

User satisfaction of residential open and green spaces: Neighbourhood or mass housing?

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Abstract

Neighborhoods and mass housings are important human living environments. Especially in residential open and green spaces, people spend time and interact with each other. The purpose of this study is to investigate and analyze user satisfaction of green spaces in line with quality criteria on mass housing and neighborhood scales. Mass housing and neighborhood samples have been identified to ensure comparison in two sample groups. Within the scope of the study, total 768 surveys were conducted to determine the satisfactions, opinions and suggestions of the users regarding open and green spaces in the neighborhood and mass housing examples. In this context, frequency analysis, independent groups T-test and One-way analysis of variance (ANOVA) and Chi square tests were used based on the groups. Green spaces enhance the quality of life with the opportunities and the benefits they provide to societies. As a result of the study, it is observed that the quality of life and user satisfaction in green spaces are higher in mass housing.

Key Words: User satisfaction, Quality of Life, Mass housing, Neighborhood, Istanbul

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Konut açık ve yeşil alanlarının kullanıcı memnuniyeti: Mahalle mi toplu konut mu?

Özet

Mahalleler ve toplu konutlar insan için önemli yaşam ortamlarıdır. Özellikle konut açık ve yeşil alanlarında insanlar zaman geçirmekte ve birbirleriyle etkileşim halinde olmaktadır. Bu çalışmanın amacı; yeşil alanların kullanıcı memnuniyetinin toplu konut ve mahalle ölçeğinde kalite kriterleri doğrultusunda araştırılması ve analiz edilmesidir. İki örneklem grubunda karşılaştırma yapılabilmesi için toplu konut ve mahalle örnekleri belirlenmiştir. Çalışma kapsamında, kullanıcıların mahalledeki açık ve yeşil alanlar ile toplu konut örneklerine ilişkin memnuniyet, görüş ve önerilerini belirlemek amacıyla toplam 768 anket yapılmıştır. Bu kapsamda gruplara göre frekans analizi, bağımsız gruplar t-testi ve Tek yönlü varyans analizi (ANOVA) ve ki kare testleri kullanılmıştır. Yeşil alanlar, toplumlara sağladığı imkan ve faydalarla yaşam kalitesini yükseltmektedir. Çalışma sonucunda yeşil alanlardaki yaşam kalitesinin ve kullanıcı memnuniyetinin toplu konutlarda daha yüksek olduğu gözlemlenmiştir.

Anahtar Kelimeler: Kullanıcı Memnuniyeti, Yaşam Kalitesi, Toplu Konut, Mahalle, İstanbul

1. Introduction

In cities that grow and spread with population growth and with the effect of unplanned urbanization, living standards and quality of life decrease. Especially in residential areas, irregular construction, decrease in green spaces, unplanned spending of resources, transportation difficulties and increasing difficulty of urban life cause a decrease in the general satisfaction level and quality of life.

The concept of quality of life is an approach that emerges by comparing and evaluating social indicators (Land (1983) categorized social indicators into three groups: i) indicators of health, education, urban facilities and welfare, ii) indicators of social conditions and changes, and iii) satisfaction indicators that include the tendencies and demands of individuals.) and living standards in order to measure the living standards of societies. The concept of quality of life is a dynamic phenomenon that differs from person to person, according to the planned target and criterion and is constantly developing. In quality of life studies, the primary goal is to ensure their lives in accordance with the quality of life criteria in line with the needs of societies and to meet their wishes (Van Kamp et al., 2003; Garb et al., 2004).

The concept of quality of life has been interpreted by people from different professions under many topics such as planning, design and environment and has reached different perspectives. The issues on which researchers have reached a consensus in the conceptualization of quality of life are as follows (Pacione, 1982; Wish, 1986; Felce and Perry, 1995; Cummins, 1999; Rapley, 2003; Lee, 2008).

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- Quality of life consists of the interaction and combination of different aspects of life.
- The interdisciplinary characteristic of the quality of life research field has been defined as the "strength" of the field.
- There is no single definition of the concept of quality of life.
- There is no single indicator used to measure quality of life. Indicators differ according to types.

Studies show that urban quality of life emerges from a combination of urban data and subjective data. In general, quality of life is formed by the collection of the individual's personal characteristics, values and the factors of the entire environment. Quality of life criterias are usability level, culture level, accessibility, education level, population movement, income level, open spaces, safety, comfort, sustainability and livability.

Perloff, who studied the impact of urban environmental formations on the quality of life for the first time, stated in 1969 that the quality of life of individuals living in an urban settlement is formed by the conditions provided by the environment created by natural and human effects. Planning systems are required to improve and suffice the sustainability and livability concepts that depend on urban quality of life. Today, the value of liability is generally community, health, employment opportunities, income status, good residential areas, schools, shopping and entertainment activities, accessibility; and focuses on meeting expectations regarding the concepts of public spaces (Pacione, 2005; Newman and Kenworthy, 1999).

Research on urban settlement focuses on sustainable urban models where urban outdoor and green spaces are spatially effective (Breheny 1992; Haughton 1997; Burgess 2000). Urban open and green spaces provide the citizens breathe, relax, allow them to spend their free time with various activities, live in a healthy environment and help to keep the human-nature relationship alive. Open and green spaces are expected to serve the needs and desires of various age groups, gender and occupational groups of people separately (Kart Aktaş and Çınar, 2018). Urban outdoor green spaces should be accessible areas that are open to the use of all individuals living in that city. Psychology and human relations of individuals who use open green spaces for recreation, spending time, sports, rest and similar purposes are positively affected. Moreover, the urban quality of life in which the city of residence will increase its satisfaction in the individual.

