces, such as squares, cultural centers, libraries, and community centers, increase social interactions and information exchange between citizens. These spaces are suitable places for holding conferences, exhibitions, and scientific events and promote scientific progress (Tehraei Nasrabadi et al., 2023). Sustainable development is very important in different periods. Considering the growth of the world population and the ever-increasing needs of humans, it is essential to preserve the environment and optimal use of natural resources (Zali & Abizadeh, 2013). In different periods, green management and sustainable development are carried out to reduce pollution, preserve biodiversity, energy efficiency, and waste management, and protect water and soil resources. In the early periods, more attention was not paid to green management and sustainable development, and it was mainly focused on production and economic growth. However, with the advancement of science and technology and the increase of society's awareness, the need for green management and sustainable development has been given more attention. In contemporary times, green management and sustainable development are known as a comprehensive approach to economic, social, and environmental development (Altman, 2002). This approach includes measures such as using renewable resources, reducing greenhouse gases, preserving biodiversity, waste management, and energy efficiency. Considering the importance of green management and sustainable development, organizations, governments, and international communities try to formulate and implement appropriate strategies and policies to implement this approach. Also, research and technological innovations are carried out to improve green management and sustainable development in future periods (Whyte, 1980). Lifestyles in different historical and geographical periods can be very different. Technology, culture, economy, and other factors can affect people's lifestyle (Whyte, 1980; Mojtabavi et al., 2023). These differences are just an example of the differences between different eras. The lifestyle in Iran is diverse and appropriate to the diversity of cultures, geography, and economic and social conditions of the people. The main focus of this research is specifically on environmental lifestyle. Some common environmental lifestyle patterns in Iran are usually followed by most people. Among the most important aspects that affect people's environmental lifestyle are: family, school and educational system, media,culture, social environment,income level, economy, and macro policies (Lunecke & Mora, 2017; Pakzad, 2009).

1.1.1 Green design and sustainable development in residential spaces

In the design and sustainable development of residential spaces, it is very important to pay attention to various factors such as energy efficiency, waste management, use of natural resources, environmental protection, and the creation of green spaces. Considering these cases, the design and development of residential spaces should be developed to reduce energy consumption, optimal use of natural resources such as light and air, use of clean energy production systems, and the creation of green spaces and parks (Fataei et al., 2022). Also, the use of building materials with the least environmental impact and the creation of healthy and peaceful living spaces for residents should be considered. These approaches are very important in the design and development of residential spaces in order to create a stable and healthy environment for the residents and preserve the long-term environment (Zali & Abizadeh, 2013). Analysis of design variables: 1- Natural environment: weather conditions, topography, plant and animal species, knowing the geographical area, and access to natural resources. 2- Social conditions: communication with people, culture, social behaviors, and characteristics of the population. 3- Economic conditions: financial ability, income, purchasing power, and economic problems. 4- Traffic system: public transportation, access to main roads, and communication with other urban areas. 5- Building environment: location, height, and structure of the building, size, and shape of windows, interior spaces, and lighting. 6- Technology: The impact of technology on the lives of citizens, access to the Internet, communication, and security. 7- Public spaces: parks, squares, neighborhoods, mosques, and schools, spaces where people interact. 8- Laws and regulations: urban laws and regulations, urban order and security, and urban construction system (Nami et al., 2017; Behravesh et al., 2022). Important factors in the formation of sustainable urban development are shown in Table 1. These factors are just some examples of important factors in the formation of green management and sustainable development, and depending on the environmental and economic conditions of each region, other factors may also be effective.

1.1.2 Effective factors in the behavioral setting in the design of sustainable development of urban residential spaces

Behavioral position or behavioral reference is a set of beliefs, values, attitudes, and behaviors of a person or people. Therefore, various factors affect it, the most important of

which are the following: 1- Family: Family is the main environment for a person and it is expected to have very important effects on a person's behavior. Ways of upbringing, attention, affection, and distance along with family behaviors can shape a person's behavior (Lynch, 1984). 2- Peers: Peers can also have a great impact on a person's behavior. The behavior of peers and the way they are treated can affect a person's behavior (Razaghi, 2011). 3- Work environment: The work environment can also have many effects on a person's behavior. People usually pay attention to the people in their work environment and experience their behavioral effects (Kharrat Sadeghi, 2021). 4- Media: The media can have many effects on a person's behavior. Magazines, television, movies, and books can shape the behaviors a person sees in them (Zali et al., 2019). 5- Culture: Culture can also have many effects on a person's behavior. Cultural beliefs, values, attitudes, and behaviors can influence a person's behavior. 6- Past experiences: Past experiences can also have many effects on a person's behavior. Behaviors that a person has experienced in the past can shape a person's behavior in the future (Molt, 2016).

