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Usability and accessibility of urban service areas with increasing epidemics: the case of Bursa/Turkey

The effect of urban service areas on the quality of life in the post-pandemic period

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Abstract
The concept of urban life quality, which comes to the fore with urbanization and evaluates the effects of environmental variables on the well-being of the citizens in every respect, is directly related to the quality, quantity, and sufficiency of the urban service areas of the cities. In this study, cultural spaces, open spaces, and green areas in the central district of Bursa are classified as 12 types of urban service areas were examined. Within the framework of the method setup, the existence and distribution of urban services were evaluated within the scope of pre- and post-pandemic conditions, and solution suggestions were developed to increase the quality of life. In this context, it was determined that 47 out of 136 neighborhoods did not have urban service areas, and per capita values were found to be sufficient in only 10 neighborhoods. It is seen that these 10 neighborhoods have more recreational activity opportunities compared to other neighborhoods. The systematic method in the study was created in order to evaluate it as a plan base for physical planning studies in the study area and to shed light on the development of suggestions for increasing the quality of life for each city in general.

Keywords
Quality of life; Urban service areas; Accessibility; Sufficiency.

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1. Introduction

Today, rapid population growth and the expansion of urbanized areas have increased people's access to urban infrastructures, but at the same time reducing the quality of life due to the deterioration of the homogeneity of the components that characterize the city (Rezvani, 2013; Gavrilidis et al., 2016; Zali et al., 2016; Mittal et al., 2020; Weckroth et al., 2022).

The concept of urban quality of life (QOL), which came to the fore with urbanization, is a complex term that can be defined from different perspectives (El Din et al., 2013; Hayek et al., 2015; Marans, 2015; Gavrilidis et al., 2016; Altunkasa et al., 2017). Various studies evaluate the concept of urban QOL with environmental quality, associate it with the social and economic indicators of cities (Buttel et al., 1977; Guida & Carpentieri, 2021), and examine it in the context of the physical possibilities of the city (Massam, 2002; Gaglione et al., 2019; Xie et al., 2020; Mouratidis, 2021), and therefore various definitions of the concept (Abd El Karim & Awawdeh, 2020). The common point of these definitions is the impact and sustainability of the QOL, the objective and subjective variables related to the life and environment of the individual, on social well-being as an integrated. The multi-purpose, safe, accessible, sufficient, and qualified indoor/outdoor spaces and functions that reflect the environmental, physical, psychological, and socio-cultural characteristics of cities are the determining factors in the quality of life of the city (Krasilnikova & Goncharik, 2022).

Urbans are collective living spaces where the population in the cultural land area is concentrated spatially, and the values, traditions and customs, attitudes, and behaviors of this population are formed together and identity is formed (Salama, 2020). Therefore, the QOL is closely related to the potential of meeting the cultural and socio-economic development needs of the citizens, as well as providing contemporary urban and environmental standards in a city (Canfora & Corbisiero, 2014). When it comes to this concept, the most important tools that enable the sustainability of the city and the communication and activities of the citizens are the urban service areas. Urban service areas, which are a key factor of urban areas in terms of urban culture, urban ecosystem, urban landscape, and recreational activities of urban people, also constitute components of QOL.

Therefore, factors such as how people spend their time in a city, which recreation areas they focus on, how they reach these areas, whether these areas can meet the per capita area need of the population around them, and whether efficiency zone create an accessible city by covering the whole city, show the livability of the city (Hayek et al., 2015; Okumuş & Eyüboğlu, 2015; Salihoğlu & Türkoğlu, 2016; Zali et al., 2016; Altunkasa et al., 2017). With the increase in epidemics day by day, there is a need for a change in the planning perspective to increase livability in cities. Transforming urban recreation areas, where individuals will spend their free time in their daily lives, to a more qualified and accessible situation is one of the main priorities of recreation area planning in cities.

According to the study of Gold (1980), Simonds (1983), Marcus and Francis (1998), Dunnett et al. (2002), Watson (2003), urban service areas are divided into three main groups as structural spaces (closed/semi-open structures), open spaces and green spaces. Squares are important open space elements of the urban landscape, apart from the reserve open spaces devoted to the transportation network and the development of urban land uses. Green spaces are: "Parks (urban, district and neighborhood parks) and playgrounds" and are defined with the concept of active green space in the Regulation on the Principles of Planning, which was published in the Official Gazette dated 2.11.1985 and numbered 18,916. In this case, picnic areas, botanical and zoo gardens, which are considered within the scope of green spaces and can be used for recreation, constitute other green spaces other than active green spaces.

Apart from housing, administration, education, health, and commercial areas, cultural space gain importance within the scope of public structural spaces related to urban landscape and cultural recreation. Cultural campuses or cultural centers form the basis of these structures. Spaces such as libraries, museums, theaters, and cinemas are subgroups of these structures.

According to these definitions, cultural spaces, open and green spaces are the areas that the citizens can use at any time of the day to meet their daily recreational needs. For each of these areas, the criteria for total and per capita area size, efficiency zone, and transportation distance vary from country to country. In the physical and mental health development of urban people, the diversity and richness of open and green spaces, as well as cultural spaces, are of vital importance due to their functions in the establishment and maintenance of social relations, in the development of the urban and urbanity, identity and culture, in the context of a wide variety of actions and activities (Boyacıgil & Altunkasa, 2010; Jennings et al., 2017).

The restrictions brought to prevent epidemics in recent years have affected people in every sense, especially physically, psychologically, socially, and economically (Gehl, 2020; Salama, 2020). In particular, measures to reduce the contagiousness of the epidemic, where various restrictions were applied, introduced the concepts of a mask, hygiene, and social distance into daily life, causing people to avoid especially public transportation, sports, and indoor activities (Olivier et al., 2020; Sadiq et al., 2020; Sarla, 2020). With the technical guide published by the World Health Organization (WHO) on moving around during the Covid-19 epidemic, people have turned to individual activities in open green areas instead of indoor and collective recreation activities (Fenu, 2021). Therefore, cities with more open green spaces created areas where people interact less with each other, providing the citizens with the opportunity to move (Özdede et al., 2021). From the beginning of the Covid-19 epidemic, researchers have been investigating the dynamics of epidemic outcomes. The research results highlight environmental quality, transportation, and urban design factors among the four main themes focused on during the pandemic (Fenu, 2021). For this reason, the insufficient amount of open and green spaces has become one of the main problems that emerged in this process, the importance of these areas has been better understood and it has become necessary to consider them in planning and management studies (Eşbah & Eşbah, 2020; Karlı & Çelikyay, 2020; Camerin, 2021). During the pandemic period, it has been observed that people avoid public transportation and prefer individual transportation routes (Mouratidis, 2021). This situation has once again revealed the need for accessible urban service areas in cities (Barbarossa, 2020; Özdede et al., 2021).

