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The perception of public space of the elderly after social isolation and its effect on health

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**A B S T R A C T**

Ongoing life in public spaces where people from all ages and segments of society interact, is a lifestyle especially in Mediterranean societies. The question of how and in which direction the importance of public spaces in our lives will change after the Covid 19 pandemic has formed the starting point of this study. With this study, it was aimed to analyze the location of public spaces especially in the lives of users over 65 years of age and to predict how and in what direction this place will change. In this context, a survey was conducted with 68 people over 65 years of age between when the curfew to this user group was approved. As a result of the study, it was observed that the prevention of the use of public spaces, which constitute a large place in their lives, highlighted their need for these spaces. And those who participated in the questionnaire were evaluated these spaces as the most important places where they would never regret after the pandemic. The study also discussed the measures to be taken and new approaches in urban areas despite the risk of a pandemic.

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1. Introduction

The individual maintains his socio-cultural life in public spaces with the experiences and activities in these spaces. Establishing a relationship, which is one of the basic needs of the human, depends on the realization of the outdoor life and the ability of spatial setup to meet the expectations in the context of establishing a relationship. In these places, people can communicate directly with other people and the community they belong to; they can see, experience and feel a sense of community for themselves. However, today, it is observed that the metropolitan cities do not offer an ideal environment for living. The physical features of the constructions and public spaces cannot fully meet the expectations of the users living in the city and the designs contain deficiencies and errors in terms of contributing to outdoor life [11].

For the first time in the Neolithic period, mankind has succeeded in turning its relationship with nature in its favor, and the settled life that came with production led to the establishment of villages and increasing cities [30]. This process, which started with the idea of creating a sheltered space only for accommodation, has led the person to think about the space that is hosted in relation to its environment. This situation can be considered as the emergence of the phenomenon of public space, or it has been evaluated in the form of the loading of new meanings to the outer spaces [23]. This shows that outdoor life in Anatolian geography is a lifestyle that goes back centuries. The biggest reason for this is climate, topography etc. environmental factors are favorable, as well as space experiences, etc. It arises from the fact that they are a society that is socio-culturally suitable for outdoor life.

There has been considerable work done in recent years exploring the value of green space for health and wellbeing. They have direct health benefits by providing urban residents spaces for physical activity and social interaction, and allowing psychological restoration to take place. In this way, they have a direct relationship with the quality of life of urban dwellers [20]. Access to good-quality, well-maintained public spaces can help to improve our physical and mental health by encouraging us to walk more, to play sport, or simply to enjoy a green and natural environment [32]. Physical activity is also an effective form of behavior in the rehabilitation, treatment and prevention of chronic diseases [29].

Physical inactivity is now identified as the fourth leading risk factor for global mortality. In this respect; adults aged 65 years and above should do at least 150 min of moderate-intensity aero-
bic physical activity throughout the week, or do at least 75 min of vigorous-intensity aerobic physical activity throughout the week, or an equivalent combination of moderate - and vigorous - intensity activity [31].

Coronavirus diseases 2019 (COVID-19) is transmitted worldwide in over a very short time, as it was originated in late 2019 from Wuhan city, China [14] and has now covered around 213 countries globally [27]. COVID-19 is a severe threat to the world public health security and global economy [19]. Since its appearance, COVID-19 has affected most countries in the world, causing highmortality rates among its inhabitants [33].

The coronavirus (COVID-19) pandemic was recognized as a worldwide epidemic and classed as a high risk in early 2020, affecting people’s health, economics, and business sectors considerably. This pandemic has had an impact on people’s lifestyles and work processes in a multitude of sectors [1].

The pandemic has radically changed the daily life of the societies and upon the understanding that the disease is contagious, social isolation and quarantine measures have been implemented. The states, which suddenly found themselves struggling with a deadly virus, have accelerated their medical studies on the one hand, and on the other hand, they have begun to take more and more measures to protect their citizens. This situation also deprived us of many things that were ordinary until recently. The first of these is the freedom to be in contact with other members of the community in common places outside the home.

Social isolation means that the individual lives on his own without communicating with other people [18]. This is not particularly desirable for healthy societies. Because the most important condition of social life is that individuals communicate with other members of the society. Social isolation, which is currently suggested to us, can create different effects in the society. But one of its most important effects is the feeling of "being deprived of something". This inevitably makes that thing more meaningful than anything in our lives.

The negative effects of pandemics are more severe in vulnerable populations such as older adults who have higher risks of acquiring infection, more disease-related complications, and increased risks of death. Furthermore, older people are affected by policy decisions and containment measures taken during pandemics [21].