Table 1. Factors affecting the formation of sustainable urban development (Pakzad, 2009)

Parameter	Description
Environmental protection	Green management and sustainable development require attention to the protection of natural resources and reducing environmental pollution. This includes the optimal use of water, energy, and material resources, as well as the reduction of greenhouse gas emissions and the protection of biodiversity.
Sustainable economy	Green management should be associated with creating sustainable economic growth and social justice. This includes the development of green industries, the creation of sustainable jobs, and the equitable distribution of economic benefits.
Public participation	For the formation of green management and sustainable development, public participation is very important. It involves collaboration between the government, private sector, and society. Also, transparency and effective communication with society are necessary to create acceptance and effective interaction with green management.
Education and awareness	Education and awareness in society about the benefits of green management and sustainable development are very important. Increasing awareness about new methods and technologies, promoting sustainable behaviors, and changing consumption patterns can help in the formation of green management.
Support policies	Support policies from the government and relevant organizations play an important role in the formation of green management and sustainable development. This includes encouraging the use of renewable resources, providing financial and tax incentives, setting environmental laws and regulations, and encouraging innovation research, and development.

2. Materials and Methods

2.1 Study area

District 1 of Tehran is surrounded by the southern slopes of the Alborz mountain range to the north, the Chamran highway to the south, the Derke River to the west, and the Guchak forest park to the east. Covering an approximate area of 50 km^2, this district accommodates a population of around 500,000 individuals. It has many shopping centers, tourist centers, forest parks, shrines, and mountain paths, including Darband, Derke, and Tochal. The neighborhoods within the first district of Tehran are: Azgol, Aqdasiyeh, Elahiyeh, Evin, Bagh Ferdous, Tajrish, Darabad, Derkeh, Darband, Zafaranieh, Farmaniyeh, Fereshte, Qaytiyeh, Kamraniyeh, Mahmoudieh, Valenjak, and Niavaran. This area is also called Shemiran and occupies an area of 49.9 Km^2 and a territory of 131.1 Km^2. (Figure 1).

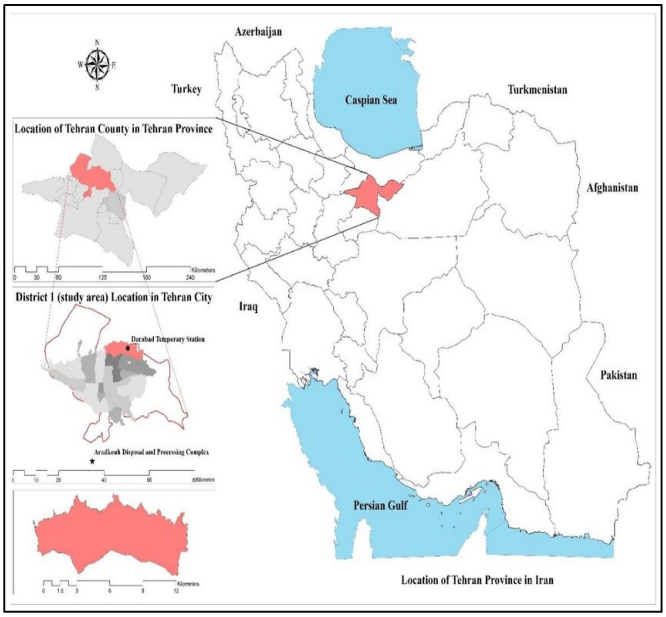


Figure 1. Geographical map of region 1 of Tehran

The research methods are quantitative and qualitative. In the qualitative part, an extensive examination of library documents was conducted to explore the principles and theoretical foundations of urban residential spaces. Additionally, field research and documentary methods were used to gather pertinent information on the existing conditions. Data collection involved using the library method (articles, books, publications, and theses). The subsequent documentation stage relied on field research, enabling the evaluation of research data through scientific and simulation methods. Also, a questionnaire was administered to a group of urban residential space users, seeking their opinions in line with the research objectives. The obtained research data were analyzed using Excel and SPSS software. The questionnaire was developed based on the theoretical foundations of the present research and was sent to a group of university professors and specialists related to the field of urban design. The proposed suggestions were implemented, and any existing ambiguities were resolved. Considering the population size of Zafaranieh neighborhood in Tehran, estimated at approximately 558,000 people, Cochran's formula was used to determine the sample size, resulting in the distribution of 884 questionnaires among the sample

