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Covid-19 Pandemic and Its Effects on Social Life and Reflections on Spatial Preferences

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ABSTRACT

The Covid-19 pandemic, which emerged in Wuhan city of China's Hubei province in December 2019, affected the whole world in a short period of 3 months. The Covid-19 outbreak, which was declared a pandemic by the World Health Organization as of March 12, 2020; was imposed significant restrictions on the use of open spaces, which adversely affected the daily life of individuals physically, mentally and socially. Apart from the health problems experienced by people, it has also created many spatial choices and changes. New preferences, where social distance is at the forefront, have started new venue organizations along with new requests. Although the changes experienced with the Covid-19 pandemic may seem negative, they contain opportunities that allow change and development. Making people's living environments more functional, remembering the importance of nature and reviewing social relations can be evaluated in this context. Looking from history to the present, the Covid-19 pandemic is not the first and will not be the last. For this reason, the study aims to investigate the change in the spatial preferences in the society with the pandemic and to create an idea for the next pandemics. In this context, 289 people were reached by using the online survey method and various questions were asked. Various results were obtained and interpreted by performing variance analysis, factor analysis, correlation analysis, crosstabs test and frequency analysis ($P<0.01$) on the obtained data. As a result of the study, from the statistical data, it has been observed that 'people are more oriented to nature' due to the Covid-19 pandemic and that open green spaces suitable for social distance are sought in spatial preferences. These findings shed new light on the value of urban nature as resilience infrastructure during a time of crisis.

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1. Introduction

In the historical process, people have started to create artificial environments by preferring to control and regulate their environment instead of accepting environmental conditions, these environments have affected the ecological cycle and the failure to maintain the environmental balance has caused environmental problems that endanger the lives of many living things, including humans (Erdogan 2006; Dinctürk et. al. 2020; Gulpinar Sekban, Acar 2021). Especially in cities, the increase in

interventions to nature and wildlife as a result of rapid population growth in cities has caused many disasters such as floods, earthquakes, global warming, climate change, etc. (Sharifi and Gamsir 2020). In addition, epidemics that occur with the increase in circulation and immigration around the world are another important negative phenomenon. Many epidemic diseases such as plague, leprosy, cholera, influenza, HIV / AIDS epidemic, Ebola virus have caused the death of many people in history and have led to permanent changes in the world (Ahmadi et al. 2020). Finally, the Covid-19 pandemic, which emerged in the city of Wuhan of China's Hubei Province in December 2019, has affected the whole world (Hu et. al. 2021; Shakibaei et. al. 2021; Megahed and Hassan, 2021). The new Coronavirus disease (Covid-19) is a virus defined by WHO on January 13, 2020, as a result of research conducted in a group of patients with respiratory symptoms (fever, cough, shortness of breath) (T.R. Ministry of Health). Globally, as of 4:38pm CEST, 5 May 2021, there have been 153.954.491 confirmed cases of Covid-19, including 3.221.052 deaths, reported to WHO (WHO, 2021). The coronavirus, which affected the whole world, has come up with new norms. In addition to the consequences of this pandemic on health, it is possible to affect the whole world with socio-cultural, political, economic and many unforeseen problems.

According to a 2012 report by ILRI, more than 2 million people die each year from diseases transmitted by pets and wild animals (URL 1). Budak and Korkmaz (2020) emphasize that we need to be aware of the forces of nature and that these epidemics may occur in the future, as they have happened in the past and present. With the vaccines and antibiotics found in the 1970s, many scientists misunderstood that the era of diseases was over, but over time, the diseases returned via structural changes. Since the 1970s alone, pathogens that cause more than one thousand five hundred new diseases, 70% of which are of animal origin, have emerged (Budak and Korkmaz 2020).

1.1. The Covid-19 Pandemic: Spread And Social Restrictions

An unusual period has started with the Covid-19 pandemic. In many parts of the world, concerns about the Covid-19 pandemic and quarantine policy have led to a general decline in the physical and mental health of residents due to insufficient social interaction (Shakibaei et. al. 2021). These adverse effects may have potential public health risks (Xie et al. 2020; Megahed and Ghoneim 2020; Lades et al. 2020; Robinson et. al. 2021). The Covid-19 pandemic might have a lasting impact on what we deal with in our built environment and open spaces. From its start, researchers and practitioners have felt the need to reflect on its consequences, which are spatial and social as well as political and economic (Gill et al. 2020). Although there are some statements about when and how this epidemic will end, there is no complete information on this issue. Countries trying to restrict the spread of the epidemic are changing the dynamics of the urban and rural environment by taking measures such as preventing outdoor use, imposing travel restrictions, quarantining their citizens, canceling large gatherings such as sports and concert events (Dinctürk et al. 2020). As of May 2020, Turkey put an end to the ordinary lifestyle and started a new understanding of life with the process of restrictions.