Green spaces are effective in improving the quality of life of their social, psychological and recreational functions and provide physical and mental wellbeing in adults and children (Kabisch et al., 2015; Gozalo et al., 2018; Helbich et al., 2019; Wang et all, 2021). Green spaces are psychologically beneficial because they allow people to relax, rest, spend time together and socialize. Urban green spaces contribute to the development of physical health, mental health and public health, positively affecting the quality of life. Green spaces contribute to the physical health situation through sports areas and activities they host, which are among the recreational functions. At the same time, people spend time in green spaces and stress relieves their mental health and improves the quality of life.

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The green spaces ensure an increase in fresh air, regulate climate conditions and effective use of water and other resources due to their ecological functions. Thus, green spaces are gaining more and more importance as an essential component of green infrastructure that can provide environmental, social and economic benefits. (Donahue et al., 2018; Gozalo et al., 2018; Johnson et al., 2019; Wang et al., 2021). For sustainable urbanization to be a success it is critical to plan and manage urban green spaces in accordance with housing density and user demands (Qureshi et al., 2010a; Qureshi et al., 2010b; Wang et al., 2021). In cases where the use of green spaces is negatively affected, the level of satisfaction decreases and the quality of life decreases. The location of the green spaces, accessibility features, negative physical properties in the green spaces, failure to meet individual expectations, insufficient maintenance and management features are also among the factors that prevent the use of green spaces (Gold, 1972). The use of green spaces in housing and neighborhoods is also affected and changed by these factors. Neighborhoods and public housing are living spaces where people should interact and user needs should be met. So the low utilization rate of green spaces indicates poor quality of life and satisfaction in the residential area.

2. Material

The Küçükçekmece District, Istanbul, Turkey, selected as a study area, is on the European side of Istanbul (Figure 1).



Figure 1: Location of Küçükçekmece District. (Google earth view)

Küçükçekmece District consists of 21 neighborhoods in total. Atakent and İstasyon neighborhoods are designated as sample areas. Atakent neighborhood consists of complex settlements in different concepts with green spaces and recreation facilities. On the other hand, the İstasyon neighborhood has a settlement type with poor green spaces in terms of quality and quantity, and where the number of buildings is low.



Figure 2: Sample areas-Atakent and İstasyon neighbourhoods location
(Produced from Google earth)

According to research conducted, Küçükçekmece is the place where life began in Istanbul. Today, Küçükçekmece district has a large number of industrial facilities. The total population in Küçükçekmece district was 792,821 in 2019. According to 2019 population data, the population in Atakent neighborhood is 98,807, while the population in İstasyon neighborhood is 40,475. While there are mainly private schools in Atakent District, there are public schools in İstasyon District. In Küçükçekmece District, vehicles such as metrobuses, trains, buses, minibuses, taxis, and hail are usually used in transportation. Bus and train transportation from many districts to Küçükçekmece district. Transportation is provided by a minibus in the Atakent and İstasyon neighborhoods located on the study area, and trains and buses are transported from various locations to the district.

The education level of Küçükçekmece district shows that the majority of primary and high school graduates are in attendance. The highest number of graduates are elementary school, high school and undergraduate students; graduate and doctoral school graduates are low compared to others. Open and green spaces in Küçükçekmece district shows that the playgrounds are densely used. Sport areas and neighborhood parks are partially available, while there are few green spaces that are considered urban parks.

3. Methodology

The survey was conducted to measure the satisfaction of neighborhood and mass housing users in green spaces based on quality of life criteria. The minimum number of people to be discussed in the neighborhoods covered by the study is provided by the following formula on the sample size in limited communities (Orhunbilge, 2000; Daşdemir, 2016) is calculated;

$$n = \frac{N \times Z^2 \times p \times q}{N \times D^2 + Z^2 \times p \times q}$$

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Here; n: Sample size, Z: Trust factor (Z=1.96 for confidence level of 95%), N: Amplitude of main mass (N=14,804,116), p: The probability that the desired feature will be in the main mass, q: The probability that the desired characteristic is not present in the main mass (p=0.5; q=0.5 received), D: Shows the accepted sampling error (0.05 received). Sample size according to formula when the population of Atakent Quarter, Küçükçekmece District, for 2019, is 98,807 (Turk Stat, 2019) and İstasyon Neighborhood, 40,475 (Turk Stat, 2019);

$$n = \frac{N \times 1,96^2 \times 0,5 \times 0,5}{N \times 0,05^2 + 1,96^2 \times 0,5 \times 0,5} \Rightarrow n \cong 384$$

Taking into account the population density of Küçükçekmece district, a total of 768 surveys were conducted 384 in Atakent and 384 in the İstasyon neighborhood. The SPSS 22 (Statistical Package for the Social - Statistical Package) program was used to evaluate the data obtained from surveys conducted with residents in the region.

From the research model shown in the Figure 3, the quality of life criteria, standards and the content of the surveys that will measure the efficiency of use have been revealed. Survey forms were created to obtain information about the socio-economic structures of the users, the way they use green spaces, their frequency of use, neighborhood relations, social environment relations and transportation preferences. The questionnaires included questions about demographic features of the participants, questions regarding their satisfaction in the region (home satisfaction, social environmental satisfaction, open and green spaces satisfaction, parking satisfaction etc.) and questions that they could be chosen from multiple options (parking opportunity, irritating factors in the green spaces etc.). In this context, the participants' frequency and percentage distributions that demonstrate their demographic characteristics were determined.