population, with an error level of 5%. It should be noted that the reliability of the questionnaire was calculated using Cronbach's alpha test. The analysis section of the questionnaire involved describing the descriptive findings and frequency of data, as well as performing the normality test, t-test, correlation, and linear regression to compare the variables and explore their relationship. Then, in the second part of the analysis of the findings, the structure of the spatial configuration of the case sample was examined. According to the studies, it was determined that the effects of environmental lifestyle in the design of urban space have a significant correlation with the movement pattern of people in social, cultural, and identity interactions. Designing urban residential spaces is a multiple approach that takes into account different principles and concepts. In this regard, the theory of sustainable urban development serves as a theoretical basis, emphasizing the development of residential spaces through a sustainable lens. The design of residential spaces should pay attention to preventing land loss, preserving water and energy resources, using green technologies, preventing pollution, and creating a local economy (Tian et al., 2019). These ideas and concepts are used as theoretical bases in the design of urban residential space and their goal is to create suitable and high-quality residential spaces that respond to the needs and desires of residents and harmonize with the natural and social environment. Therefore, in order to investigate the structure of spatial configuration, movement, and behavioral patterns of people in a case study, the simulation method of space arrangement was used. The obtained results were presented in the form of mathematical and graphical parameters with descriptive-inferential analysis. Based on this, the UCL Depth map software developed by researchers at University College London was used (Siu & Wong, 2015). The space arrangement method involved initially creating an urban map of the studied area using AutoCAD software. Subsequently, the map file was transferred to the Depth map software, enabling spatial configuration analysis based on variables influencing vitality. The results were presented through mathematical and graphical data, enabling the proposal of suitable solutions for the design of urban residential spaces.

3. Results and Discussion

3.1 Examining demographic characteristics

In this section, the descriptive demographic statistics of the statistical sample are presented to examine the impact of each of the research indicators (Table 2). The findings of the questionnaire show that among the factors affecting the design of sustainable development of residential spaces for spending leisure time, the quality of materials, the absence of holding ceremonies and festivals, and the absence of special symbols and signs that show the identity of region one are the most important Known factors. Also, the factors affecting the design of residential spaces, the lack of proper arrangement of urban design elements, the neighborhood's ridership, traffic, and noise pollution, and the uncertainty of the specific mental image are among the most important problems of the region from the point of view of the statistical community.

Table 2. Demographic statistical chart

Variable	Sort	Frequency	Percent
Gender	Man	678	72
	Woman	206	28
	Ph.D./ Engineer	354	41
	Employee	186	11
	Free	140	21
	Housewife	109	12
	Unemployed	105	15
Age (years)	18 - 24	161	17
	25 - 30	189	22
	31 - 40	338	33
	More than 41	196	28
Education	Diploma	168	18
	Associate Degree	195	23
	Bachelor's degree	211	29
	Master's degree	162	16
	Doctorate	148	14

3.2 Data analysis

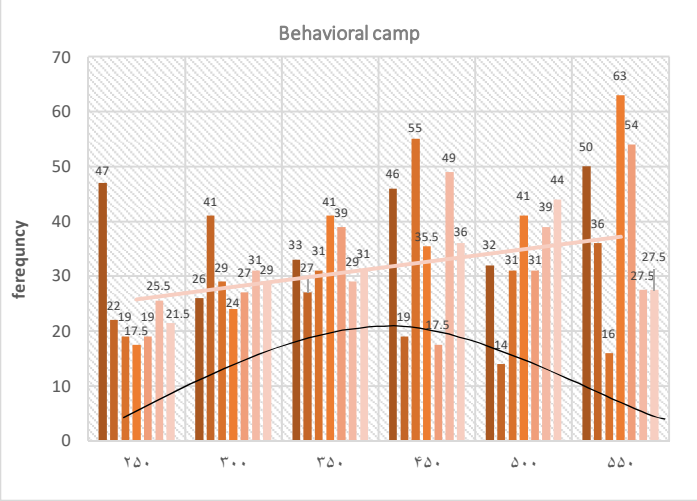
At first, the normality of the data obtained from the questionnaire was measured, which is the background of all SPSS analytical software tests. Based on this, the skewness and kurtosis of the data were measured first (Table 3, Figure 2).