Each pandemic has had a tremendous negative impact on humans as pandemics are also a social phenomenon that affects the individual and society at many levels and causes deterioration. As the perception of threat by a contagious disease increases, people experiencing panic and stress exhibit different behaviors than usual. Especially during epidemics, people's longing for nature is increasing, and this situation causes various social problems (Mansuroglu 2021). When faced with a situation whose effects such as an epidemic cannot be predicted, people show protection and avoidance with a sense of fear and panic (Karatas 2020). Health care services have an essential role in addressing these emotional outbreaks as a part of the pandemic response. Education and training related to psychosocial problems should be supplied to health care professionals (Shakibaei et. al. 2021). The mental health and emergency management communities should work together to identify, develop, and disseminate evidence-based resources regarding mental health, mental health triage and referral, needs of special populations, and death notification and bereavement care (Pfefferbaum and North, 2020).

1.2 Landscape Architecture; Environmental Improvements And The Pandemic

Environmental conditions and human interventions to nature lie at the root of the health problems of all living things in the world. The coronavirus (Covid-19), which forces us to stay at home, upsets our social and kinship relations, changes our habits, and turns economies upside down, is also the result of environmental interference and intervention to nature (URL 2). It is an important and functional requirement for the professional group of landscape architecture to have a say in the correct nature-friendly land-use decisions, especially in landscape and ecological planning (Atıl et al., 2005). In this context, landscape architecture is among the most important professional disciplines that respond to the "open space" requirements that have emerged with the pandemic. People who have moved away from indoor spaces and even become afraid of them have found their escape points in “open spaces” (Onur, 2020). Landscape architecture contributes to health, productivity, and regeneration when decisions integrate with systemic order, promote interdependence, respond to context, integrate interdisciplinary knowledge (Motloch, 2001).

Covid 19 has already transformed our places through architecture, design, and urban planning (Megahed and Ghoneim 2020). Also with the pandemic, people have understood the importance of nature, and the idea of turning to nature for a healthy life by moving away from the stressful city life and the concrete urban texture has gained importance. The benefits of urban landscapes to people are not only aesthetic and natural beauties, but also provide place experience and belonging (Rodríguez Iturriaga 2021). In fact, in landscape architecture studies after 1990, the positive effects of the human-nature relationship on health were stated, and within the scope of this subject, the regulations such as rock gardens, green

walls, roof gardens, hobby gardens, green building movement began to take place. There's already increasing interest in biophilic design, the including of nature into the building, site, city. Biophilic design extinguishes or reduces anxiety in people, primarily through design with natural features. Against pandemics, researchers are investigating syntactic links between children and nature, the old people and nature. Engaging with nature even just visually boosts our positive feelings, influences mental health, so visual engagement may become more important (Beatley and Newman 2013; Crosbie 2020).

Despite the developments in technology and medical science, it has been seen that new epidemics cannot be prevented in the 21st century and people are still helpless in this regard. With all these written news and findings, all knowns have changed and "new wishes and needs" have taken their place. The epidemic continued with the measures introduced and people moved towards a simple life away from contact. This has forced people to their individual lives at home and then to natural environments. People who moved away from nature with urbanization have once again understood the importance of nature and their need for natural spaces. Undoubtedly, landscape architecture also has a role in this process with many positive/negative results. In this study, the venue preferences of people before the Covid-19 outbreak and the positive and negative activities involved in their lives during the Covid-19 were investigated. In addition, it is aimed to raise awareness about the importance of natural substances in people's space preferences and use.

2. Material and Method

Within the scope of this study, previous studies on the Covid-19 pandemic were primarily examined (Ahmedi et al. 2020; Budak and Korkmaz 2020; Crosbie 2020; Dinçtürk et. al. 2020; Lades et. al. 2020; Onur 2020; Megahed and Ghoneim 2020; Sharifi and Gamsir 2020; Venter et. al. 2020; P′erez-Urretarazu el. al. 2021;). As a result of the literature study, criteria were determined to help measure the spatial change before/after the Covid-19 outbreak. Then, the criteria were transformed into questions representing them in order to conduct an online survey. Tables (Table 1-10) containing the data obtained by transforming the criteria into questions are given. The method flow chart of the study is summarized in Figure 1.

All of the data acquired in the survey study were subjected to statistical evaluations similar in the studies of Cuevas et. al. (2004); Kalayci (2009); Acar et. al. (2014); Guneroglu (2017); Wooditch et. al. (2021); Robinson et. al. (2021) and findings and results have been obtained. After the answers given to the survey questions were transferred to the Excel 2016 program as raw data, they were processed with the SPSS program and turned into findings. During the study period, an online survey was conducted with 289 people. The tests carried out within the scope of the study and their objectives are given below;

- Variance Analysis: Variance Analysis (ANOVA) was used to check whether there is a significant difference according to the determined parameters.
- Factor Analysis: This test was used to turn the parameters into meaningful and independent factors.
- Correlation Test: A correlation test was used to determine if there is a relationship between criteria.
- Crosstabs: The Crosstab test was used to calculate whether the dependent variables are related to each other, that is, to calculate their statistical significance.
- Frequency Analysis: It was used to determine the usage preferences of individuals.

