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Examination of Open Green Areas in Terms of Human Health and Psychology

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ABSTRACT

Open green areas undertake functions that improve and healing people's living conditions. This research was conducted to understand the role of open and green areas in urban life and to evaluate the contributions of these areas to the quality of life. The study was conducted with people living in Selçuklu district of Konya province. These people visited urban open green areas in Selçuklu district and spent time in those places. The survey method was used in the study. The survey results reveal that open green areas have significant and positive effects on human health and psychology. The majority of the participants stated that they visited open green areas with sufficient frequency and that these areas met both their physical and mental needs. These findings emphasize the positive effects of open green areas on human health and psychology and support the need to protect and increase these areas.

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Introduction

In modern societies, the first planned urban green spaces were created in the 19th century by Frederick Law Olmsted, an American landscape architect, with the creation of the Boston Park System (Özdemir, 2009).

Landscape architects plan and design open green areas. Landscape, defined as "Landscape" in English, "Paysage" in French, and "Landschaft" in German, has a wide scope that expresses all natural and cultural, living and non-living components on earth (Orgin, 1998). Urban landscape, on the other hand, is a three-dimensional composition formed by natural and cultural elements that provide interaction between buildings and spaces that form the basic character of structured areas (Goulty, 1991; Gemici, 2023).

When designing open green areas, concepts of personal space, visual perception, sound and color emerge. Personal space is a small protective sphere or bubble between an organism and itself and others (Hall, 1966) or it is a portable property centered on the human body and surrounded by invisible boundaries (Sommer, 1969). Arnheim (2015) stated that the more organized a visual pattern is and the more clearly it differs from its environment, the greater the chance of easy recognition. Color identification is an event that takes place with the five senses (Mahnke, 1996; Meerwein et al, 2007). And although cities seem to appeal to the sense of sight, in urban spaces, sound has an important place in creating the identity of the space (Tonkiss, 2003; Gemici, 2023).

Open green areas are very important elements in increasing the quality of life. Human beings are born in nature and die in nature. During this life process, people and all living things in the world meet all their physical and social needs from the environments they live in. These environments are primarily a home, workplace, school, public buildings, social facilities and the environment that includes all of these and connects them to each other, and a city that includes this environment (Eraslan, 2008). A city is not just about these environments. However, a city with parks, gardens, green areas and water resources is truly lived in. Open green areas not only beautify the environment and make life attractive, but also add aesthetic value to the city. These areas, which meet the active and passive recreational needs of the people, also play an active role in physical and mental health. Open green areas help develop a strong society and contribute to the development of nature awareness (Yıldızcı, 1982).

In addition to his biological structure, humans are living beings with their own cultural, cognitive and psychological structures. Humans have certain innate

abilities that are closely related to their genetic structure. Humans can develop their biological, cultural, cognitive and psychological structures and characteristics under the influence of their environment (Ridley, 2000; Lewis, 2005).

As a result of research conducted by those working on environmental psychology, it is an accepted fact that living in touch with nature has positive effects on human psychology (Özgüner, 2004).

All kinds of positive or negative factors in the environment where a person lives will affect the growth, development, health and performance of a person, as well as their anatomical, physiological, psychological, cognitive and social structure. In other words, environmental conditions will have a primary effect on whether a person will live a long life happily, healthily and vigorously in every way (Akın, 2014).

Open green areas have an important function in increasing the quality of urban life by balancing and strengthening the relationship between nature and humans. The characteristics of open green areas in developed country cities are one of the determining elements of quality of life and civilization. For this reason, many developed countries determine the urban planning and design process according to the mental, physical and emotional needs of people that will increase their quality of life (Gül and Küçük, 2001).

Although open green areas in urban areas have many functions, their health function is undoubtedly one of the most important functions. The existence, size and balanced distribution of open green areas are important for sustainable, healthy environments and a healthy society in cities. It has been demonstrated by studies conducted by many different disciplines that open green areas contribute positively to the health of individuals and to the healthy environment of the city (Ökde, 2022).

Some studies have indicated that the quality of open green areas in cities has a positive effect on people's physical activity. Ball et al. (2001) and Duncan and Mummery (2005) stated that urban areas with well-maintained, aesthetic and clean green areas positively affect individuals' physical activity levels. Bowler et al. (2010) stated that urban green areas increase individuals' sense of health and happiness. De Vries et al. (2013) revealed the positive relationship between green areas and individuals' mental and physical health in their research (Ökde, 2022).

This research was conducted to understand the role of open green areas in urban life and to evaluate the contributions of these areas to the quality of life. The primary objectives of the research are to analyze the benefits of open green areas in cities by examining their effects on human life and psychology in terms of health, ecology and social aspects. In addition, it provides suggestions for more effective use of open green areas in urban planning and design processes and thus contributes to cities becoming more sustainable and livable. Proper planning, design and management of open green areas can ensure that future generations live in a healthy and safe environment. Therefore, the results of the research can play an important role in decisions to be taken for the development of cities and the improvement of the quality of life. The importance of the research emphasizes that open green areas in urban areas provide important contributions not only in terms of aesthetics or ecology, but also in terms of human health, psychology, well-being and social context. In particular, the psychological benefits of open green areas become evident by helping individuals get away from stress, reduce mental fatigue, increase emotional well-being and improve general mental health.