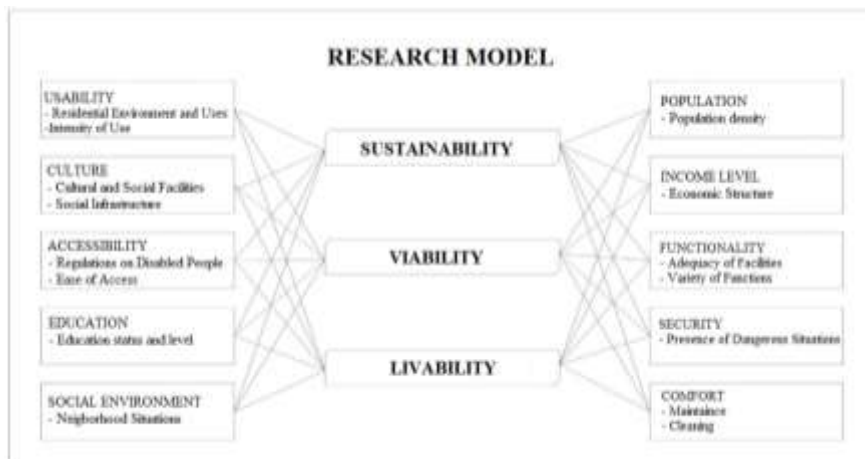


Figure 3. Research model

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The questionnaires were distributed to primary schools for the people living in the region and the students were asked to deliver the questionnaires to their parents. Schools were selected in the regions that appeared in the surveys to cover the sample of mass housing and neighborhood. Considering the population density of Küçükçekmece district, 2 schools in Atakent neighborhood and 3 schools in İstasyon neighborhood were determined and distributed. All surveys were conducted simultaneously to both groups in the period covering October-November-December 2018. Considering the population density of Küçükçekmece district, 2 schools in Atakent neighborhood and 3 schools in İstasyon neighborhood were determined and distributed to meet the required number of surveys. All surveys were conducted simultaneously to both groups in the period covering October-November-December 2018. Questionnaires measuring the level of satisfaction were analyzed by calculating average satisfaction levels as they are ranged in scale. Difference tests and chi-square analysis were performed as part of the statistical analyzes. In particular, the level of satisfaction was tested by differential tests on the basis of sub-groups expressing demographic characteristics. In this context, Independent Groups T-test and One-way Analysis of Variance (ANOVA) were used based on the number of groups.

The other method used in the research is the chi-square test. The chi-square test examines whether the difference between observed frequencies (G) and expected frequencies (B) is statistically significant. Qualified data are used in the chi-square test. The relationship between qualitative variables was researched by a chi-square test (Güngör ve Bulut, 2008). The chi-square independence test examines whether there is dependency between variables measured by two or more class variables. In this context, if one of the variables subject to analysis is not measured by the class scale, a cross-table has been created but a statistical relationship with the chi-square analysis has not been tested. In such cases, striking data is interpreted in the cross tables.

4. Findings

4.1. Frequency Analysis

Demographic information such as gender, age, education, occupational distribution, income status, ownership status showing the socio-economic structure of the participants in the study were asked within the scope of the survey (Table 1).

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Table 1: Demographic Structure

		Site		Neighborhood		Total	
		Number	%	Number	%	Number	%
Gender	Woman	261	73,1%	231	64,3%	492	68,7%
	Man	96	26,9%	128	35,7%	224	31,3%
Age	15-18	3	,8%	0	0,0%	3	,4%
	19-25	15	4,1%	15	4,2%	30	4,1%
	26-40	234	64,5%	243	67,5%	477	66,0%
	41-60	109	30,0%	98	27,2%	207	28,6%
	61 +	2	,6%	4	1,1%	6	,8%
Education	Illiterate	2	,6%	5	1,3%	7	,9%
	Primary education	40	11,1%	146	38,8%	186	25,2%
	University	173	47,9%	50	13,3%	223	30,3%
	Literate	15	4,2%	23	6,1%	38	5,2%
	High school	108	29,9%	149	39,6%	257	34,9%
	Master / PhD	23	6,4%	3	,8%	26	3,5%
Profession	Worker	46	12,7%	85	22,5%	131	17,8%
	Retired	12	3,3%	22	5,8%	34	4,6%
	Housewife	113	31,3%	157	41,6%	270	36,6%
	Unemployed	4	1,1%	2	,5%	6	,8%
	Other	76	21,1%	39	10,3%	115	15,6%
	Officer	40	11,1%	19	5,0%	59	8,0%
	Self-employment	36	10,0%	26	6,9%	62	8,4%
	Artisan	27	7,5%	26	6,9%	53	7,2%
	Student	7	1,9%	1	,3%	8	1,1%
Workplace in the District	Yes	112	36,7%	141	50,0%	253	43,1%
	No	193	63,3%	141	50,0%	334	56,9%
Income status	1.000-3.000 TL	43	12,9%	208	58,9%	251	36,5%
	3.000-5.000 TL	118	35,3%	105	29,7%	223	32,5%
	5.000-7.000 TL	94	28,1%	27	7,6%	121	17,6%
	7.000 ->7,000 TL	79	23,7%	13	3,7%	92	13,4%
Duration of living in Istanbul	0-5 years	24	6,6%	29	7,7%	53	7,2%
	6-10 years	20	5,5%	39	10,4%	59	8,0%
	11-15 years	47	12,9%	54	14,4%	101	13,7%
	16-20 years	47	12,9%	48	12,8%	95	12,9%
	20 ->20 years	225	62,0%	205	54,7%	430	58,3%
Duration of living in the district	0-5 yıl	82	22,8%	72	19,0%	154	20,9%
	6-10 yıl	114	31,7%	78	20,6%	192	26,0%
	11-15 years	81	22,5%	71	18,8%	152	20,6%
	16-20 years	30	8,3%	53	14,0%	83	11,2%
	20-30 years	31	8,6%	57	15,1%	88	11,9%
Duration of Living in the current house	30 ->30 years	22	6,1%	47	12,4%	69	9,3%
	0-5 years	150	41,4%	132	35,4%	282	38,4%
	6-10 years	116	32,0%	97	26,0%	213	29,0%
	11-15 years	68	18,8%	54	14,5%	122	16,6%
	16-20 years	16	4,4%	40	10,7%	56	7,6%
	20-30 years	10	2,8%	31	8,3%	41	5,6%
Ownership status	30->30 years	2	,6%	19	5,1%	21	2,9%
	Own property	179	56,8%	179	48,2%	358	52,2%
	Rent	125	39,7%	149	40,2%	274	39,9%
Residential type	Other	11	3,5%	43	11,6%	54	7,9%
	Apartment	0	0,0%	277	74,3%	277	74,3%
	Detached house	0	0,0%	71	19,0%	71	19,0%
	Slum house	0	0,0%	9	2,4%	9	2,4%
	Other	0	0,0%	16	4,3%	16	4,3%