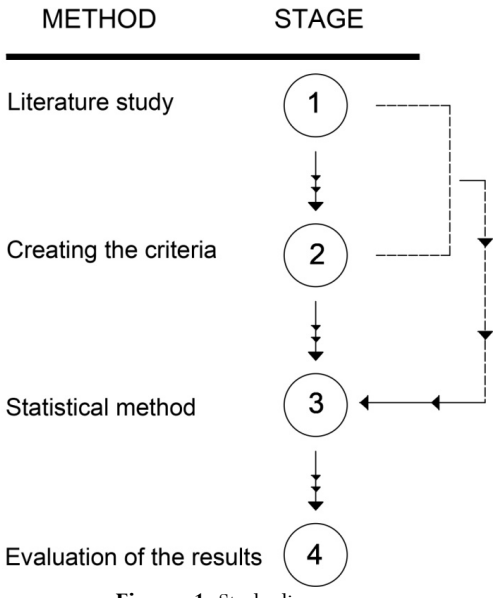

Figure 1. Study diagram.

3. Findings

In this study, it was investigated whether there was a change in the spatial preferences of people as a result of the restrictions and changes caused by the Covid-19 pandemic and 289 people were reached by an online survey method for this purpose. Spatial preferences and reasons before the Covid-19 pandemic outbreak and how the spatial preference was changed after the Covid-19 pandemic outbreak were investigated in the first part of the study. Space preference parameters were investigated in the second part. Opinions were asked about whether the design-based professional disciplines should change in the last part.

When the results of variance analysis (ANOVA) in order to check whether there is a significant difference between the answers given to the question "Which spatial did you prefer to go before the Covid-19 outbreak (Table 1)" and "Why did you prefer these spatial (Table 2)" were examined, it was determined that p (sig.) < 0.05, and it was determined that there is a significant difference between the criteria set (Table 1). It was concluded that people mostly preferred to go to cafes and restaurants before the pandemic outbreak, (5,18), and the reasons for preferring these places were firstly the scenery characteristic (4,12), then the presence of various activities for children (3,18), and the lack of parking problems (3.00) (Table 2).

Table 1. Variance analysis (ANOVA) for the spatial preferences before the Covid-19 outbreak.

					95% Confidence Interval for Mean	
Criteria	Mean Square	Sig.	Std. Deviation	N	Lower Bound	Upper Bound
Cafes and restaurants	**5,33**	,000	1,151	61	5,03	5,62
Open areas/recreational areas	5,18	,000	2,101	92	4,75	5,62
Non-urban (village/highland) natural fields	5,21	,000	1,008	34	4,85	5,56
Malls	3,56	,000	2,259	34	2,77	4,35
Town square and its surroundings	4,93	,000	2,052	15	3,80	6,07
Shores/coastlines	4,98	,000	1,248	53	4,64	5,33
Total	4,98	,000	1,773	289	4,77	5,18

Table 2. Variance analysis (ANOVA) for the spatial preference reasons before the Covid-19.

					95% Confidence Interval for Mean	
Criteria	Mean Square	Sig.	Std. Deviation	N	Lower Bound	Upper Bound
Lack of parking	3,00	,000	1,477	12	2,06	3,94
Closeness	2,82	,000	1,957	38	2,17	3,46
Cheapness	2,83	,000	2,137	6	0,59	5,08
Presence of activities for children	**3,18**	,000	1,557	38	2,67	3,70
Scenery	**4,12**	,000	1,990	42	3,50	4,74
Having open space	2,88	,000	1,785	101	2,53	3,23
No other alternatives	1,92	,000	1,557	52	1,49	2,36
Total	2,92	,000	1,862	289	2,71	3,14

Within the scope of the study, cross-table analyzes (Crosstabs Analysis) were carried out in order to measure which factors in the pandemic process affect people's psychological state. These analyzes are grouped under three headings: "*The effect of the gender factor on the state of being psychology affected* (Figure 2)", "*The effect of the spatial factor, where you spend most of the day during the pandemic, on the state of psychologically affected* (Figure 3)" and "*Investigation of the changing spatial preferences before/after the pandemic outbreak* (Table 3)".

- **The effect of the gender factor on the state of being psychologically affected:** In order to determine the effect of the gender factor on the psychologically affected state, the gender results were first investigated within their own categories, then in the combined category, and finally in the answers given for the "psychologically affected state". When the results were examined, 88% of the participants say that they are psychologically affected by the outdoor restrictions. 58% of these answers belong to women and 42% to men. In the cross tables according to gender, it can be concluded that the female population is more affected by this ratio (Table 3).