When cultural space, open and green spaces are considered in terms of recreational activities of the society, the sufficiency of these urban service areas should be evaluated based on abundance or insufficiency at the neighborhood level and their distance from the user. Even if the total amount per capita reaches the values predicted by the countries in planning or practice, if the balanced distribution and accessibility (pedestrian walking distance/accessibility standards) according to urban units (especially neighborhoods) are not evaluated, the effectiveness of the areas in meeting the needs of the city decrease (Altunkasa et al., 2017). In addition to the fact that any urban service area is large in number or area, its holistic distribution within the city, in other words, its accessibility for every unit (such as a neighborhood) that makes up the city comes to the fore. This feature is the main determinant of the effectiveness of urban service areas (Van Herzele & Wiedemann, 2003; Esopi, 2018).

To ensure the homogeneous distribution of the recreational areas in the cities and to evaluate their accessibility and quality, the connections of these areas should be handled with a holistic approach, and the amount of usage, per capita area and efficiency zone (effective service radius) standards should be taken into consideration (Ender, 2015; Öztürk et al., 2019; Abd El Karim & Awawdeh, 2020). In this context, a theoretical approach has been developed in this study to determine the effectiveness of cultural space, open space, and green space components, which are interrelated concepts that affect the QOL. In the study, the changes in the QOL in the face of the physical and population growth of the city of Bursa were tried to be examined based on cultural space, open space, and green space; With the epidemics affecting the whole world, solution proposals have been developed within the framework of the constantly changing opportunities and preferences of people.

2. Material and Method

The city of Bursa was chosen as a sample area in the study because it is the fourth largest city in Turkey, it is located at the junction of other big cities, and it is also one of the big cities that receive the most immigration. Within the scope of the study, the urban service areas in the settlement pattern of Osmangazi district, which is the largest and most crowded (according to 2022 data) central district among the metropolitan districts of Bursa city, were examined. Osmangazi district, with its surface of 71,400 ha and 136 neighborhoods, is also the center of social and cultural life (Urban Development, 2020). The location of the study area is given in Fig.1.

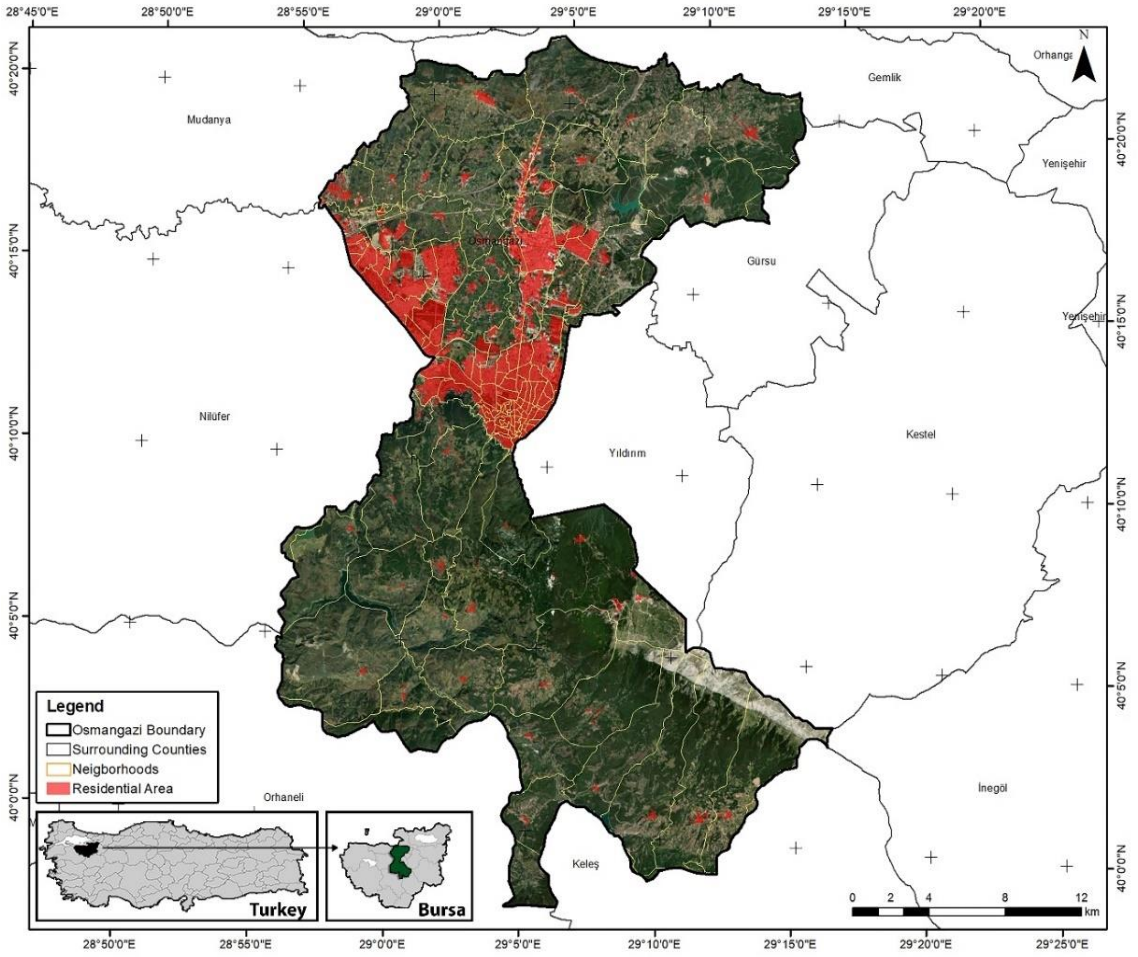


Fig.1 Location of the study area

In this context, the main material of the study is the Osmangazi district and the urban service areas in the settlement pattern of the district. In addition to the main material of the study, satellite images and digital elevation model (DEM) data of the study area constitute supplementary materials. In the study, a total of 12 types of urban service areas, including cultural spaces (museum, theatre, library, cinema, mall), open space (square), and green spaces (zoo, picnic area, urban park, district park, neighborhood park, playground), were examined.