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4.2. Difference Tests

Difference tests have tested whether the findings on quality of life in terms of variables such as the region where participants live (neighborhood or collective housing) and demographic characteristics show a statistically significant difference. In the binary groups, Independent groups T-tested and one-way ANOVA-tested were used in cases where there were more than two subgroups. Both analyzes were primarily tested for variance homogeneity and different analysis steps were followed depending on whether variants are homogeneous or not. Accordingly, Welch and Brown-Forsythe analysis were used instead of an ANOVA test when variance homogeneity was not achieved.

4.2.1. Satisfaction Levels on Mass Housing-Neighborhood Samples All of the independent T-test results are statistically significant in terms of the satisfaction levels of the neighborhood, the neighborhood and the parks, the features of the parks and the parks, the level of social satisfaction, the level of accessibility they perceive and the reasons for moving home. Accordingly, when the average of the mass housing and the neighborhood is compared, Table 2 shows that the average of the mass housing is significantly higher than the neighborhood average.

Table 2: Satisfaction levels based on mass housing and neighborhood samples.

	Group	Descriptive Statistics			Levene Test for Equation of Variances		T-Test for Equation of Means		
		N	Mean	Std. Deviation	F	Sig.	t	df	Sig. (2-tailed)
Housing environment satisfaction	Mass housing	345	3,7109	,95148	3,782	,052	11,974	673	,000
	Neighborhood	330	2,7958	1,03376			11,952	662,300	
Satisfaction with park features	Mass housing	366	3,5738	1,10010	,210	,647	14,476	716	,000
	Neighborhood	352	2,3996	1,07212			14,483	715,874	
Satisfaction with parks	Mass housing	360	3,1319	1,06742	1,794	,181	12,250	723	,000
	Neighborhood	365	2,1511	1,08811			12,252	722,979	
Social environment satisfaction	Mass housing	361	3,2715	,92627	7,669	,006	8,530	718	,000
	Neighborhood	359	2,6453	1,04045			8,527	707,597	
Accessibility average	Mass housing	355	3,7560	,94275	,871	,351	4,224	708	,000
	Neighborhood	355	3,4439	1,02463			4,224	703,145	
Reasons for moving house	Mass housing	367	3,0821	,84307	7,596	,006	4,820	720	,000
	Neighborhood	355	2,7580	,96149			4,809	701,216	

4.2.2. Sat The neighborhood and mass housing samples were separately examined to determine whether there was a significant difference in gender satisfaction levels. When the neighborhood sample shows whether the levels of satisfaction on different subjects differ significantly in terms of gender variability, it was found that only the accessibility topic makes sense. Accordingly, women find their area more accessible than men (Table 3).



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Table 3: Gender-based satisfaction levels in the neighborhood sample.

Neighborhood Sample	Descriptive Statistics				Levene Test for Equation of Variances		T-Test for Equation of Means		
	Group	N	Mean	Std. Deviation	F	Sig.	t	df	Sig. (2-tailed)
Housing environment satisfaction	Women	196	2,7893	1,04661	,229	,633	-,034	310	,973
	Men	116	2,7933	,96858					
Satisfaction with park features	Women	211	2,4060	1,01496	,592	,442	,290	331	,772
	Men	122	2,3716	1,09023					
Satisfaction with parks	Women	221	2,1931	1,02651	3,396	,066	1,030	344	,304
	Men	125	2,0707	1,12189					
Social environment satisfaction	Women	218	2,6873	,99082	2,668	,103	,825	339	,410
	Men	123	2,5915	1,09797					
Neighborhood dissatisfaction	Women	224	2,6905	1,00068	,009	,926	,189	349	,850
	Men	127	2,6695	1,00789					
Accessibility average	Women	220	3,5243	,96816	2,214	,138	2,150	345	,032
	Men	127	3,2826	1,07509					
Reasons for moving house	Women	212	2,7514	,94326	,262	,609	,552	333	,581
	Men	123	2,6926	,93222					

In the mass housing sample, a significant difference was observed between gender groups in terms of housing satisfaction, social environmental satisfaction and accessibility. Accordingly, women's satisfaction levels were significantly higher than men in all headings (Table 4).

Table 4: Gender-based satisfaction levels in the mass housing sample.

Mass Housing Sample	Descriptive Statistics				Levene Test for Equation of Variances		T-Test for Equation of Means		
	Group	N	Mean	Std. Deviation	F	Sig.	t	df	Sig. (2-tailed)
Housing environment satisfaction	Women	235	3,8257	,93239	,785	,376	3,556	324	,000
	Men	91	3,4124	,96420					
Satisfaction with park features	Women	250	3,6400	1,13333	1,306	,254	1,536	341	,126
	Men	93	3,4337	1,02832					
Satisfaction with parks	Women	246	3,2087	1,10392	,850	,357	1,933	335	,054
	Men	91	2,9524	1,01419					
Social environment satisfaction	Women	248	3,4103	,90467	,101	,751	4,820	337	,000
	Men	91	2,8819	,86559					



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Accessibility average	Women	254	3,8423	,89623	5,392	,021	2,737	345	,007
	Men	93	3,5333	1,02207			2,575	146,861	,011
Reasons for moving house	Women	251	3,1209	,88134	2,358	,126	1,078	343	,282
	Men	94	3,0106	,74285			1,165	196,574	,245

4.2.3. Satisfaction Levels Based on Socioeconomic Structure

ANOVA analysis was conducted to test whether there was a statistically significant relationship between the income status and the reasons for moving home. Variance homogeneity was first tested, ANOVA was applied to variables with $p > .05$ and Welch and Brown-Forsythe tests were performed on non-variants. According to the ANOVA test results, there is a significant relationship between the "presence of green spaces in the environment" and the level of income due to the reasons for moving home. According to the results of the Post Hoc (Tukey and Scheffe) test, individuals with income levels of 5,000 Turkish lira or more have shown that the "presence of green spaces in the environment" has a higher impact on their transportation to their existing homes than those with an income level of 1,000 Turkish lira to 3,000 Turkish lira.