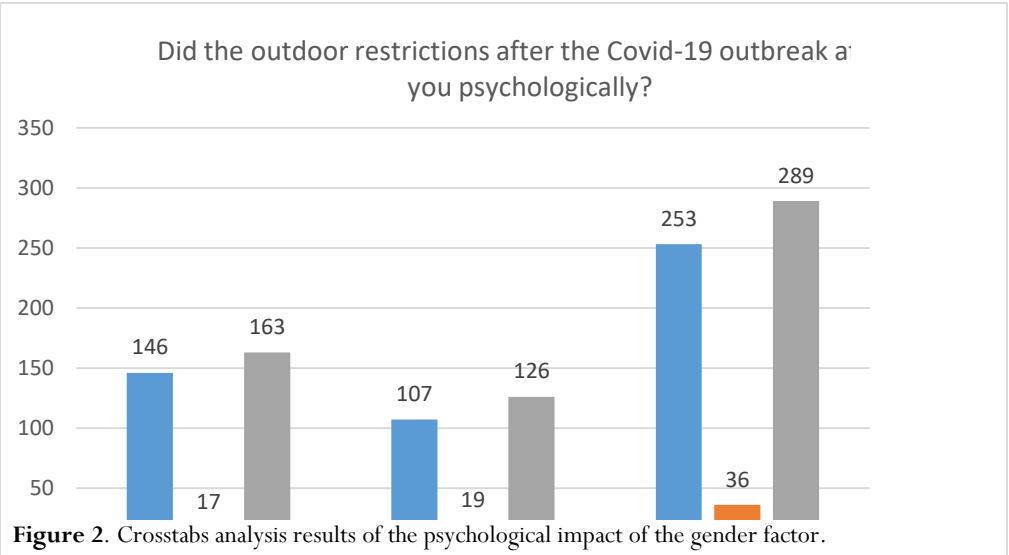

Figure 2. Crosstabs analysis results of the psychological impact of the gender factor.

- **The effect of the spatial factor, where most of the day was spent during the pandemic, on the state of being psychologically affected:** In order to determine the effect of the place factor, where most of the day was spent, on the psychologically affected state, the gender results were analyzed first within their own categories, then in the combined category, and finally within the answers given to the "psychologically affected state". From the results, it can be concluded that 88% of the participants say that they are psychologically affected by outdoor restrictions. From the group results that constitutes 88% of participants, the highest results: 44% are "people who spend most of their days in front of a computer", 20% are "people who spend their days in taking care of the house" and 13% are "people who "spend most of their days in front of a TV" (Table 4).

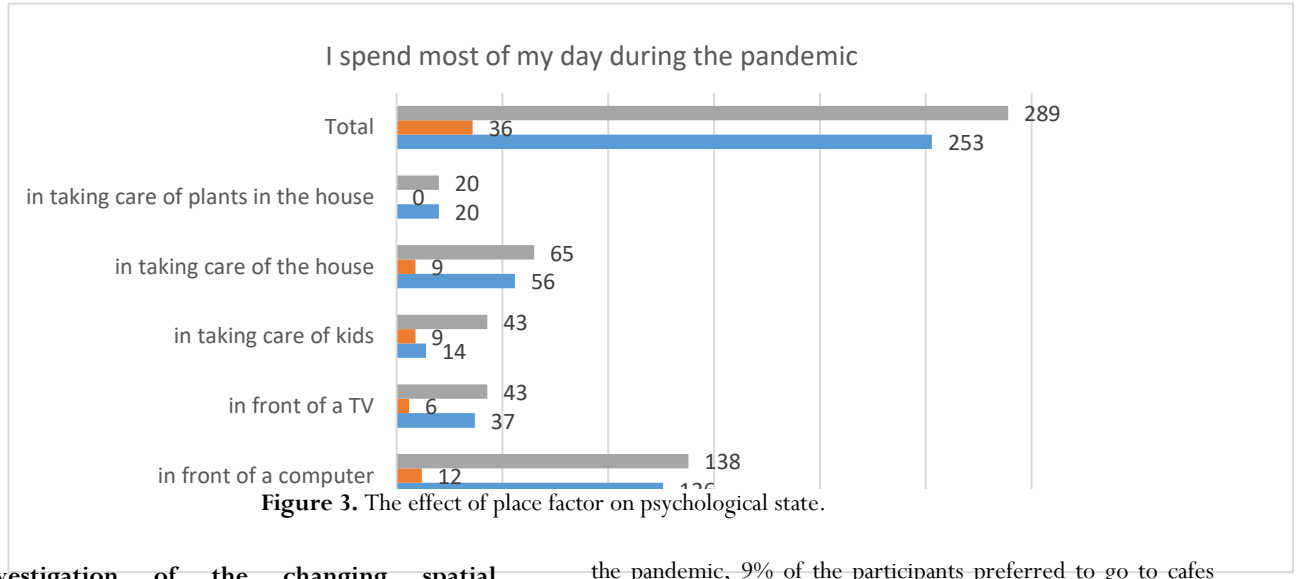

Figure 3. The effect of place factor on psychological state.

- **Investigation of the changing spatial preferences before/after the pandemic outbreak:** The same spatial parameters were considered for the spatial preferences "before and after" the pandemic outbreak. However, the preference rates have varied dramatically. While **23.7%** of people preferred to go to cafes and restaurants before the pandemic, 9% of the participants preferred to go to cafes and restaurants after the pandemic outbreak. Likewise, while 15.7% of the participants preferred to go to open spaces before the pandemic outbreak, 41.9% of the participants began to prefer open spaces after the pandemic outbreak (Table 3).

Table 3. Spatial preferences before/after the pandemic outbreak.

Which places did you prefer to go "BEFORE" the Covid-19 outbreak? Which places did you prefer to go "AFTER" the Covid-19 outbreak?				
	"BEFORE"		**"AFTER"**	
	Frequency	Percent	Frequency	Percent
Cafes and restaurants	**92**	23,7	**35**	9,0
Open areas/recreational areas	**61**	15,7	**163**	41,9
Non-urban (village/highland) natural fields	34	8,7	24	6,2
Malls	34	8,7	-	-
Town square and its surroundings	15	3,9	14	3,6
Shores/coastlines	**53**	13,6	**53**	13,6
Total	289	74,3	289	74,3

In another question of the study, the participants were asked what kind of changes they made in interior spaces during Covid-19. From the results, it is seen that the highest result was obtained from "I bought kitchen equipment to cook" with 36.2% and "I strengthened the technological infrastructure of communication and education" with 26.5% (Table 4).