In line with the purpose of the study, a five-stage method setup has been developed to determine the quality, quantity and sufficiency of urban service areas in the study area. The scheme summarizing the method of the study is given in Fig.2 and explained below.

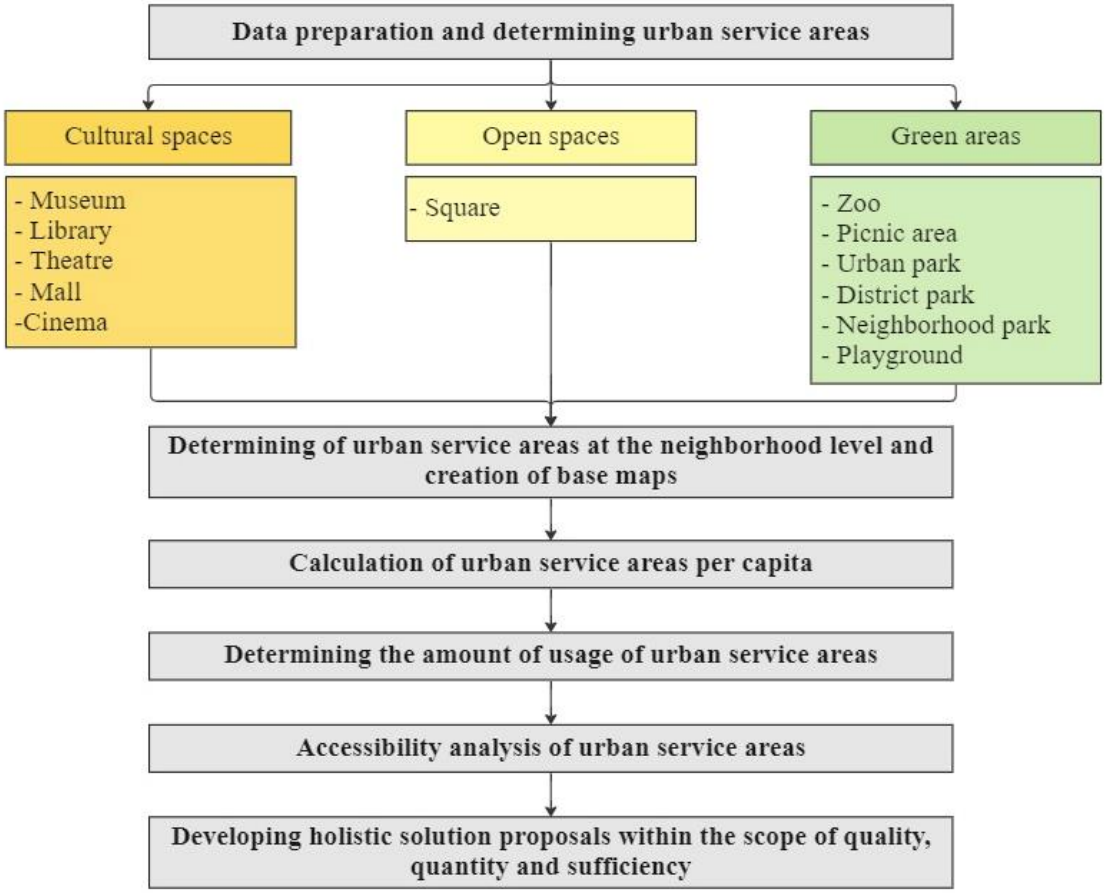


Fig.2 Scheme summarizing the method of the study

- *Determination of urban service areas at the neighborhood level and creation of base maps*
  Within the scope of the study, a field study was carried out, and the data from Google Maps, Cultural Inventory, and Bursa Metropolitan Municipality were used to determine the locations of the urban service areas. (Bursa Shopping Malls, 2021; Immovable Cultural Heritage, 2021; Libraries, 2021; Squares, 2021). ArcMap program, which is an Esri software in geographic information systems (GIS), was used for mapping urban service areas.
- *Calculation of urban service areas (cultural space, open and green spaces) per capita and creation of maps*
  In the calculations, the population data of 136 neighborhoods in the Osmangazi district and the surface areas of the urban service areas were evaluated together. The calculation of per capita areas for cultural spaces and green spaces is based on the criteria given in the "Regulation on the Principles of Plan Making" published in the Official Gazette dated 2.9.1999 and numbered 23804, regarding Urban, Social and Technical Infrastructure. These criteria are summarized within the scope of the study and given in Tab.1.

	Population			
Urban Services	*0-15,000*	*15,000-45,000*	*45,000-100,000*	*100,000<*
Cultural Spaces	0.5 m^2/per	1 m^2/per	2 m^2/per	2.5 m^2/per
Active Green Spaces	14 m^2/per	14 m^2/per	14 m^2/per	14 m^2/per

Tab.1 Urban, social and technical infrastructure criteria summarized within the scope of the study

It is stated that squares considered as open spaces should have two m^2 per capita in their location (Baud-Bovy & Lawson, 1998; Williams, 1995).