Experts have worried about the effects of the pandemic on mental health. This is especially a concern for older adults, who’ve been encouraged to be extra careful because they’re at greater risk for getting very sick with or dying from COVID-19 if they get it [7]. Unfortunately, the most restricted group in terms of social interaction and physical activity during the pandemic period was 65 years and over. In this context the following topics have been evaluated:

- The role of the public spaces in the daily life of the elderly,
- Elderly users’ approach to public spaces after the pandemic,
- As a result of pandemic experience, how to plan / design the cities in order to make more livable / healthier environs for elderly.

2. Material and method

2.1. Material

The study was carried out over a 65-year-old user group living in Izmir. In this context, it is important to have information about the city of Izmir, the people over 65 years' old that are living in this province and the restrictions that this user group has to face within the scope of the pandemic.

2.1.1. Izmir city

Izmir that testified the 8 thousand 500 years of human history, is the Turkey’s third largest city and second most important port. It was known as one of the earliest geometrically planned cities of the Aegean world in ancient times. Old Izmir was a city state with its temples, the harbor that prepared a favorable environment for maritime trade, defense facilities and administrative features. Izmir, which has been a port city since the settlement started, has been the meeting point of people from different cultures, languages and religions from the Amazons to the Lydians, from the Romans to the Ottomans in every period of its history. Located in the west of the Anatolian Peninsula, on the shores of the Aegean Sea, Izmir has a surface area of 12 thousand square kilometers and has a population of over 4 million as of 2019 [17].

In the city of Izmir, which is built around a bay and surrounded by mountains, Mediterranean denotes the impact of climate that the summers are hot and dry, winters are mild. The rain in the city is predominantly experienced in the winter months and snowfall is not observed in the lowlands (Izmir Metropolitan [17]). The warm wind blowing in the winter months does not have a negative effect on the people of the city in the summer months.

Turkey’s second free trade zone with the highest trading volume, that is named the Aegean Free Zone, is in Izmir. Also Izmir Technology Development Zone offers advantages for informatics and hi-tech investments. With its geothermal resources and wind energy potential, investments for alternative energy use in Izmir are possible (Izmir Metropolitan [17]). There are many art and cultural centers, archaeological sites, museums, archaeological - picnic areas, historical - modern shopping places, and active passive recreation areas including water and wind sports facilities. 62 different national and international festivals are organized during 12 months. In addition, the city hosts 11 different fairs and congresses throughout the year.

History, culture, nature and sea make Izmir one of the important centers of health, culture, religion, congress and fair tourism (Izmir Metropolitan [17]). Izmir is a very dynamic city because of being home to many cultures and also due to its geographical and climatological features. It has the feature of being a living city, which is actively used 24 h a day through all year by both local people and local - foreign tourists. In this context, it is of utmost importance that outer spaces are usable in terms of the lifestyle of the city of Izmir (Fig. 1).

2.1.2. Situation of the elderly group in Izmir

Izmir population is 4.367.251 as of 2019 and the distribution by age is given in Table 1 [26].

This study was carried out with people aged 65 and over who have a percentage of 11,30 % within the city of Izmir. The user group that supports the research is the group that uses public spaces limited but consciously due to the physical conditions it has in general terms. This age group uses public spaces not for transitional purposes but to live in and live these spaces. In this case, these public spaces are vital for the elderly user group.

During the pandemic period to manage the risks posed to public health by a new type of Coronavirus (Covid –19) that is extremely dangerous to human life, some measures have been taken by Turkish Ministry of Internal Affairs. In this context, citizen under 20 and over 65 years old have been prohibited from going out on the streets to reduce social mobility and interpersonal contact, in order to ensure social isolation. To this end, the group remained at home for 50 days without interruption as of March 22, 2020. Starting from May 10, 2020, they were allowed to go out on Sunday provided that they were limited to walking distance for 4 h (11.00–15.00) and 8 h (14.00–20.00) in the following weeks, respecting the social distance rule and wearing a mask. When these measures
are insufficient to fight the coronavirus, a 17-day full-time curfew was applied to all age groups between April 29, 2021 and Monday, May 17, 2021.

### Table 1
Curfew status by age distribution.

| Age Group | Population (Total) | Population (%) | Curfew Application  |
|-----------|--------------------|----------------|---------------------|
| 0–19      | 1,083,493          | 24,81 %        | Continuous curfew   |
| 20–64     | 2,790,085          | 63,89 %        | Curfew on weekends  |
|           |                    |                | (2–4 days)          |
| 65–90 +   | 493,673            | 11,30 %        | Continuous curfew   |

Fig. 1. Urban area examples from Izmir.