Table 4. Changes in the interior spaces during the Covid-19.

What kind of changes did you make in the interior spaces during the period when you started to spend time indoors after the Covid-19 outbreak?				
	Frequency	Percent	Valid Percent	Cumulative Percent
I bought kitchen equipment for cooking	141	**36,2**	48,8	48,8
I strengthened the technological infrastructure for communication and education	103	**26,5**	35,6	84,4
I bought and started growing plants	35	9,0	12,1	96,5
I owned pets	10	2,6	3,5	100,0
Total	289	74,3	100,0	

Principal component analysis was performed to measure the changing behavior patterns at this stage of the assessment (Table 5). In order to obtain the findings of these criteria, 2 components, which constitute approximately 63% of the total data variances, were determined as a result of factor analysis in the data collection containing 6 criteria. Factor load and common variance values according to factor analysis results are given in Table 5.

As a result of the analysis, it was determined that the factor loads vary between 0.748 and -0.457, and the common variance ranges between 0.423 and 0.748. As seen in this analysis, the 1st-factor load has a higher load than the other factors. Therefore, in the determination of the changing preferences during the Covid-19, the factors "With Covid-19; I tended towards activities that I could enjoy nature (0,748), "I was more interested in my home (0,746)", I discovered different spatial to go in my city (0,650)" were found to be important (Table 5).

Table 5. Factor analysis of the criteria

Criteria	Factor load	
	1	2
With Covid-19; I spent more time with my child/children	0,423	0,722
With Covid-19; I became more interested in my home	**0,746**	0,347
With Covid-19; I moved away from indoor spaces	**0,564**	0,364
With Covid-19; I discovered different places to go in the city I live in	**0,650**	-0,457
With Covid-19; I found new hobbies	**0,727**	-0,291
With Covid-19; I turned to activities that I could enjoy nature	**0,748**	-0,349
% of variance	42,764	19,825

The correlation analysis was applied to the 6 criteria, for which factor analysis was performed in Table 7, at this stage of the study (Table 6). This analysis was performed in order to see whether there is a relationship between the criteria or not, and if there is a relationship, to see it exists between which types of behavior. The results show that the strongest relationship is among the criteria "I found new hobbies for myself during Covid-19 and "I turned to activities that I can enjoy nature"(0,493**). The next strong relationship is between the "With Covid-19; I moved away from indoor spaces" and "With Covid-19; I turned to activities that I could enjoy nature" (0,450**).

Table 6. Correlation data between the behavior criteria.

Correlation						
Correlation Coefficient	C1.	C2.	C3.	C4.	C5.	C6.
C1	1	0,431**	0,247**	0,075	0,068	
C2	**0,431****	1	0,380**	0,285**	0,404**	
C3	0,247**	0,380**	1	0,162**	0,311**	
C4	0,075	0,285**	0,162**	1	0,404**	
C5	0,068	0,404**	0,311**	**0,404****	1	
C6	0,060	0,280**	**0,450****	0,075	**0,493****	1
C1. With Covid-19; I spent more time with my child/children						
C2. With Covid-19; I became more interested in my home						
C3. With Covid-19; I moved away from indoor spaces						
C4. With Covid-19; I discovered different places to go in the city I live in						
C5. With Covid-19; I found new hobbies						
C6. With Covid-19; I turned to activities that I can enjoy nature						
**. Correlation is significant at the 0.01 level (2-tailed).						
*. Correlation is significant at the 0.05 level (2-tailed).						

Principal component analysis was performed on the parameters by which spatial preference with Covid-19 was measured (Table 7). In order to obtain the findings of these criteria, 6 components, which constitute approximately 63% of the total data variances, were determined as a result of factor analysis of the data containing 18 criteria. The factor loads and common variance values obtained with the factor analysis are given in Table 9. The highest factor components accumulated under the first-factor load. According to the results, the highest factor components are as follows; "*Pandemic has taught me that I can be happy engaging with nature (0,725)*", "*My interest in nature increased during the pandemic (0,691)*", "*I understood the value of nature more during the pandemic (0,677)*", "*After the pandemic outbreak, spatial that give importance to ecological approaches started to attract my attention more (0,676)*" and "*With Covid-19; I tended towards activities that I could enjoy nature (0,620)*".