- *Determining the amount of usage of urban service areas*

  At this stage of the method, a new formula was constructed based on the total recreational activity formula used by Venter et al. (Venter et al., 2020) and the amount of usage of urban service areas was calculated.

$$A = \frac{\sum_a^n (X_a \times Y_a)}{f} \quad (1)$$

  In this formula, the amount of urban service area usage for each urban service area can be calculated separately and when a is a single urban service area type, X is the number of calibrated users, Y is the area size of the segment (km^2) and f is the activity constant (the number of each urban service area and the effective service area standard for diameter). f is defined as the product of the number of services per recreational activity and the effective service area (accessibility) distance for each type of equipment. The average number of users was obtained from the weekday and weekend counts in the domains. Counts were made in September and October 2019 before Covid-19, and in September and October 2021 after Covid-19. The number of users is indexed between 1-10. The total number of population/users in the district was calculated as 10 and the data obtained from the censuses made in each urban service area were indexed to this number and the value of X was reached. Y represents the total area size of each urban service area in the research area. Values of activity constant f are: 41.6 km for museums, 19.2 km for theatre, cinema and picnic areas, 16 km for libraries, 25.6 km for shopping centers, 3.2 km for zoos, 57.6 km for squares, 19.2 km for picnic areas, 12.8 km for city parks, 7.2 km for the district parks, 59.2 km for the neighborhood parks and 49.6 km for the playground. As a result of this formula, the change in the amount of usage before and after the pandemic will be understood with the effect of the area sizes and service diameters of the urban service area.

- *Accessibility analysis of urban service areas and creation of maps*

  Accessibility distances of urban service areas determined by relevant scientific studies were processed using the Euclidean Distance analysis, one of the Spatial Analysis Tools and accessible buffer zones were created for each urban service area.

  The concept of urban QOL mentions the need for citizens to benefit equally from all public services and urban service areas, thus revealing the importance of the principle of accessibility. Accordingly, in determining the effective efficiency zone of the urban service areas, accessibility standards to these areas were taken into consideration. As a result of the literature review, according to Williams (1995) and Baud-Bovy and Lawson (1998), museum, theatre, cinema, library, mall, square, and zoo urban service areas serve at the urban scale and have an efficiency zone (effective service radius) of 3,200 m; Williams (1995) and (Altunkasa, 2004) stated that the district park serves at the district scale and its effective service radius is 1,200 m. According to Williams (1995), Baud-Bovy & Lawson (1998), Önder & Polat (2012), Gökyer ve Bilgili (2014), Ender (2015), Ender ve Cengiz (2016), the efficiency zone (effective service radius) of the neighborhood park is 800 m; Altunkasa (2004), Khan (2006), Bilgili et. Al. (2011), Gökyer & Bilgili (2014), Aşık & Kara (2021) determined that playgrounds have an effective service radius of 600 m. These standards were used in the study.

- *Developing holistic solution proposals within the scope of quality, quantity and sufficiency*

  Solution proposals have been developed for all urban service areas by considering the efficiency zone (effective service radius) that changes at the urban scale, as well as the amount per capita, accessibility standards, and amount of usage.

3. Results

After the research and analysis, the locations of the urban service areas in the study area are mapped as cultural space (museum, theatre, cinema, mall, library), open space (square), and green space (zoo, picnic area, urban park, district park, neighborhood park, and playground), and given in Fig.3.

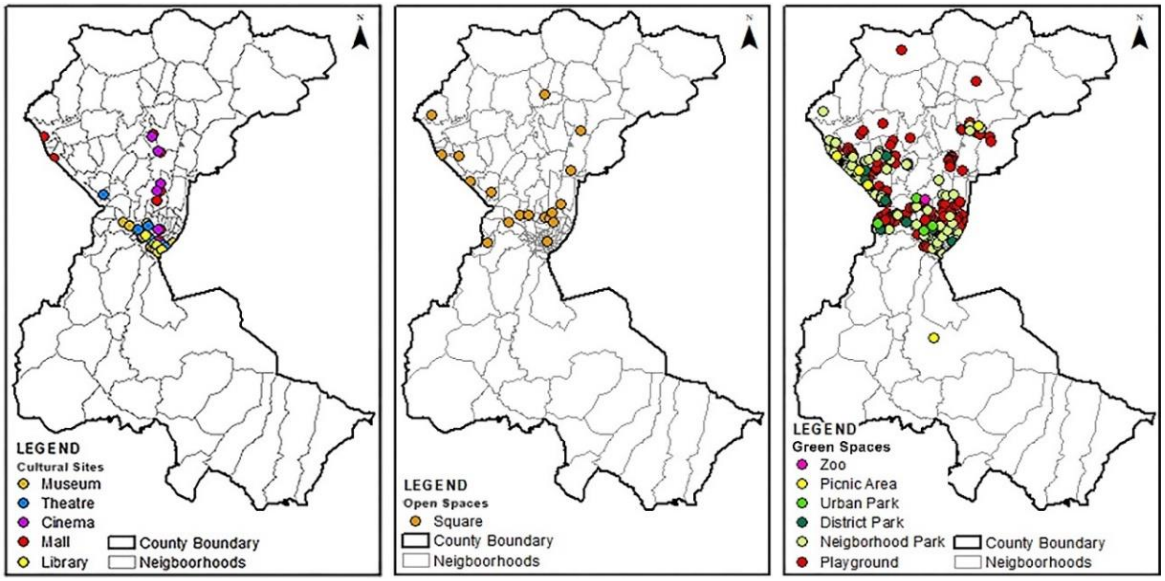


Fig.3 Locations of urban service areas in the district

Osmangazi district is the most populous district of Bursa province with a population of 884,451 compared to 2022 (TUIK, 2022). The population map of the district based on the neighborhood is given in Fig.4.

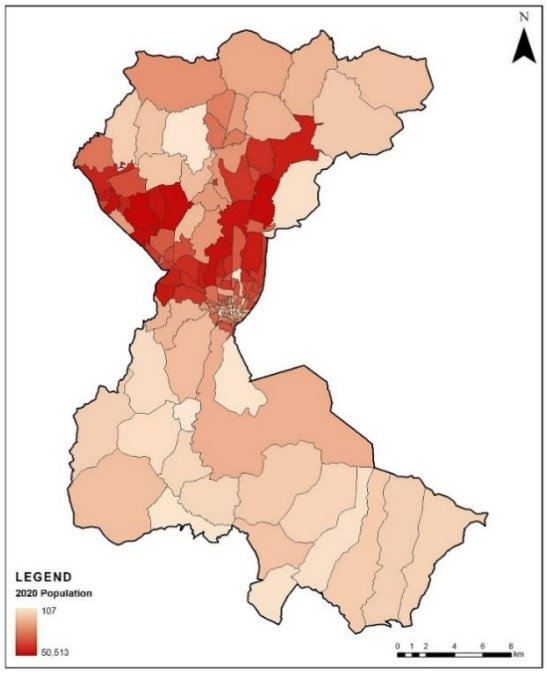


Fig.4 Population map of Osmangazi district on the basis of neighborhoods

The area values per capita are calculated and mapped within the scope of the population data of the neighborhoods and the area of urban service areas and are given in Fig.5. Based on the criteria given for Urban, Social and Technical Infrastructure in the Regulation on the Principles of Planning, published in the Official Gazette numbered 23804, the amount of cultural spaces required per capita varies according to the population of the neighborhood. In this context, according to Fig.4, it has been determined that only 10 of the 136 neighborhoods in the Osmangazi district provide sufficient space for their population.