Materials and Methods

The main material of the research consists of open green areas located in Selçuklu district of Konya province.

In addition to the research area, the following research materials were also used:

- Literature documents consisting of various books, e-books, journals, articles, theses, reports and internet sites on the subject, including domestic and foreign studies,
- Resources related to the research areas obtained from Selçuklu District Governorate, Konya Metropolitan Municipality,
- Survey forms applied to people who use open and green areas, which were originally prepared for the research. This research was prepared by conducting a survey with 294 people living in Selçuklu district of Konya province, Turkiye.

The people who participated in the survey were selected among the people who visit and spend time in urban open green spaces in Selçuklu district. A 5-point Likert scale was used in the survey (Güngör, 2022).

The method consists of 5 stages. These stages are: Determining the purpose and scope, conducting a literature review, preparing and implementing the survey questions, obtaining and analyzing the research findings, and developing the conclusion and recommendations.

In the preparation and implementation of the survey questions, firstly, the survey questions were designed in line with the objectives of the research. Care was taken to ensure that the survey questions were understandable and that the participants could give correct answers. The surveys were conducted through face-to-face interviews. In the process of obtaining and analyzing the research findings, 14 survey questions were prepared using Google Forms and responses were collected from the participants.

Determination of Sample Size

The number of people the survey will be applied to is determined by the formula given below. The population size of the Selcuklu district is 695,771. When this information is applied to the formula below, the sample size is 96. In this case, the survey should be applied to at least 96 people. The number of surveys applied to people using the open-green areas of Selçuklu district is 294 (Newbold, 1995).

$$n = \frac{N_p(1-p)}{(N-1)\sigma_{p_x}^2 + p(1-p)}$$

n = Sample volume
N = Number of the population
σ^2_{px} = The variance of the ratio
p = 0.5 tolerance

Table 1. Reliability Analysis

Reliability Analysis	Values	Margin of Error	Variance Change	Population number	p value	Number of Samples
90%	1.65	0.10	0.0608	695771.0000	0.5000	68
	1.65	0.05	0.0304	695771.0000	0.5000	270
	1.65	0.01	0.0061	695771.0000	0.5000	6.700
95%	1.96	0.10	0.0510	695771.0000	0.5000	96
	1.96	0.05	0.0255	695771.0000	0.5000	384
	1.96	0.01	0.0051	695771.0000	0.5000	9.473
99%	2.58	0.10	0.0388	695771.0000	0.5000	166
	2.58	0.05	0.0194	695771.0000	0.5000	665
	2.58	0.01	0.0039	695771.0000	0.5000	16.252

The reliability analysis of the survey scale used in the study is given in the table below. The reliability of the survey scale was determined as 'good' in the literature scale. The items that make up the survey were found to be homogeneous and related to each other. It was also determined that the test was retractable.

Results

Demographic Characteristics of the Participants in the Survey

Of the people who participated in the survey, 183 (62.2%) were female and 111 (37.8%) were male. 133 (45.2%) of the participants were in the 18-25 age group, 29 (9.9%) in the 25-34 age group, 41 (13.9%) in the 35-44 age group, 64 (21.8%) in the 45-54 age group, 22 (7.5%) in the 55-64 age group, and 5 (1.7%) in the 65 and over age group. 178 (60.5%) of the participants were single and 116 (39.5%) were married. Of the participants, 111 (38%) had completed university education, 141 (48%) had completed high school, 26 (9%) had completed secondary school, 11 (4%) had completed primary school and 5 (1%) were only literate.

Results of the Survey Study

Participants in the survey were asked 14 questions about the "effects of open green areas on human health and psychology." Each question asked in the survey is given below and the findings obtained from the surveys are presented.

To the question "I think the frequency of visiting open green areas is sufficient." 54 people said "strongly agree", 106 people said "agree", 58 people said "undecided", 62 people said "disagree", and 14 people said "strongly disagree".

To the question "I think the activities I do in open green areas meet my physical and mental needs." 113 people said "strongly agree", 134 people said "agree", 28 people said "undecided", 13 people said "disagree", and 6 people said "strongly disagree".

In response to the question "I think access to open green areas is an important factor in urban life." 194 people said they strongly agree, 89 people agree, 7 people are undecided, 1 person disagrees, and 3 people strongly disagree.

In response to the question "I think open green areas are an important factor in people coming together and socializing." 168 people said they strongly agree, 105 people agree, 13 people are undecided, 6 people disagree and 2 people strongly disagree.