Table 7. Factor analysis of criteria

No	**Criteria**	**Factor loads**				
		1	**2**	**3**	**4**	**5**
1	With Covid-19; I tented towards activities that I could enjoy nature	0,620	-0,396	-0,059	0,131	0,096
2	With Covid-19; I started reading more books	0,466	-0,165	0,083	0,218	0,278
3	Before the Covid-19 outbreak, I preferred indoor spaces more	0,296	-0,045	0,748	0,065	-0,129
4	After the Covid-19 outbreak, I prefer open spaces more	0,596	-0,009	0,250	0,180	-0,239
5	Even if the pandemic is over, I will continue to go to more open areas	0,603	0,049	-0,354	0,088	0,089
6	My interest in nature has increased during the pandemic	0,691	-0,438	-0,166	0,089	-0,124
7	After the pandemic outbreak, my interest in open spaces increased	0,499	-0,025	0,039	0,182	-0,438
8	I understood the value of nature more during the pandemic	0,677	-0,167	-0,145	0,128	-,0194
9	The pandemic has taught me that I can be happy engaging with nature	0,725	-0,334	-0,201	-0,033	-0,028

10	I am aware that I am experiencing changes in my spatial preferences	0,654	0,111	0,351	-0,107	-0,045
11	Before the pandemic outbreak, my aesthetic concerns were more prominent in my spatial preferences	0,499	0,094	0,385	-0,346	-0,053
12	After the pandemic outbreak, spatial that give importance to ecological approaches started to attract my attention more	0,676	-0,183	-0,187	-0,440	0,145
13	I need natural elements to be included in the interior during the pandemic	0,465	0,093	0,029	-0,598	0,273
14	After the pandemic outbreak, I pay attention to the fact that the place I am in is large and suitable for social distance	0,571	0,587	-0,084	0,048	-0,101
15	After the pandemic outbreak, I give importance to the fact that a place I will go has a possibility of an open space	0,575	0,528	-0,201	-0,029	0,145
16	After the pandemic outbreak, I pay attention to the fact that the places I will go are spacious and hygienic	0,489	0,602	-0,108	0,169	-0,097
17	During the Covid-19, my city offered me enough opportunities	0,200	0,113	0,031	0,497	0,412
18	After the pandemic outbreak, I started doing sports outdoors/at home	0,269	-0,048	0,302	0,178	0,615

When we look at the relationships between Covid-19 and the parameters in which the spatial preference is measured, it is seen as in Table 8, that the strongest relationship (0,600**) is between the parameters "*My interest in nature increased during the pandemic*" and "*The pandemic has taught me that I can be happy engaging with nature*". Other strong relationships are between "*14th After the pandemic outbreak, I pay attention to the fact that the place I am in is large and suitable for social distance*" and "*15th After the pandemic outbreak, I give importance to the fact that a place I will go has a possibility of an open space* (0,575**)", and then between "*1th With Covid-19; I tented towards activities that I could enjoy nature*" and "*9th The pandemic has taught me that I can be happy engaging with nature* (0.568**)", and then between "*9th The pandemic has taught me that I can be happy engaging with nature" and "11th After the pandemic outbreak, spatials that give importance to ecological approaches started to attract my attention more* (.538**)".

Table 8. Correlation table according to the spatial preference

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
1	1	,360**	,172**	,275**	,279**	,568**	,245**	,363**	,568**	,272**	,244**	,413**	,166**	,209**	,188**	,184**	,117*	,197**
2	,360**	1	,165**	,274**	,253**	,323**	,117*	,231**	,262**	,290**	,104	,297**	,109	,182**	,208**	,170**	,058	,210**
3	,172**	,165**	1	,296**	-,011	,141*	,170**	,136*	,100	,306**	,259**	,086	,126*	,123*	,057	,058	,086	,117*
4	,275**	,274**	,296**	1	,338**	,382**	,289**	,383**	,346**	,453**	,239**	,265**	,164**	,326**	,246**	,229**	,070	,130*
5	,279**	,253**	-,011	,338**	1	,385**	,241**	,399**	,370**	,343**	,139*	,447**	,209**	,309**	,401**	,251**	,180**	,093
6	,568**	,323**	,141*	,382**	,385**	1	,399**	,528**	,600**	,309**	,234**	,470**	,233**	,196**	,233**	,121*	,116*	,093
7	,245**	,117*	,170**	,289**	,241**	,399**	1	,352**	,317**	,274**	,219**	,216**	,112	,257**	,214**	,258**	,032	,105
8	,363**	,231**	,136*	,383**	,399**	,528**	,352**	1	,576**	,356**	,242**	,380**	,234**	,309**	,226**	,303**	,131*	,122*
9	,568**	,262**	,100	,346**	,370**	,600**	,317**	,576**	1	,359**	,286**	,538**	,282**	,256**	,293**	,208**	,108	,153**
10	,272**	,290**	,306**	,453**	,343**	,309**	,274**	,356**	,359**	1	,445**	,387**	,270**	,378**	,325**	,255**	,081	,195**
11	,244**	,104	,259**	,239**	,139*	,234**	,219**	,242**	,286**	,445**	1	,349**	,294**	,202**	,228**	,271**	,089	,109
12	,413**	,297**	,086	,265**	,447**	,470**	,216**	,380**	,538**	,387**	,349**	1	,473**	,236**	,362**	,163**	,011	,095
13	,166**	,109	,126*	,164**	,209**	,233**	,112	,234**	,282**	,270**	,294**	,473**	1	,267**	,275**	,172**	,033	,162**
14	,209**	,182**	,123*	,326**	,309**	,196**	,257**	,309**	,256**	,378**	,202**	,236**	,267**	1	,575**	,544**	,071	,082
15	,188**	,208**	,057	,246**	,401**	,233**	,214**	,226**	,293**	,325**	,228**	,362**	,275**	,575**	1	,470**	,135*	,149*
16	,184**	,170**	,058	,229**	,251**	,121*	,258**	,303**	,208**	,255**	,271**	,163**	,172**	,544**	,470**	1	,169**	,048
17	,117*	,058	,086	,070	,180**	,116*	,032	,131*	,108	,081	,089	,011	,033	,071	,135*	,169**	1	,139*
18	,197**	,210**	,117*	,130*	,093	,093	,105	,122*	,153**	,195**	,109	,095	,162**	,082	,149*	,048	,139*	1