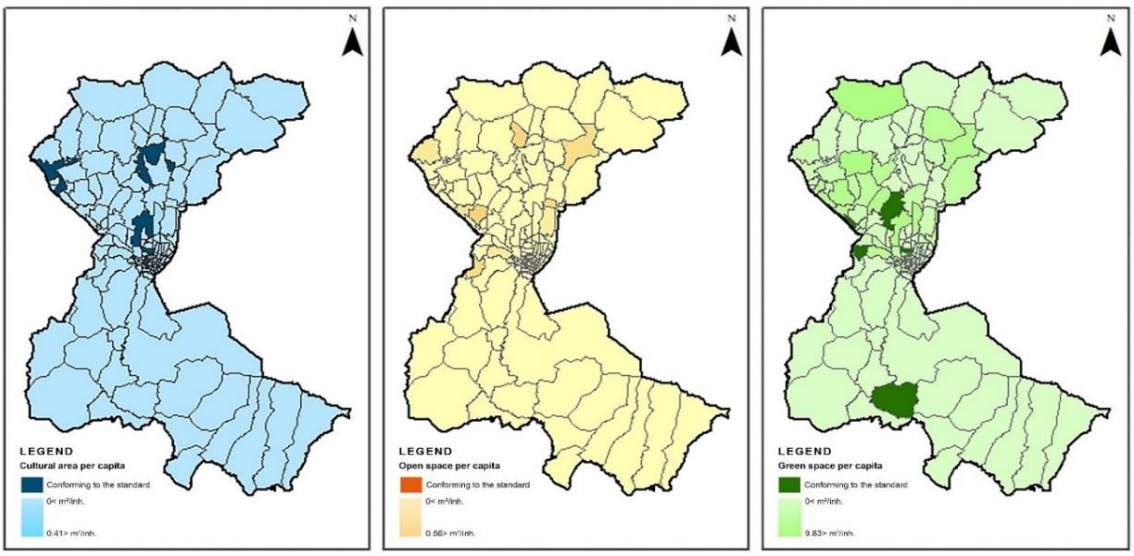


Fig.5 Cultural space, green and open space per capita

Considering the two m^2/person criterion stated by Williams (1995) and Baud-Bovy and Lawson (1998) for squares within the scope of open spaces, it is seen that two neighborhoods in the Osmangazi district of Bursa meet this criterion.

Within the scope of active green spaces, the area per capita does not vary up to 0-100,000 people. According to the regulation, areas with populations between these values must provide at least 14 m^2 of active green space per capita. As a result of the study, seven neighborhoods in the district meet this criterion. When the calculations are evaluated, it has been determined that the cultural space per capita is 1.09 m^2, the open space is 0.05 m^2 and the green space is 2.68 m^2 throughout the district.

The fact that people tend to individual activities rather than community recreational activities during the epidemic has also affected the urban service area preferences. With the formula developed within the scope of the study, the estimated usage amounts of these areas before and after epidemics affect people's lives were calculated. The graph created as a result of the calculation is given in Figure 6. These values represent X in the formula.