Another article that has significant difference between groups is the "to be close to the mosque". Accordingly, people with income levels of between 3,000 Turkish lira and 5,000 Turkish lira state that the mosque's proximity to the house is more effective than those with an income of 5,000 Turkish lira or more.

ANOVA analysis was conducted to test whether there was a statistically significant relationship between the income status and the reasons for moving home. Variance homogeneity was first tested, ANOVA was applied to variables with $p > .05$ and Welch and Brown-Forsythe tests were performed on non-variants. First of all, an assessment was made based on the general average reason for moving home. Accordingly, there is a significant difference between the groups in terms of the reason for moving home in terms of income levels. Individuals with an income level of 7,000 Turkish lira or more have an average of a higher "reason for moving into the house" than all other groups (1,000-3,000 Turkish lira, 3,000-5,000 Turkish lira and 5,000-7,000 Turkish lira). The aforementioned finding shows that for people with high income levels, proximity to work, access to work, availability of good schools and similar criteria are more effective reasons for moving.

When analyzed by substances, ANOVA test results show that there is a significant relationship between the level of income and the reasons for moving home such as "being close to work," "being easy to access," "presence of good schools," "being a suitable place for shopping, school and other needs," "opportunities to invest in leisure time," "the appealing look of the neighborhood," "the presence of green spaces in the neighborhood," and "being an open space". According to the Post Hoc (Tamhane's 2) test results, individuals with high income levels find the factors that make sense to lower income people as the reason for moving to their home.

4.3. Chi-Square Analysis

A chi-square analysis was used to determine whether there was a relationship between the two variables. The chi-square test tests whether the two variables are independent of each other and allows the interpretation of the cross table obtained if the relationship between the two variables is established. In this study, diagonal tables were created for the binary variables determined, but if at least one of the variables included in the analysis was not measured by the class, the chi-square value could not be obtained. In such cases, the most striking data is interpreted in the cross tables. In this context, some evaluations of the variables with $p \leq 0.05$ values are interpreted below.

4.3.1. Mass Housing Sample

-Functionality x Socioeconomic Structure

The urban furniture that is mentioned to be missing according to age groups within the scope of functionality and socioeconomic structure is cross-checked. It is seen that the participants who stated that they were missing urban furniture in the region where they live were mainly in the 26-40 age group. Garbage boxes, seating groups, and banks are the most common urban furniture that the participants find incomplete. It is observed that all participants in the 15-18 age group state ornamental pools and flowers, while adults in the 41-60 age group find art works and sculptures incomplete, unlike the general trend (Figure 4).

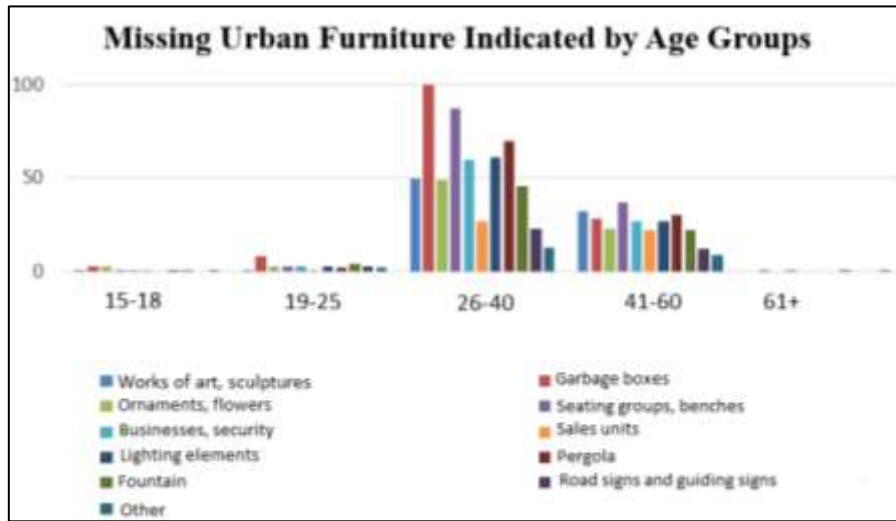


Figure 4: Evaluation of missing urban furniture and age groups.

-Use of the housing environment x Functionality

In the mass housing sample, data on the functional diversity and functionality of the perception and reinforcement elements regarding green space adequacy are cross-referenced. Those who deem the green spaces of the participants inadequate find the reinforcement elements easy to use and accessible in terms of functional diversity. On the other hand, it has been observed that participants who consider the green spaces adequate consider the reinforcement elements easy to use, accessible and of adequate quality (Figure 5).

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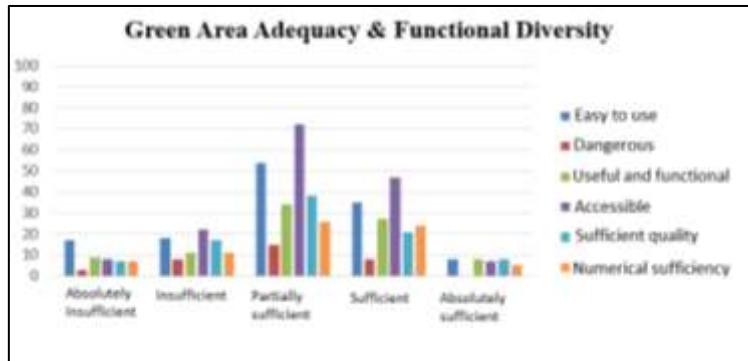


Figure 5: Evaluation of green spaces adequacy and functional diversity.