1. With Covid-19; I tented towards activities that I could enjoy nature
2. With Covid-19; I started reading more books
3. Before the Covid-19 outbreak, I preferred indoor spaces more
4. After the Covid-19 outbreak, I prefer open spaces more
5. Even if the pandemic is over, I will continue to go to more open areas
6. My interest in nature has increased during the pandemic
7. After the pandemic outbreak, my interest in open spaces increased
8. I understood the value of nature more during the pandemic
9. The pandemic has taught me that I can be happy engaging with nature
10. I am aware that I am experiencing changes in my spatial preferences
11. Before the pandemic outbreak, my aesthetic concerns were more prominent in my spatial preferences
12. After the pandemic outbreak, spatial that give importance to ecological approaches started to attract my attention more

13. I need natural elements to be included in the interior during the pandemic
14. After the pandemic outbreak, I pay attention to the fact that the place I am in is large and suitable for social distance
15. After the pandemic outbreak, I give importance to the fact that a place I will go has a possibility of an open space
16. After the pandemic outbreak, I pay attention to the fact that the places I will go are spacious and hygienic
17. During the Covid-19, my city offered me enough
18. After the pandemic outbreak, I started doing sports outdoors/at home
**(p<0,01), *(p<0,05), N=289

In this stage of the study, the subject of whether it will change the future landscape architecture design concept and architectural profession disciplines was measured via the participants (Tables 9-10). The percentages are 33.4% agree, 19% strongly agree, 15.9% have no idea, and 5.7% disagree with the statement "*I think a new landscape architecture design approach should come after the pandemic is over*" (Table 9). The percentages are 30.6% agree, 20.1% strongly agree, 19.5% I have no idea, 3.1% disagree, 1% strongly disagree with the statement "*I think the pandemic has affected/changed the professional disciplines of architecture closely*" (Table 10).

Table 9. Measuring the change in landscape architecture design concept with the pandemic

I think a new landscape architecture design approach should come after the pandemic is over				
	Frequency	Percent	Valid Percent	Cumulative Percent
Strongly agree	74	19,0	25,6	25,6
Agree	130	33,4	45,0	70,6
Have no idea	62	15,9	21,5	92,0
Disagree	22	5,7	7,6	99,7
Strongly disagree	1	0,3	,3	100,0
Total	289	74,3	100,0	

Table 10. Measuring the change in the professional disciplines of architecture with the pandemic

I think the pandemic has affected/changed the professional disciplines of architecture closely				
	Frequency	Percent	Valid Percent	Cumulative Percent
Strongly agree	78	20,1	27,0	27,0
Agree	119	30,6	41,2	68,2
Have no idea	76	19,5	26,3	94,5
Disagree	12	3,1	4,2	98,6
Strongly disagree	4	1,0	1,4	100,0
Total	289	74,3	100,0	

4. Discussion And Conclusions

Although there exist many publications about Covid-19 at the time, it is unknown how much more effective the disease will be (Cam 2020; Li et. al. 2021). So We need to rethink design principles every architectural disiplinces (Megahed and Ghoneim 2021). Governments have reacted to the Covid-19 by implementing self-isolation and physical distancing measures that have substantially affected daily life throughout the whole world (Hu et. al. 2021; Shakibaei et. al. 2021). Because before Covid-19 pandemic most of people live and work densely populated environments in urban areas. Whereas a significant number of evidences show that spending time in natural environments and frequent contact with nature can have positive effect on human health and wellbeing (Hartıg et. al. 2001; Zhang et. al. 2014; Aerts et. al. 2018). Among the changes experienced during the Covid-19, the "spatial preference changes" of people were examined via the participant of the online survey. As a result of this study architecture, interior design, landscape design and urbanism after the Covid-19 epidemic will never be the same.

In this study, it was questioned whether people in Turkey were affected by the restrictions in the Covid-19 process and spatial preferences before/after covid 19. To survey before the start of the pandemic outbreak, people mostly prefer to go to "cafes and restaurants (5,33) and the reasons for preferring these places are the "scenery characteristic (4,12)" and "various activities for children (3,18)". Also before the start of the pandemic outbreak, the rate of people choosing malls (3,56) is lower than the rate of going to open areas (5,18) and cafes (5.33). The reasons why people prefer spatial they go during Covid-19 are "scenery characteristic" (4,12)" and "presence of activities for children (3,18)" are among the important ones. When we look at this result, we can say that people pay attention to the natural scenery characteristic because they want to relax and breathe before Covid-19. At the same time, we can say that families make priority decisions for their children who have to spend the whole day in the house during the Covid-19 pandemic. The

spatial preferences rates have varied dramatically after Covi-19 pandemic. While 23.7% of people preferred to go to cafes and restaurants before the pandemic outbreak, 9% of the participants preferred to go to cafes and restaurants after the pandemic outbreak. Likewise, before the pandemic outbreak, 15.7% of the participants preferred to go to open areas, while after the pandemic outbreak, 41.9% of the participants started to prefer open areas. So Covid-19 infects from person to person with the contagion (Li et. al. 2021) people prefer open spaces where they can maintain social distance.