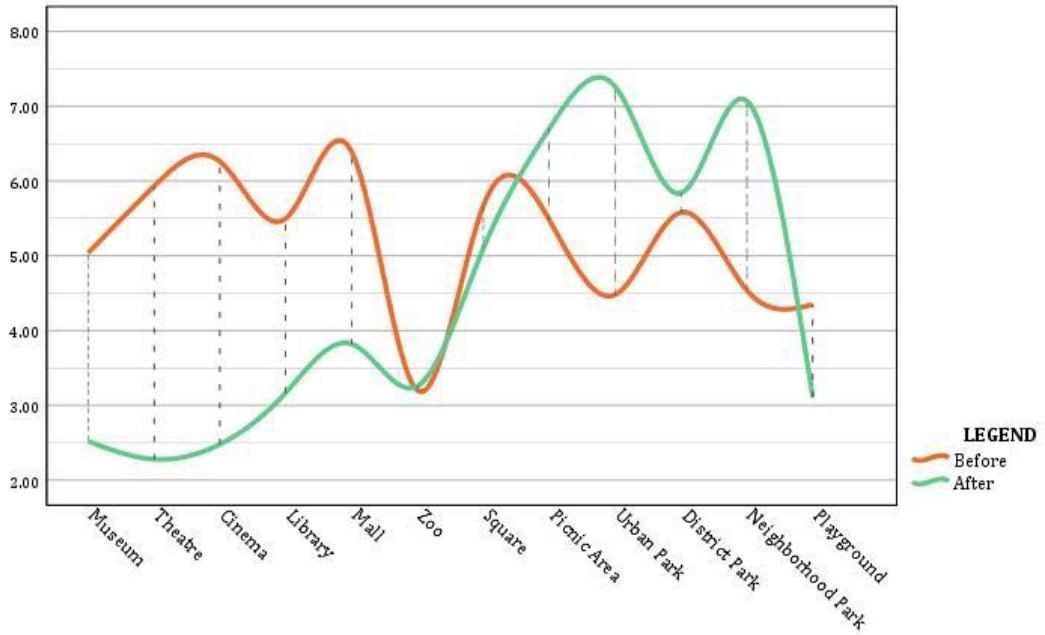


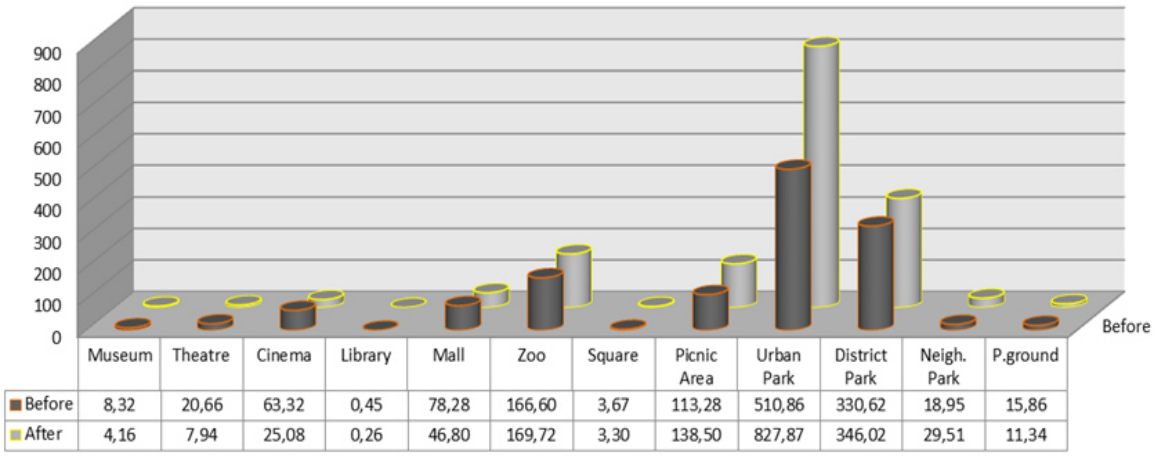
Fig.6 Users numbers of urban service area before and after pandemic (*X*)

The sample calculation for the usage amounts and changes of the urban service area according to the formula determined in the method is as follows:

$$\textbf{Museum usage amount(A)} = \frac{The\ indexed\ value\ of\ the\ number\ of\ museum\ users\ (X)\ \mathbf{x}\ The\ total\ area\ of\ the\ museum\ (Y)}{Number\ of\ museums\ \mathbf{x}\ Effective\ service\ area\ diameter\ standard\ (f)} = \quad (2)$$

$$= \frac{5.04(\mathrm{x}\ 1000)\ \mathbf{x}\ 68.7}{13\ \mathbf{x}\ 3.2} = \frac{346.248}{41.6} = 8.32$$

The same formula was used for all reinforcement areas and the usage amount values were obtained (Fig.7).



	Museum	Theatre	Cinema	Library	Mall	Zoo	Square	Picnic Area	Urban Park	District Park	Neigh. Park	P.ground
Before	8,32	20,66	63,32	0,45	78,28	166,60	3,67	113,28	510,86	330,62	18,95	15,86
After	4,16	7,94	25,08	0,26	46,80	169,72	3,30	138,50	827,87	346,02	29,51	11,34

Fig.7 Usage amounts of urban service area before and after pandemic (A)

According to Fig.6, people's preference for museums, theaters, cinemas, libraries, and squares as cultural spaces post-pandemic decreased compared to pre-pandemic; In addition, it is seen that the preference for green spaces such as picnic areas, urban, district, and neighborhood parks has increased. The preference rates of malls, cinemas, theaters, and squares, which had a higher than average usage rate pre-pandemic, decreased by almost half post-pandemics. The reason is that the restrictions brought during the pandemic process and the concept of social distance are adapted to daily lives and direct people to open spaces rather than indoor spaces.

The concept of accessibility plays a role in the QOL, which is defined with the help of various parameters and supports the creation of livable, sustainable, and healthy cities as a result of ensuring urban and environmental standards. Accordingly, within the scope of the study, the urban service areas were mapped under 3-degree classes by determining the effective service radius standards.

According to Fig.8, it is seen that the distribution of urban service areas is concentrated in the urban settlement areas of the district.

According to the maps, one zone in which uninterrupted access to urban service areas is provided in museums, theaters, cinemas, libraries, zoos, squares, urban parks, and district parks; it is observed that there are three zones in the neighborhood parks and eight zones in the playgrounds.

First, second, and third-degree accessible areas of urban service areas are given in Tab.2.