Table 3. Skewness and Kurtosis

Variables	Skewness	Kurtosis
Behavioral camp	0.843	0821
Vitality factors	0.712	-0.417

The results of the normality test show positive skewness for the variables of vitality and behavioral location in region one. Furthermore, the obtained skewness (0.691 & 0.319) falls within the range of -2 to 2, suggesting that the variables are normally distributed. Additionally, the results of the Kolmogorov-Smirnov test indicate that the significance values are higher than 0.05. This means that parametric tests can be used for data analysis. The results of Cronbach's alpha test show that among the 884 questionnaires submitted by the statistical community, 97% of them were reliable. The Cronbach's alpha value for the vitality component in region one was reported as 0.861, indicating good reliability. Similarly, Cronbach's alpha value for the behavioral component was 0.786, suggesting good reliability for this questionnaire as well. An independent sample T-test was conducted to examine and compare the two main components of this research, namely vitality and behavioral attitude. The significance level of the independent t-test was greater than 0.05 and this means that the variances of the two experimental models are equal. The significance level in the post hoc analysis was reported as 0.261. In this analysis, both upper and lower confidence limits were positive. This means that there is no significant difference between the two variables, and factors affecting vitality can be effective in improving behavioral patterns. The correlation between the

two variables is equal to 59%, and the coefficient of determination is 36%. Therefore, the model including vitality controls 36% of the changes observed in the behavioral position, and 64% of the changes in the behavioral position are influenced by other factors. The value of the Durbin-Watson statistic is in the standard range between 1.6 and 2.7. As a result, this regression model is reliable. Thus, it can be said that the mentioned indicators of the model are of acceptable quality. To check the regression model and its linearity, the researcher should refer to the regression analysis of the variance table. If the significance level in the variance analysis is less than 0.05, it shows that the regression model can show changes in the dependent variable. The regression line indicates the number of changes in the dependent variable determined through the independent variables, while the residual line represents changes determined by other random factors. Given the confirmed correlation between vitality and behavioral position, the ANOVA table reveals a significance level lower than 0.05, indicating that the regression model successfully captures the linear changes in the dependent variable and establishes the assumption of linear regression. In terms of the direction of the relationship, correlation analysis suggests a two-way association, without specifying which variable influences the other. To determine the direction of the relationship, the researcher employs regression analysis. In Table 4, the constant value and the coefficient of the independent variable in the regression equation are presented, with a beta coefficient of 0.596. The T-statistic is greater than 1.98, and the significance level is less than 0.05, indicating that the variables are significant. Specifically, vitality positively affects behavioral attitude. Thus, based on the table, the regression equation is as follows: Since the significance level of coefficient B is 0.05, the constant coefficient is not acceptable, and only the coefficient B of vitality is considered acceptable (Table 4).



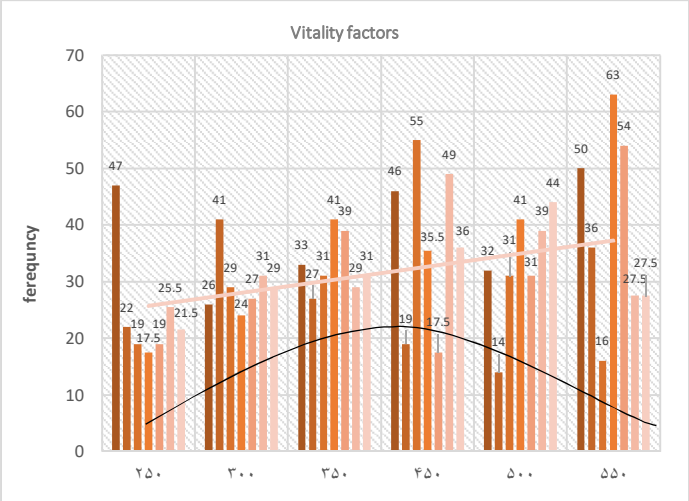


Figure 2. Vitality factors

Table 4. Coefficients between variables and regression

Model	Non-standard coefficient		Standard coefficient	Statistics T	The significance level
	The regression coefficient	Regression criterion error	Beta coefficient		
Constant	1.911	0.153		14.652	0.001
Behavioral camp	0.598	0.54	0.596	15.712	0.001