To the question "The aesthetic appearance of open green areas is important to me." 181 people said they strongly agree, 89 people agree, 12 people are undecided, 9 people disagree, and 2 people strongly disagree.

To the question "I think spending time in open green areas reduces my stress level." 187 people said they strongly agree, 88 people agree, 12 people are undecided, 3 people disagree, and 2 people strongly disagree.

In response to the question "I think open green areas have a positive effect on my mental health." 177 people said they strongly agree, 98 people agree, 12 people are undecided, 4 people disagree, and 3 people strongly disagree.

To the question "I think that regular walking in open green areas improves my physical health." 165 people said "strongly agree", 104 people said "agree", 13 people said "undecided", 8 people said "disagree", and 2 people said "strongly disagree".

In response to the question "I think being surrounded by nature in open green areas has a positive effect on my mood." 176 people said "strongly agree", 103 people said "agree", 6 people said "undecided", 4 people said "disagree" and 3 people said "strongly disagree".

To the question "I think exercising in open green areas increases my energy level." 147 people said they strongly agree, 100 people agree, 36 people are undecided, 8 people disagree, and 2 people strongly disagree.

In response to the question "I think open green areas increase my general quality of life." 154 people said they strongly agree, 125 people agree, 7 people are undecided, 5 people disagree and 3 people strongly disagree.

To the question "I think spending time in open green areas improves my sleep quality." 124 people said they strongly agree, 107 people agree, 46 people are undecided, 13 people disagree, and 3 people strongly disagree.

To the question "I think spending time in open green areas reduces my worries." 109 people said they strongly agree, 130 people agree, 35 people are undecided, 13 people disagree, and 6 people strongly disagree.

In response to the question "I think spending time in open green areas relieves my depression symptoms." 118 people said "strongly agree", 139 people said "agree", 23 people said "undecided", 11 people said "disagree", and 3 people said "strongly disagree".

Conclusion

Survey results reveal that open green areas have significant and positive effects on human health and psychology.

When the participants in the study were asked about the frequency of visiting open green areas, a large proportion agreed with this statement, but it was also observed that a certain percentage did not agree or were undecided. The participants in the survey also stated that the activities carried out in these areas largely met the mental and physical needs of individuals. The participants, who emphasized that access to open green areas is important, stated that these areas are also important for people to come together and socialize. The number of people who argue that open green areas should look aesthetically beautiful is quite high. The findings stand out that these areas reduce stress levels and positively affect mental health. The majority of the participants in the study agreed that regular walks in open green areas improve physical health and that being in touch with nature is good for mental health. Again, a large portion of the participants in the study stated that their energy levels increased while exercising in these areas and that there were positive changes in their sleep and quality of life. It is seen that the majority of people think that spending time in open green areas reduces anxiety and relieves depression symptoms.

These findings emphasize the positive effects of open green areas on human health and psychology and support the need to protect and increase these areas. Open green areas have significant contributions to physical and mental health, stress management, social interactions and general quality of life. Therefore, more importance should be given to planning and design studies carried out in urban open green areas. Thus, people can use these areas more frequently. Aesthetic and functional requirements should be prioritized when designing these areas. These findings can be supported by different studies by conducting research on this subject on a larger scale.

Recommendations

Based on the survey results, it is possible to make suggestions that include more innovative and different approaches to increase the positive effects of open green areas on human health and psychology.

The integration of art and culture in open green areas can enrich visitors' experiences by adding aesthetic value to the environment. Sculptures, open-air exhibitions, music events and various cultural events can increase the community's interaction with art and culture by taking open green areas beyond being just places for rest and recreation.

The maintenance and safety of open green areas are critical to their sustainability and the safety of their users. Regular maintenance programs should be implemented to keep open green areas clean and safe. Adequate lighting, security cameras and security personnel should be provided to ensure the safety of these areas.

Areas for exercise should be created in open green areas. These areas will have positive effects on both physical and mental health.

It is important to increase the quality of urban life by increasing the variety and functionality of open green areas. Planning and designing different types of open green areas meets the needs of various user groups and provides environmental benefits. Creating multi-purpose areas increases social health and well-being by encouraging social interactions. Sustainable and accessible green space designs make it possible to achieve environmental and human-centered goals.

Open green areas should be designed to appeal to different age and interest groups. They should offer a variety of functions such as sports fields, playgrounds, walking and running paths, picnic areas and recreation areas.

Open green areas should be aesthetically appealing and include natural features, including water features, flower gardens, natural vegetation, and shaded seating areas.

These recommendations aim to maximize the positive effects of open green areas on human health and psychology and to increase the general well-being of society. The protection and development of open green areas will contribute to making cities more livable.

Declarations

Ethical Approval Certificate

The experimental procedures of this study were approved by the Faculty of Architecture and Design Scientific Ethics Committee of Selcuk University. (Approval date and number: 30.10.2024/No: 04).

Author Contribution Statement

All contributions belong to Ruhugul Ozge Gemici.

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