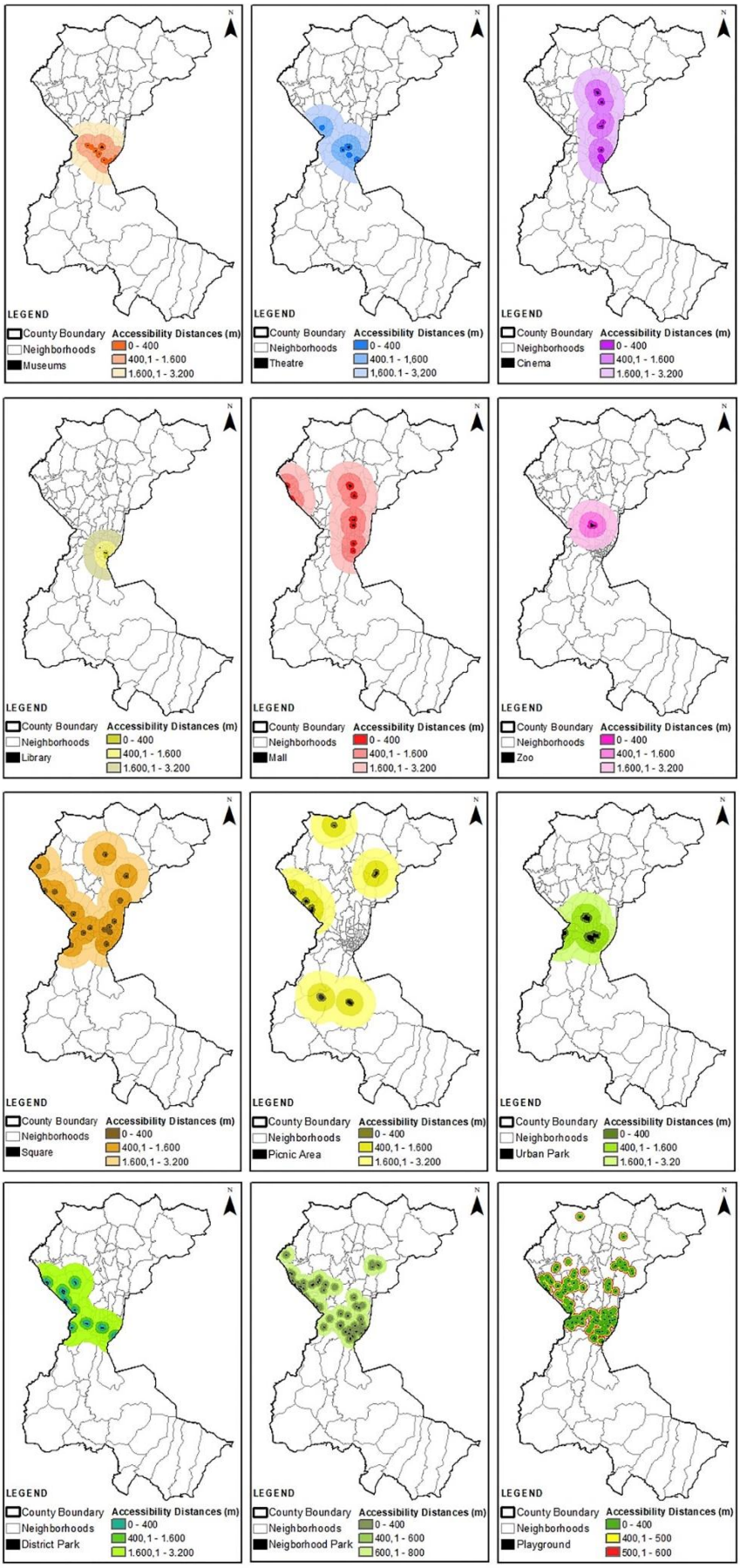


Fig.8 Accessibility analysis of urban service areas

Urban services	Accessibility (ha)		
	1st degree accessible area	*2nd degree accessible area*	*3rd degree accessible area*
Museum	510.58	2,719.4	6,748.06
Theatre	330.07	2,706.95	7,737.72
Cinema	492.39	3,825.54	9,607.95
Library	91.98	982.11	3,579.55
Mall	664.59	5,289.55	10,863.09
Zoo	136.25	1,089.19	3,786.98
Square	935.66	9,713.2	22,408.18
Picnic Area	857.82	7,211.75	21,402.47
Urban Park	700.1	3,785.93	8,641.31
District Park	824.72	2,407.78	4,419.55
Neighborhood Park	2,469.13	4,131.85	5,841.76
Playground	3,891.4	5,093.11	6,184.17

Tab.2 1st, 2nd and 3rd degree accessible areas of urban service areas

The number of neighborhoods in the district where the urban service areas are located, their number, maximum and minimum area sizes, and the neighborhoods where they are located are given in Tab.3.

Urban services	Distribution of service sreas in neighborhoods					
	Number	*Number of neighbordhood*	*Max. area (ha)*	*Neighborhood*	*Min. area (ha)*	*Neighborhood*
Museum	14	10	5.11	Santral garaj	0.02	Muradiye
Theatre	7	6	0.28	Alacamescit	0.03	İstiklal
Cinema	8	8				
Library	5	5	0.16	Şehreküstü	0.01	Osmangazi
Mall	8	8	15.2	Demirtaş Dumlupınar	0.59	Şehreküstü
Zoo	1	1	20.6	Soğanlı		
Square	19	19	1.295	Nalbantoğlu	0.324	Kemerçeşme
Picnic Area	8	9	18.722	Çağlayan	1.354	Gündoğdu
Urban Park	4	4	51	Hüdavendigar	25.25	Santral garaj
District Park	10	9	11.29	Soğukkuyu	1.04	Doburca
Neighborhood Park	75	40	1.868	Pınarbaşı	0.237	Gülbahçe
Playground	131	52	0.681	Zafer	0.008	Kırcaali

Tab.3 Neighborhood, number, maximum and minimum areas of urban service areas

In line with the data obtained, in Fig.8, the location of the urban service areas created by evaluating the QOL in all aspects, both qualitative and quantitative, was determined and mapped.

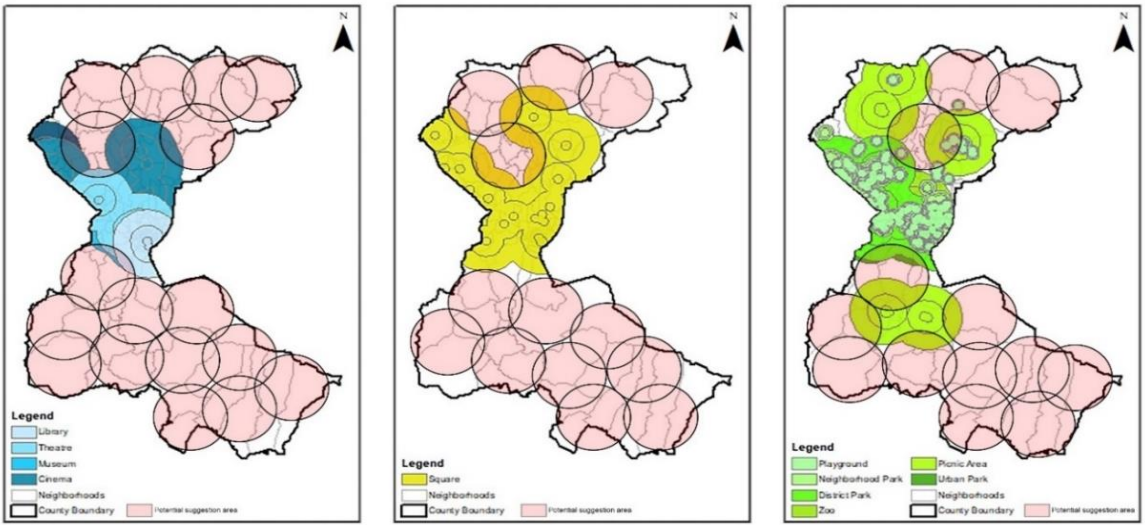


Fig.9 Potential proposal areas to increase accessibility and usability

4. Discussion and conclusion

Today, it is known that more than half (55%) of the 7.8 billion world population live in cities. When the projections for the future are examined in the studies, it is seen that the population is expected to reach 8.9 billion by 2050 (Mazzeo, 2016; Jennings et al., 2017; Ritchie & Roser, 2018) As a result of the rapid population growth in cities, urbanization has caused a deterioration in the distribution of the components that characterize the city, reducing the QOL, which is a measure of people's life satisfaction and social well-being in the city (Bhattarai & Budd, 2019; Bhatti et al., 2017).