While 88% of the participants stated that they were psychologically affected by the outdoor restrictions, 58% of these answers belong to women and 42% to men. When we look at this result, we can say that women are affected more than men. Connor et. al. (2020) emphasize that due to reduced healthcare access experienced by many women are more sensitive to many psychologically issues.

We can see that the majority of the participants, who make up the 88% result, are "people who spend most of their time in front of a computer and a TV, and people who spend most of their time taking care of the house ". When we look at this result, we can say that people who are not interested in open areas and are mostly interested in electronic equipment and home are psychologically affected more by the Covid-19. This is due to the high risk of disease transmission outdoors and is the need for technological products in order to continue education or business life.
During the Covid-19, the participants made differences in their living spaces, some of them "bought kitchen equipment for cooking" with 36.2% and "strengthened the technological infrastructure for communication and education" with 26.5% (Table 6). The people, who spend most of his life in the house, has focused on improving his communication and food needs. Bracale et. al. (2020) say that increase in the consumption of pasta, flour, eggs, long-life milk and frozen foods, in comparison to a reduction of fresh food goods. People produce homemade bread, pizza and cakes more than normal at home in the Covid-19 process.

As a result of the factor analysis, during the determination of the changing preferences during the Covid-19, "With Covid-19; I tended towards activities that I could enjoy nature (0.748)", "I became more interested in my home (0.746)", "I discovered different places to go in the city I live in (0.650)" were found to be important factors. This is among the most important consequences of the pandemic. With this pandemic, we can say that "people are more oriented towards nature and they want to see more natural elements in their environment. With the correlation analysis, the strongest relationship between the factors was between the criteria "*With Covid-19; I found new hobbies*" and "*With Covid-19; I turned to activities that I could enjoy nature* (0,493**)". The next strong relationship is between "*With Covid-19; I moved away from indoor spaces* and "*With Covid-19; I turned to activities that I could enjoy nature* (0,450**)". When we look at these results, people get away from indoor spaces and find new hobbies in nature; we can say that it taught them to enjoy nature. This effect is a positive consequence of the pandemic on humans. This result obtained by correlation analysis is also supported by the factor analysis in Table 7. Similar results were obtained in Table 7. These results are as follows; "*The pandemic has taught me that I can be happy engaging with nature* (0,725)", "*My interest in nature has increased during the pandemic* (0,691)", "*I understood the value of nature more during the pandemic* (0,677)", "*After the pandemic outbreak, spatial that give importance to ecological approaches started to attract my attention more* (0,676)," and "*With Covid-19; I tented towards activities that I could enjoy nature (0,620)*". All these results show that the pandemic has changed the people's spatial preferences and made them more oriented towards nature.

The pandemic outbreak has created sharp changes and results in many areas all over the world. These changes have also affected landscape architecture and architectural profession disciplines, which have design understandings that will respond to people's needs and wishes (Tables 9-10). When we examine the results in Tables 9-10, 33.4% of the participants think that "*a new landscape architecture design approach should come after the pandemic outbreak*". This shows that new understandings will come in design profession disciplines as well as changes in other sectors. As a result; it can be concluded that the pandemic affects people in many ways in terms of spatial, life and psychological preferences. Researches and this study have shown that "nature" has taken on the role of being the closest friend of human beings in this pandemic outbreak. In other words, we can conclude that this negative process actually has positive awareness effects on people. The fact that people learn that they could also enjoy nature, prefer open areas more, and give more place to plants in their lives supports these results. When we consider all these results, we can conclude that the nature has been the most important shelter for human beings since their wellbeing and existence.

With the findings and results obtained in the study, the following suggestions can be made:

- Urban green areas with the potential to be used before and after the pandemic should be determined. These areas should be shaped in a sustainable way with solutions suitable for use in pandemic conditions.

- In spatial designs to be made for people, possible epidemics and disasters should be considered.

- Flexible spatial open to new normals should be designed as the current Covid-19 outbreak is not the first and will not be the last. Many previous disasters/epidemics in the world set an example for this.
- As the results of the study reveal, the positive effects of green areas on human psychology are very high. For this reason, green natural elements should be included more in indoor/outdoor designs.

- Today, people with a busy work schedule had to spend most of their days indoors as, with the use of technology in every field, most people are working on the computer in the office

environment. This pandemic outbreak, on the other hand, has forced these people to stay indoors even more and has had a negative psychological impact. As a solution to this problem, the use of more natural elements (plants, wood, natural stone, etc.) should be encouraged in the interior, and activity solutions with the social distance and without harm to nature in outdoor applications should be considered.

- The necessity of maintaining social distance in addition to

- outdoor restrictions during the pandemic is a harbinger of the
- need for new design approaches within urban green spaces (children's play area, urban furnitures etc.). In this sense, the outdoor activities of people should be determined and supported by sustainable urban landscape approaches.

- In the light of all this information, architecture, landscape architecture, urban planning, psychology etc. with multidisciplinary approaches space analysis should be carried out.

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