2.2. Method

In order to reveal the change in public space perception of the elderly people and to catch some clues on how to plan / design public spaces after the pandemic an interview was conducted randomly via internet and telephone. Interviews were performed with 68 people (aged 65 and over) using standardised interview paper that covered the scope of the research. Open-ended and closed-ended questions (grading - scale questions as 5-point Likert scale, compulsory - elective questions and demographic questions) under three headings.
In the calculation of sample size of the interview, the following method of Simple Random Sampling was used [25] and a 90 % confidence level and 10 % sampling error was taken as the basis. The formula is: n = (N p (1 - p)) / ((N − 1) σ2px + p (1-p)).

The population of people aged 65 + of Izmir (493.673) from the results of the 2019 census was used as the “population size (N)” in the calculation [26]. Using this equation, we determined that the sample size of interview should be 68. SPSS (v.10) was used for statistical analysis of the data which are obtained from the interviews, in the evaluation stage of the results and there had some suggestions were put forward on the topic in conclusion.

The data gained from elderly users who participated in the interview within the scope of the research; under three main headings as the user profile (gender, age, educational status, with whom they live; if any, the ages of their children), habits of before the Covid-19 pandemic, and habits of after the Covid-19 pandemic were presented.

It was tested statistically whether there was a difference in terms of the variables considered according to gender, working and educational status of the users participating in the interview. For continuous variables, firstly, normal distribution test was applied with Kolmogorov-Smirnov test [22]. In the study, not all variables examined showed normal distribution. Mann-Whitney U / Kruskall Wallis test was applied for variables that do not show normal distribution [4,5,24,13].

3. Results

Interview was conducted with 68 people aged 65 + to evaluate how and in what direction did the place of public spaces change in their life. Firstly, demographic structures are determined and of the interview respondents, 46 % are taken from female users and 56 % from male. It was observed that more than half (55 %) of the respondents were between 65 and 70 years old and also 31 % of the users are primary school, 28 % are university graduates, and according to the education level the lowest rate is uneducated group with 1 %. It was determined that 54 % of the respondents lived with their partner. 30 % of the respondents stated that they lived with a child in a different age range and 4 % stated that they lived with their two children. Among the participants, there are no more than two children living together (Table 2).

While 79 % of the elderly individuals who participated in the interview did not work before the pandemic, it was determined that 21 % of them continued their work life every day or some days of the week and had to go out regularly in this context. In this period, it was observed that almost all of the elderly participants (97 %) went out of the house every week, although at varying frequency, and 56 % of the participants went out of the house every day. In line with these rates, it was observed that the participants used the outdoors extensively.

Participants were given the opportunity to make multiple choices when questioning the reasons for going out. At this stage, it was seen that they left home for compulsory, optional and social activities, and the types of compulsory activities were specified as 115 times, optional activities as 83 times and social activities as 91 times. In this context, it has been observed that elderly users, who are included in the conscious user profile, use public spaces more for optional and social activities than compulsory reasons. In addition, shopping, walking and visiting were found to be the most common activities to get out of the house. It has been observed that a limited proportion of participants preferred to be alone in the use of public spaces, while a large percentage preferred to socialize and communicate. It was determined that the importance of public spaces 36 % is very important and 48 % is important before the pandemic for the participants who prefer to interact (Table 3).

43 % of respondents answered “Affects” to the question “How much does it affect you not being able to use public spaces”, while 34 % answered, “Affects A lot”. 47 % of the respondents stated that the obligation to stay at home made them feel bad, and 25 % stated that they made it very bad. Only 1 % of respondents said they felt very good. When asked about the public space they wanted to go to after the pandemic ended, 50 % of the respondents stated that they wanted to go to the sports facilities, followed by the water shores with 15 %, by parks and gardens with 13 % respectively. 40 % of respondents think that after the pandemic ends and life returns to normal, public spaces will become more important in their daily lives, and 30 % will become much more important (Table 4).

When “What do you feel about people going out onto the streets despite the curfew?” is asked; 85 % of the respondents feel anger towards those who leave the house by not following the rules and they think that those are disrespectful to their rights to live a healthy life.

On the other hand, 15 % of the respondent’s state that they understand and accept those who go out of the house against the rules with the following sentences; “We shouldn’t go out for our health, but we’ve been bored at home for 2 months and we deserve to be released recently”, “I sometimes feel the need to breathe even though I know we better not”, “They are leaving because they are very bored at home and I give them rights as well”.