Within the scope of the study, urban service areas, which play an important role in the concept of QOL, were evaluated at the neighborhood scale within the framework of the method setup consisting of five-stages.

In studies conducted by different researchers with different methods, various factors that play an important role in the QOL have been determined. Ülengin et al. (2001) conducted a survey-based study to determine the priorities, expectations, and needs of the citizens living in Istanbul and to improve the QOL and examined recreational areas, cultural services, and green spaces. Zlender & Thompson (2017) compared the green spaces preferred by the citizens in two different cities which have similar sizes but opposite green space strategies, and as a result, they determined that the most important effect on the QOL is accessibility. Li (2020), on the other hand, studied urban parks in three different cities and emphasized that QOL is directly related to population and behavioral variables. Van Herzele & De Vries (2012), tried to examine the sufficiency of green spaces and their effects on the health and well-being of the residents, based on a survey, in two neighborhoods with similar social and environmental characteristics such as population, socioeconomic factors, and housing conditions. In their studies, the presence of green space and especially its sufficiency is the most important factor in the QOL of the citizens. In this study, 12 different urban service areas, classified as cultural space, open space, and green spaces, aimed at improving the QOL, were evaluated within the scope of their quality, quantity and sufficiency. In this evaluation, it was emphasized that the amount of usage of each urban service area is important as well as the per capita areas.

Within the scope of the study, the per capita areas of the urban service areas were calculated at the neighborhood scale and their sufficiency was determined by analyzing their accessibility. Güngor & Polat (2017), in their study, surveyed to determine the current qualifications and sufficiency of urban parks in Konya. In the study of Çetin (2015), the presence and amount of green spaces in Kütahya and the distribution of green spaces at the neighborhood scale were evaluated within the framework of accessibility and per capita area. Altunkasa et al. (2017) determined the areas per capita at the neighborhood scale to determine the effectiveness of green spaces and socio-cultural facilities, used the distance-based method to estimate the

effectiveness of these areas, and as a result, a base map was obtained for the development of the areas that were found to have a non-homogeneous distribution. In this study, cultural space, open and green spaces per capita were calculated in each of the 136 neighborhoods in the Osmangazi district, which were determined as the study area within the scope of the sufficiency of the urban service areas, and effective service radius and accessibility analyzes were made by considering the walking distance of these areas. In this context, the aim is to evaluate the m^2/person values of the urban service areas together with accessibility.

Mouratidis (2021) examined how the COVID-19 pandemic, which has affected the whole world since 2019 and caused various environmental, psychological, social, and economic changes as well as people's habits and preferences, affects the urban QOL. For this purpose, seven different factors were evaluated: travel, entertainment, work, social relations, housing well-being, emotional reactions, and health. In this context, improvement studies on these seven factors aimed at improving the QOL under pandemic conditions today and under normal conditions in the future have been shed light on. Gehl (2020) revealed surprising results on the use of public urban service areas with an online study of 2023 people from different countries over a 10 days in April 2020, during the COVID-19 pandemic. According to the research, which is defined as preliminary research, 35% of the participants stated that they never used the urban service areas except for compulsory work during the pandemic. In this study, people's preferences for urban service areas were calculated with a mathematical formula before and after the pandemic. In addition to these calculations, urban service areas with decreasing and increasing usage amounts have been determined, and the effects of these areas on the QOL have been determined within the framework of the method setup, and potential proposal areas have been developed to increase their quality, quantity, and sufficiency.

The importance of green spaces has been understood with the awareness of people that they can spend time safely in open green spaces. Today, there has been a tendency towards green spaces, especially in cities that have been built with the increase in population, and sometimes these areas have been insufficient to meet the needs of the population. In the before and after epidemics comparisons, it was determined that these orientations were mostly toward urban and neighborhood parks. In addition to these, the zoo, picnic area, and district park green spaces have become the areas that people prefer more for their recreational activities. However, playgrounds faced a decrease in the amount of usage compared to the pre-pandemic. The reason is the assumption that parks especially for children have common ground, which is thought by parents to result in increased contagiousness (Ahmad & Istighfari, 2021; Alizadehtazi et al., 2020; Noël et al., 2021; Volenec et al., 2021). But beyond this thought, the importance of parks in terms of the physical and mental health of children, as well as their play and learning development, especially during the pandemic period, cannot be denied (Ender Altay et al., 2021; Goldfeld & Sewell, 2021; King, 2021).

The amount of usage of the urban service areas is directly related to the interaction with the immediate surroundings and the easy accessibility. If an urban service area can meet the needs of the population within the boundaries of the neighborhood where it is located and easy access to this area is provided, the amount of usage in the urban service area will increase in direct proportion to these features.

The least complicated and standard way to understand whether an urban service area is sufficient for its environment is to calculate the amount of urban service area per capita, defined as m^2/person (Gerçek & Güven, 2017). However, besides the concept of quantitative sufficiency, accessibility has an important role in determining the qualitative sufficiency of the urban service area.

Euclidean distance analysis was used in mapping the accessibility in the method setup of the study. This analysis approximates the standard-based effective service radius of the urban service area based on bird flight. But in reality, it is known that users cannot travel in straight lines, their movement distance will always be greater than the bird's flight distance. In addition, this analysis assumes that the urban service areas are accessible along their borders. In further studies, the accessibility analysis should be mapped by calculating the movement distances of the users over the walking routes.

In the study, it is necessary for physical planning studies to create cultural space, open and green space maps, to determine the effective presence in the neighborhoods, to examine and compare their distribution at the neighborhood level, to consider the amount of usage this area in today's pandemic conditions in the urban service area proposals. In this respect, the study is considered important with the potential of systematic data obtained to form a basis for planning studies.

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Image Sources

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