3.3 Data analysis by spatial arrangement method

The analysis of the spatial configuration of the first district of Tehran revealed that the areas with a connectivity degree of 19 offer the best accessibility. The greater the degree of connectivity of a node means that space has better accessibility. Also, the degree of interconnection in the streets of Region 1 showed that the main axis streets, with a degree of interconnection (4/56) have high spatial integration and continuity compared to other spaces. This means that the main street accommodates the majority of people's movement patterns, resulting in increased security compared to side streets (Figure 3). According to the analysis, the main entrance streets to Valiasr Street, Tajrish, and Chamran Highway in Tehran exhibited the highest average depth, with a numerical value of 3.86 (0.628), while the lowest numerical value was 0.05. The high level of depth shows that access to other spaces requires passing through many intermediate spaces and spaces do not have a clear and direct connection with each other. As a result, these spaces, lack clear and direct connections. Consequently, these spaces witness fewer movement patterns. Correlation tests between the degree of connection and the ability to connect revealed that the main streets of Region 1 possessed a spatial understanding ability of 0.81, indicating high visual clarity. The research employed software analysis, output, and

quantitative data, which are presented in the table below. These data were derived from extensive analyses conducted to assess the spatial arrangement parameters in the first district of Tehran, encompassing minimum, average, and maximum values (Table 5).

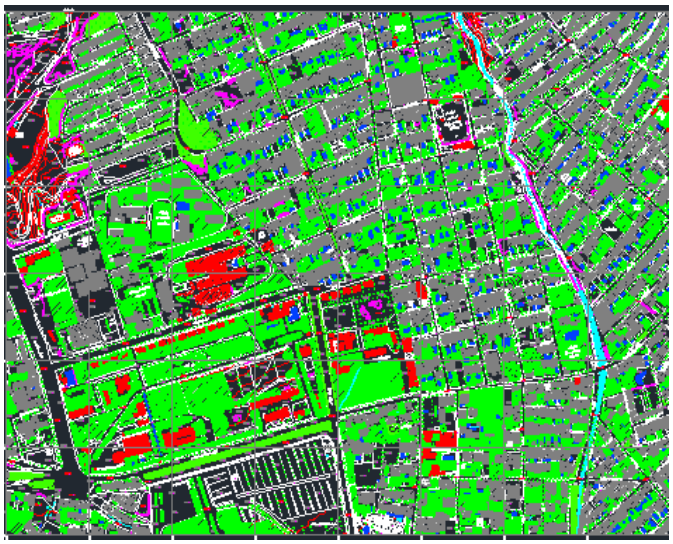


Figure 3. The level of connection and the ability to connect the buildings of the streets of District 1

Table 5. Spatial layout parameters

Dimensions	Connection rate	Linked	Spatial depth	Control	Selection
At least	1	0.43	1	0.005	0
max	19	4.86	3.56	640	4.94
Average	5.08	1.98	2.95	1	38.19

The objective of this research was to provide scientific and practical solutions for improving the effects of lifestyle indicators on the design of sustainable development of urban residential spaces in the first district of Tehran, aiming to maximize the vitality of the area through appropriate interventions. Today, green management and sustainable development in the design of urban spaces are considered one of the most important areas of the manifestation of human identity, culture, and civilization, a suitable platform for finding a comprehensive attitude toward the quality of life of the residents of every society. Therefore, the significance of these factors in fostering vitality, urban dynamism, and enhancing environmental qualities cannot be overlooked. Consequently, it is imperative to elevate behavioral and lifestyle patterns to serve as attractions for social interactions within such spaces. This issue can be examined from several aspects. First, the amount of fuel consumed and the emission of air pollutants are very important. Also, the time people spend in traffic should be taken into consideration. Following a screening process, the final list of significant indicators for sustainable urban development was extracted and presented to the citizens. The results of the questionnaires administered to users are depicted in Figure 4.