Elderly users participating in the interview were evaluated according to the following variables by using the Likert scale;

- The frequency of going out,
- The importance of outdoor spaces in their lives,
- To what extent the inability to use outdoor spaces affects them,
- How compulsion to stay at home makes them feel,
- After the pandemic ended and life returned to normal, the importance levels of outdoor spaces in daily life.

| Table 2 | The user profile. |
|---------|------------------|
| **User Profile** | **Female** | **Male** |
| Age | 46 % | 54 % |
| 65–70 | 55 % | 71–75 |
| 76–80 | 7 % | 81–85 |
| 86 + | 2 % | 4 % |
| **Education** | | |
| Uneducated | 1 % | High School |
| Primary school | 31 % | Graduate |
| Middle school | 18 % | MSc. or Ph.D. |
| **Who do you live with?** | | |
| Single | 10 % | With partner |
| Elderly nursing home | 2 % | With partner and child(ren) |
| **Children’s age range** | | |
| 18–25 age | 26–35 age | 36–45 age | 46–55 age |
| With one child | 1 % | 12 % | 10 % | 7 % |
| With two children | – | 2 % | 2 % | – |
The relationships of the results obtained for these variables with gender, educational status and active work status were discussed one by one. The data obtained from the analyzes are given below.

While women go out several times a week, men go out every day. It was determined that males go out more than females and there is a statistically significant difference in terms of the frequency of going out of the house according to gender. When the answers given to the question of the place of outdoor spaces in their lives are examined, the difference in terms of the importance of outdoor spaces in their lives according to gender is statistically significant, and both men and women have stated that it is very important. It has been observed that not being able to use outdoor spaces affects men more than women and makes them feel worse. Also, men emphasized that outdoor spaces will gain more importance in their lives when the pandemic ends and life returns to normal.

When the educational status of the participants and the mentioned variables were analyzed together, it was determined that none of the variables were statistically significant according to the Mann-Whitney U test. Also by the analyze between these variables and education status was examined, it was determined that the education level did not affect the relationship between the variables.

It has been determined that elderly users who continue their active business life go out of the house every day, whereas those who do not work leave their home several times a week. It has been determined that both working and non-working users feel bad because of the obligation to stay at home. The difference was found to be statistically significant according to the working status in terms of how it feels to stay at home. It was found that employees felt worse than those who did not work in terms of the obligation to stay at home.

4. Discussion and conclusion

When the pandemics in world history are analyzed with their urban dimensions, it is possible to see that such disasters force societies to radical transformations. Human beings will learn lessons from this event, and will have to reshape their living environments after this pandemic, as it is after any important event that has had a great impact on world history.

In those days when even freedom is redefined, we realized that we don’t really have what we think we actually have. Even ordinary activities that exist in the routine of everyday life gained different meanings at once. We all form sentences starting with the end of the pandemic and look forward to the days when we will return
to our normal lives. This shows that it will require us to rethink the cities that shape the near future and the social life. At this point, it will be reinterpreted and shaped in public spaces, which are the subject of our study and are indispensable of social life from Ancient Greece to the present day.

Earthquake, flood etc. as natural disasters affect the cities visibly due to their physical space, it is inevitable in the history of city and architectural history. However, little focus is given on how pandemic disasters affect urbanization dynamics. However, in pandemic diseases, just like other disasters, they affect the production of the place and the management of the cities. This pandemic process has given us the opportunity to rethink and self-criticize all those who contribute to the production and management process of how cities should be shaped.

Spatial life, which is the essence of architecture, begins in the interior spaces of the buildings and continues in every volume created by determining the borders of human beings in the city, streets, squares, playgrounds and gardens. Therefore, architecture has emerged as a space organization and is emerging as a problem of landscaping, which is a sum of spaces [3]. While thinking that we are progressing very much about the production of spatial life, which is accepted as the essence of the architecture, we have seen Sars, Mers, Ebola, Avain influenza, and now we have seen how vulnerable we are and how much we are able to cope with the covid 19 pandemic.

According to Lydia Kallipoliti, assistant professor of architecture at The Cooper Union in New York, modern cities weren’t designed to cope with life during a pandemic, and this upside-down way of living has turned them into “a disorganised array of disconnected bedrooms and studios” [8].

Nowadays, the boundaries of our lives are determined by the limits of our home, which we find safe, and the most crucial question in our minds keeps turning. How should we shape our cities in the future? How can safer and livable public spaces be produced? Is it possible?

The outbreak of the COVID-19 virus required lockdown, and social distancing led urban planners (both practitioners and scholars) to realize that public spaces are more than just recreational pleasures. Urban designers and planners’ mission is to build public spaces that support more diverse and distant activities, and they may even alter function altogether during public health emergencies [15,10].