Functionality x Accessibility

In the mass housing sample, the participants' evaluations on the way they use the parks and accessibility were cross-examined. According to the results of the chi-square analysis, there is a significant relationship between accessibility and the way it is used in the park (Figure 6).

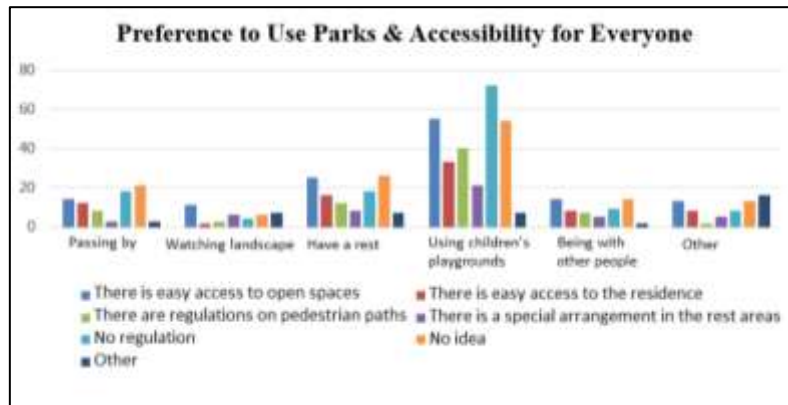


Figure 6: Evaluation of the accessibility factor for everyone with the preference to use the parks.

-Functionality x Security

In the mass housing sample, the reasons for not using a park with the functions requested by the participants are cross-referenced. The most sports areas of the participants who stated that they were not using the park was "unsafe". Participants, who state "crowded" areas, request resting areas and children's playgrounds and sports areas. In addition, participants who state that they use parks most require sports, rest area and playground (Figure 7).

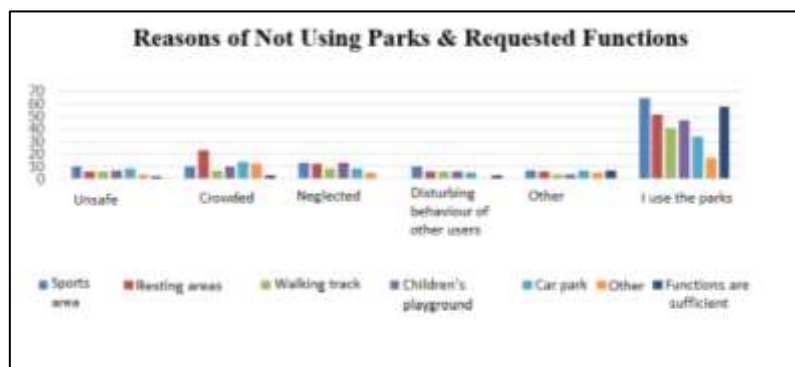


Figure 7: Evaluation of requested functions and reasons of not using parks.

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-Satisfaction Level x Functions

In the mass housing sample, the participants' satisfaction levels with the parks and the functions they indicated on the mass housing were cross-examined (Figure 8). The most frequently mentioned mass housing functions by satisfied and dissatisfied participants are resting areas, parking lots, playgrounds, basketball area and walking path (Figure 9).

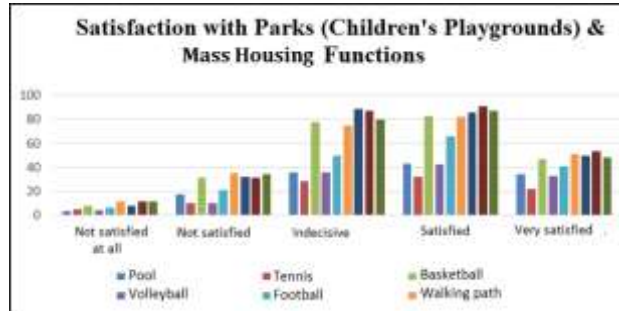


Figure 8: Assessment of existing children's playgrounds with satisfaction from the parks.

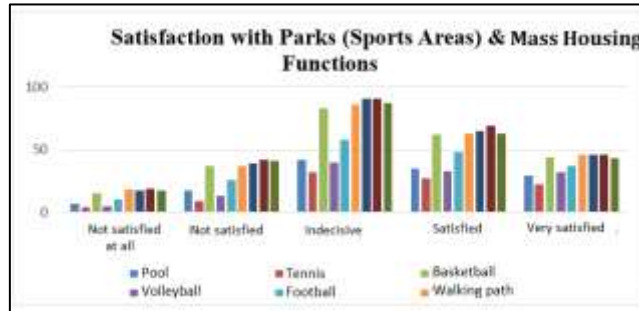


Figure 9: Assessment of existing sports areas with satisfaction from parks

-Transport x Socioeconomic Structure

Within the scope of the study, the income status and transportation problems of the participants were cross-examined. In the mass housing sample, people with an income level of 5,000 Turkish lira and over 7,000 Turkish lira indicated the highest traffic density as a transportation problem. People with an income of between 1,000 Turkish lira and 5,000 Turkish lira complain about the most "waiting for a vehicle" (Figure 8). Another item that participants with an income level of 3,000 Turkish lira or more than 7,000 Turkish lira stated in general is the lack of vehicles and the crowding.