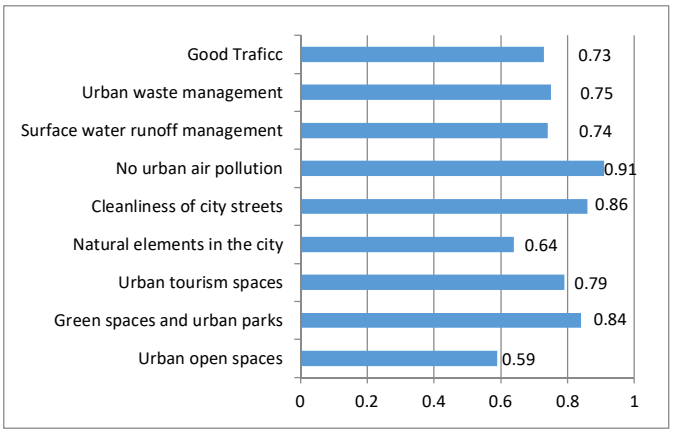


Figure 4. Comparative chart of sustainable urban development indicators from the perspective of citizens

As it is clear from the graph, the most weighted factor from the point of view of citizens is assigned to "no urban air pollution" with a coefficient of 0.91, followed by the index of "cleanliness of urban roads" with a weight of 0.86. The lowest weight belongs to the "Urban open spaces" index, which is 0.59. On the other hand, 62% of the users stated that if all indicators of sustainable urban development are met, their behavior will also follow environmental patterns. Also, 28% of users believed that even if there are indicators of sustainable urban development in their residential area, the degree of influence and occurrence of environmental behaviors will not be complete and comprehensive in their eyes, and the rest of the users also claimed that indicators of sustainable urban development have an impact on environmental behaviors. It will not have citizens (Figure 5).

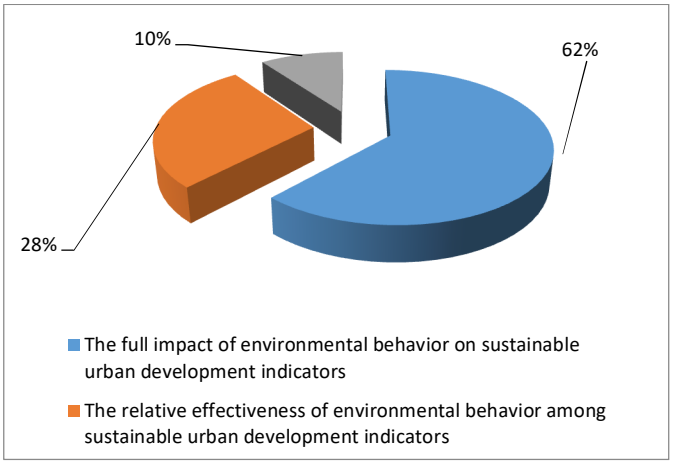


Figure 5. Comparative chart of the influence of environmental behavior of citizens on the indicators of sustainable urban development

The findings of the present research are consistent with the studies of Zandi *et al.* (2015) and Zali and Abizadeh (2013) regarding the importance of urban parks and green spaces on the quality of life of citizens and their satisfaction with the surrounding environment (Zandi et al., 2015; Zali & Abizadeh, 2013; Fataei & Seiied Safavian, 2017). Also, in the type of urban access, the results of this research are

consistent with the study of Li *et al.* (2017). Because the easy access of citizens to urban destinations allows them to be more satisfied and causes less pollution (Li et al., 2017). On the other hand, the findings related to the importance of urban tourism spaces are also in line with the research of Ebadzadeh *et al.* (2021) (Ebadzadeh et al., 2021).

4. Conclusion

In general, it can be concluded that the establishment of sustainable urban development indicators can lead to behavioral changes in citizens so that their behavioral patterns change according to environmental aspects and considerations. Meanwhile, some indicators are more effective. Such as paying special attention to air quality, waste management of green spaces and urban parks, as well as the presence of tourist attractions in the city are more important than other things. The innovation of this research is that, for the first time, in urban studies, it investigated the effect of sustainable urban development indicators on the environmental behavior of citizens.

Authors' Contributions

Mohammadreza Sepehr: Data curtain; Methodology. Ehsan Dorari Jabarooti: Funding acquisition; Methodology. Hero Farkish: Methodology; Writing-review & editing.

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Conflicts of Interest

The authors declare no conflicts of interest.

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Ethical considerations

In the article Mohammadreza Sepehr, which is from the doctoral dissertation code 11148094340462213988162292680 It was extracted, it was not necessary to comply with ethical considerations.

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