At this point, our study showed that users over the age of 65 that are in the conscious user group:

- Often they do not live alone, although there is an ongoing social communication at home, they continue to use public spaces intensely.
- Although the participants do not mainly continue their working life, they regularly go out of the house.
- They use public spaces for optional and social activities as well as mandatory activities.
- These spaces are of great importance in the lives of the majority of users who prefer to perform outdoor activities with their close surroundings. It is known that younger age groups can also use technology as a means of socialization, but this adaptation is more difficult in later years. This study also showed that socialization for a mass of users aged 65 and over is achieved through public outdoor spaces that provide a great deal of physical coexistence and enable this.
- Although this restriction was accepted as a significant deficiency for those users who are prohibited from being outside in the pandemic process, individuals who do not comply with the prohibitions were considered negative.
- The obstruction of the use of public spaces, which constitute a large place in their lives, has highlighted the need for these spaces and caused them to be considered as places where they will be hugged after the pandemic. The immobility of this group of users who need physical activity due to their health problems especially heart, sugar, joint, bone, etc. may cause fatal effects in the home environment. It is an important indicator for this need that the first places to go after the curfew ends are the places with sports facilities.

According to Salama (2020), if pandemics become annual events, personal distance might naturally become more elastic: closer during safe periods and more distant during pandemics. This will be an important area for future research, because this concept of comfortable personal space is one of the established canons for architects, urban designers, and planners. It’s happening right now, as our sense of comfortable personal distance is being modified right in front of us. The idea of “place attachment” considers how people are attached to places, their heritage, memories, even aesthetics. The value of whether a place is healthy for us or potentially threatening will start to have more of an impact on our attachment to places. Places that are n healthier, clean, sanitized might foster a closer attachment to place. Concepts of “home zone” and “home range” might also undergo shifts in perception. Home zone is the immediate place where we live, while home range is the larger residential environment. These might change, because we would feel safer, psychologically and healthwise, closer to home [9].

Today, the concept of “public health” will be added to the production process of public spaces, in addition to the image, form and recreational activity possibilities that have an important place in the definition and prominence of urban settlements. In this context Hussein [16] is one of the many studies that explores the importance of the urban environment in maintaining public health, and highlight controlling current and future pandemics through the planning and design processes.

The negative impact of social isolation experienced during the covid-19 period on the physical and mental health of the elderly is also put forward by Epulveda – Loyola et al. [28]. As a solution to protect the psychological and physical activity possibilities of societies should be developed as well as preventing the physical spread of the pandemic.

Cities need to establish flexible development and planning processes, and to develop a management structure that responds quickly to changing conditions, while respecting social balances [12]. As a result, we must be individuals adaptable to new processes of all sizes and build settlements, from our lifestyle to the areas we live in.

Even for many cities whose population is low in today’s conditions, it is still dangerous to use public spaces during pandemic periods. Because in these settlements are spread over large areas, transportation is provided by public transportation and this increases the risk for pandemics. For this reason, it is recommended as an efficient but long-term change to be located within walking distance of all the vital needs such as business, shelter, shopping, recreation by building cities in compact form.

Instead of public transportation alternatives, such as subways, buses etc. which have crowded uses, it is important to provide the necessary approaches for the preparation of infrastructure vehicles for individual transportation especially bicycles, scooters, etc. and the adoption of “micromobility”.

In order for the cities to become pedestrian-friendly, it would be beneficial to increase the pavement widths and to increase the number of public spaces of small to big scales, in around all living spaces that anyone can reach on foot.

By actively taking place in biophilic designs and applications, it is possible to meet and reconstruct the spiritual structures of the users, which are affected because of spending too much time in indoor environments.
Non-verbal communication in the space, which is a theoretical approach that has been discussed since the 60’s, is also important to ensure our coexistence in public spaces after Covid-19. However, there is an important detail that what we need to learn or get used to should come with understanding and respecting the personal space, not to be limited and separated by being guided by sharp and stable design tools. At this point, it is necessary to look critically at any policy and design approach that promotes isolation by avoiding or fearing to be together in public space [6].

On the other hand, with the designs of new spatial and reinforcement elements that support the protection of physical distance and limit many uses at the same time, individuals can be protected during periods of pandemic disease and they can use outdoor areas more.

To achieve the more open public spaces essential for social distancing, changes have to occur in design and use of the urban fabric; new design standards permitting flexibility and variability of use need to be formulated, and the use of sidewalks and of other open spaces needs to be reshaped. Designers also need to consider social well-being [2].

As a result of this challenging process experienced simultaneously all over the world, the common result of many researches carried out on the international platform is that public spaces have a very important place for both recreation and public health. In this context, it is of great importance to investigate the reshaped expectations and needs of societies in the changing world order.

Declaration of Competing Interest

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

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