4.3.2. Neighborhood Sample

- Residential environment Usage x Functionality

In the neighborhood sample, the perception of green space adequacy and the data on the functional diversity and functionality of the reinforcement elements are cross-referenced (Figure 10). Those who deem the green spaces of the participants inadequate find the reinforcement elements dangerous in terms of functional diversity. In this respect, it is understood that the users associate the functional diversity of the reinforcement elements with the green spaces adequacy. On the other hand, it was observed that participants who found the green spaces adequate considered the reinforcement elements accessible, easy to use and of sufficient quality.

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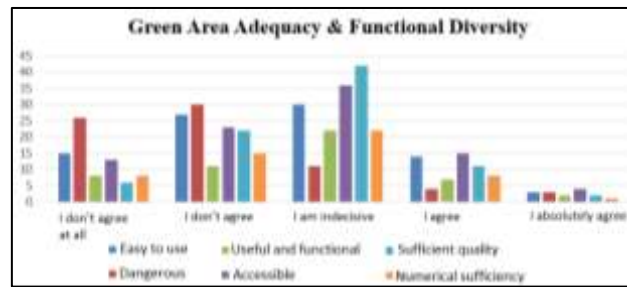


Figure 10: Evaluation of green spaces adequacy and functional diversity.

- Socioeconomic Structure x Functionality

Within the scope of the research, the answers of the participants regarding their age and the street furniture they deemed incomplete were crossed (Figure 11). It is seen that the participants who stated that they were missing street furniture in the region where they live were mainly in the 26-40 age group. The street furniture that the participants mostly stated what they found incomplete are sitting groups, benches, trash cans. On the other hand, adults in the 41-60 age group find pergolas, fountains, and operation and security incomplete, unlike the general tendency.

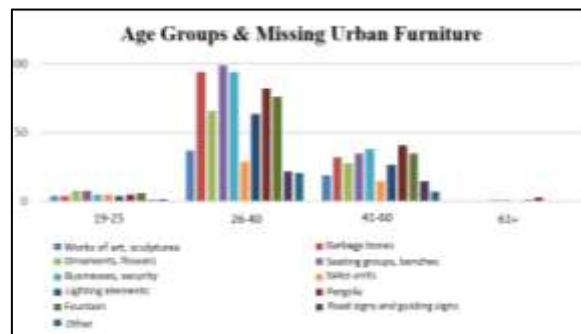


Figure 11: Evaluation of missing urban furniture according to different age groups.

-Functionality x Socioeconomic StructureAs part of the research, the participants' views on the educational status and accessibility for everyone were cross-examined. The most frequently mentioned statement at all levels of education is that there are no regulations or ideas about accessibility for everyone (Figure 12), while the most frequently mentioned information by primary school, high school and university graduates is that there is regulation on pedestrian paths.



Figure 12: Evaluation of accessibility for everyone by education levels

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-Functionality x Security

In the neighborhood sample, the satisfaction levels of the participants with their parking features and their views on the functional diversity of the parks were cross-examined (Figure 13). Accordingly, it is observed that users who do not find the parks safe believe that the reinforcement elements in the parks are 44 percent dangerous and 35 percent find them accessible. Individuals who are unsure about their satisfaction with the parking features find the functional diversity "easy to use" and "accessible" (Figure 14 and Figure 15).

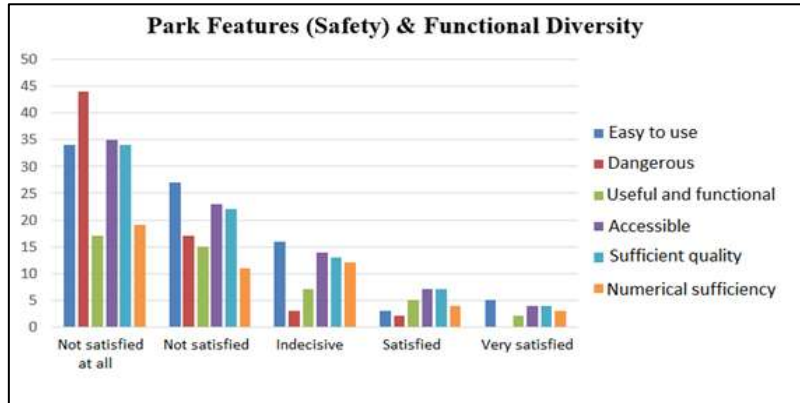


Figure 13: Evaluation of park diversity and safety criteria

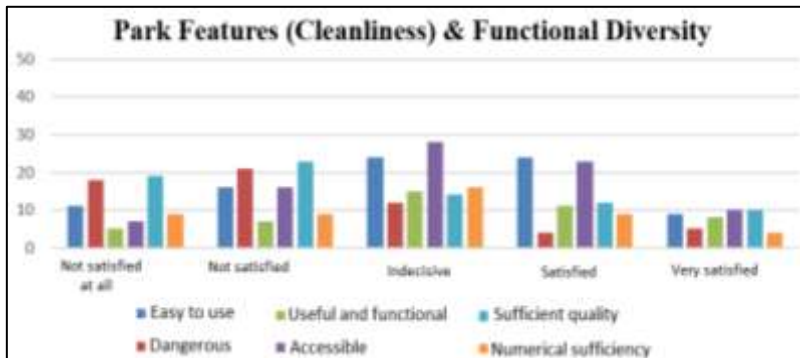


Figure 14: Evaluation of functional diversity and cleanliness criteria in parks.

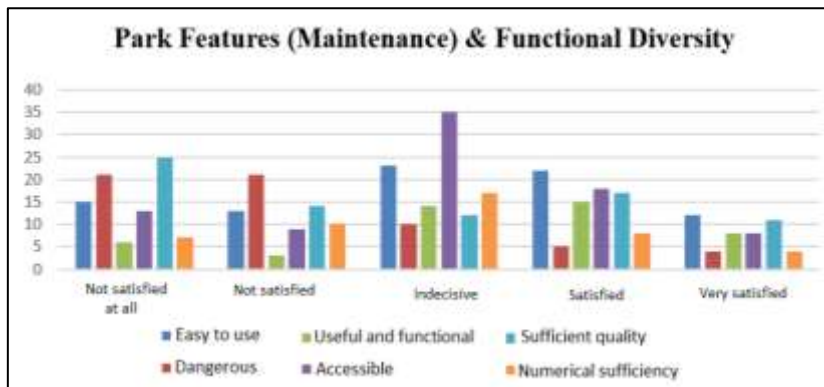


Figure 15: Evaluation of functional diversity and maintenance criteria in parks.

-Transportation x Socioeconomic Structure

Within the scope of the study, the income status and transportation preferences of the participants were cross-referenced. In the neighborhood sample, people with an income level above 5,000 Turkish lira indicated the highest number of private vehicles, buses and minibuses as transportation options. People with an income level of between 1,000 Turkish lira and 5,000 Turkish lira stated that they prefer the most in the minibus and the second in the bus (Figure 15). Participants with an income level of 7,000 Turkish lira and above stated that they used buses and taxis after a private vehicle. In this respect, there is a direct relationship between income level and transportation preference.

5. Conclusion

With an increasing population and urban living conditions, the need for residential areas and urban green spaces is increasing. Some of the studies done to address these needs have efficient results, while others reveal urbanization problems. All individuals living in a city want to live in safer, less problematic and higher quality of urban living spaces. However, they have to shape their choices according to income levels and life standards.

Green spaces in mass housing and neighborhoods provide individuals with recreation opportunities; they also influence their enjoyable time, relaxation, socialization and life efficiency. Thus, quality of life is improved as environmental quality and satisfaction increase. Having the physical environmental conditions at the required standards and improving them in the residential areas ensures that the quality of life is high and sustainable.

The purpose of this study is to investigate and analyze the quality of life in green spaces in line with quality criteria on mass housing and neighborhood scales. Mass housing and neighborhood samples have been identified as regions with two different types of residential areas to ensure comparison in the two sample groups. The survey, analysis, and observation studies used in the study have conducted assessments based on the quality criteria used in the search of quality of life in green spaces, safety and comfort, maintenance, cleanliness, functionality, diversity of functions, competence of reinforcement personnel, accessibility, cultural facility, social facility, social infrastructure, transportation and socio-economic structure.

When the satisfaction levels of the housing environment are compared, satisfaction is higher in the mass housing sample based on the responses given by the participants. The sense of satisfaction around the house focuses on the safety of the residential environment, its attraction, its being a beautiful place to live, and its being a suitable place for walking and raising children in the mass housing sample. While the green spaces of the neighborhood use are partly adequate in the mass housing sample, the neighborhood is perceived as insufficient. In title of green spaces satisfaction, adequacy of green spaces in the mass housing sample is 24.7 % higher than the neighborhood sample. A higher level of satisfaction with green spaces in the mass housing sample has a positive impact on the quality of life.

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When the level of satisfaction with parks is evaluated, it is seen that the satisfaction in the mass housing sample is higher than in the neighborhood. The criteria for safety, maintenance and cleaning have shown that the mass housing sample is satisfied with the cleanliness and safety of the parks, while the neighborhood sample is satisfied with the maintenance feature only at a very low rate. At this point, it must be remembered that the residents of the mass housing sample use the parks on the mass housing. Parking problems and lack of reinforcement are common problems in the use of green spaces in the neighborhood sample. The range of functions and functionality in parks reveals that the mass housing sample is more advanced. In the neighborhood sample, urban furniture and landscaping items such as business, safety, pergola, ornamental pools and flower pools are more lacking. The mass housing sample shows the lack of landscaping elements such as art works and sculptures. Increasing the quality landscaping elements in this sense of aesthetics will make green spaces look better and increase the use.

When transportation problems are examined, traffic density and waiting for vehicles are the most common problems in both samples. Parking deficiency, lack of vehicles and overcrowded areas are more prevalent in the neighborhood sample. Having these types of transportation problems reduces the standards of the living in both samples and reduces the quality of life.

The results of the survey showed that the level of satisfaction among the residents of the complex and the neighborhood was higher. Nevertheless, it has been observed that there are issues such as green spaces, transportation and public transportation that users find problematic. The use of green spaces, the adequacy of green spaces and the notion of green spaces are more widely adopted and valued in individuals in the mass housing sample. Residents stated that they do not need the nearest park outside the complex, that it is parked away and that they do not use it to drive. Based on this, residents will use the protected and safe green spaces near the mass housing.

An analysis of statistical data reveals that satisfaction levels such as housing, parks, parking features and social environment are lower in the neighborhood sample. Residents stated that there were no open and green spaces in the residential areas and that there were no recreation areas around the residential area. Neighborhood settlements must be provided with parking and green spaces immediately. Urban green spaces should be created between the neighborhoods, which are small enough to serve a certain number of households, and which will allow recreation to all settlements outside the neighborhood. Green spaces norms must be ensured to increase the amount of green spaces per person. Thus, green spaces serve the entire city and benefit development.

Those who are parked near the housing community stated that they could not use the park closest to their home because the park was distant and they could not use it because of the user density and that the park was insufficient. The parks must be functional, have sufficient functions and be well-maintained. Residents stated that the parks in the neighborhood, which are few in the neighborhood, do not fit the age group of children. Children's playgrounds in urban areas do not meet the standards and therefore areas must be created immediately for the 0-5, 5-9, 9-14 age groups.

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Two different settlements in Küçükçekmece district, selected as the research area, differ considerably between the socioeconomic structure, recreation opportunities, green spaces usage and awareness factors that determine the quality of urban life. Therefore, the necessary arrangements for green spaces should be made in line with the needs of both residential areas and quality of life should be improved.

Acknowledgement

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