

# **Sculpture parks and positive mental health during the COVID-19 – Investigation of the effects of COVID-19 pandemic on sculpture park's visitation**

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## **1. Abstract**

The existing COVID-19 pandemic circumstances are expected to cause a global mental health crisis due to isolation, fear, and financial and occupational instability (Rajkumar 2020; Torales et al. 2020). Over the last year, while so many of us have struggled with the pandemic's anxiety and isolation, connection with nature has been a vital source of relief for millions, allowing individuals to feel involved, invigorated, calmed, and focused. We have also seen an explosion of proof, particularly in the last ten years, demonstrating how both nature and creativity may serve as foundations for healthy mental and emotional well-being and how they can benefit those with both chronic and acute mental illness. The continued usefulness of sculpture parks as stress-relief and relaxation spaces during a pandemic crisis underscores the value of what researchers have been informing us for many years. With many galleries and museums closed, the sculpture park's green outdoor space has emerged as an alternative, socially distanced public space punctuated with art, offering a similarly harmonious natural and creative balance.

This study looks at the influence of the world health crisis COVID-19 on sculpture parks visitation and the subsequent government restrictions on the epidemic in six European countries. It evaluates the significance of sculpture parks outdoor areas during this global health crisis. The collected data was primarily from the OXfordford Coronavirus Government response tracker and Google's Community Mobility Reports. Residents' need for outdoor green spaces such as sculpture parks has increased since the COVID-19 pandemic, emphasizing the sculpture parks outdoor spaces' critical role and advantages primarily on their wellbeing and mental health. We conclude with recommendations to sculpture park managers and other decision-makers about planning and management during similar health crises. Sculpture Parks could be used during pandemics to improve mental and physical health and enhance individuals' social well-being.

## **2. Introduction**

COVID-19 began its unwavering journey across the world in 2019; The World Organization has classified it as a pandemic based on its worldwide spread and the vast numbers of new confirmed cases and deaths it has caused (WHO 2020), resulting in extreme restrictions on movements and behavior in public space, social distancing and quarantine were the main essential precaution executed to confront the COVID-19 virus expansion. By April 2020, around 90% of institutions (ICOM - International Council of Museums 2020; UNESCO 2020) were closed, placing severe anxiety on the cultural sector and its constituent communities and economic and social hardship (UNESCO 2020). This resulted in a decent opportunity to stretch legs and hunt for art elsewhere. Also, the quarantine and the self-isolation, limited outdoor and social activities, the social hostile news media, and other pandemic situation consequences drove stressors like food insecurity and financial issues all have resulted in adverse psychological and physiological impacts on people.

Smithsonian Magazine' July 2020 issued by Alice Wayne Tower. Published an article written by Ellisaveta M. Brandon under the title "*Are sculpture parks having a moment in the sun?*"The article discusses how sculpture parks and gardens had emerged as an alternative, socially distanced public spaces punctuated with art when many galleries and museums closed. From all over the world, art institutions have kept these outdoor spaces operational, reinforcing the prominence of the 1960s art movement.

The global rise of the COVID-19 pandemic threatened human survival and health crisis, but it also forced the closure of museums and other artistic institutions. The publication, installation, or display of art activities was also forced to close. Even during the easing period of the epidemic, many Museums and galleries reopen to the public; however, people remain skeptical and hesitant about participating in indoor art activities.

Compared with the traditional indoor space of art galleries and museums, the sculpture park has become an outdoor space that can be far from the rapid spread of the virus, where there is an interaction between audience and art. During the COVID-19 pandemic, sculpture parks have attracted increased attention due to their valuable and significant roles, such as offering places where people may still enjoy healthy and safe outdoor recreation while being close to and exposed to art.

This paper extends the discussion on the public role of the sculpture park and its accessibility during the COVID-19 period. Especially in the post-epidemic period, when gatherings became illegal under epidemic prevention norms, art galleries and museums in severely affected areas faced closure, unable to provide the public with access to art.

Sculpture Park visitor numbers have altered during the COVID-19 pandemic, and the way these changes have diverse from one country to another. According to Google COVID-19 community mobility reports, parks visitation –when saying park visitation in this research, it includes the sculpture parks visitation as well according to park definition provided by Google COVID- 19 community mobility– Between Jan. 3rd and Feb. 6th, 2020, the mean value of daily sculpture park visitors in most countries declined at first before increasing to values equal to or even more significant than the baseline. This paper tackles the following research question:

- (1) What factors have affected sculpture parks' visitation during the COVID-19 pandemic?
- (2) What is the relationship between the visitors' number of sculpture parks and the number of COVID-19 daily cases? Do government regulations govern this relationship?
- (3) What benefits and roles did sculpture parks provide during the COVID-19 pandemic? How might sculpture parks outdoors be effectively managed to meet the needs of urban residences during similar health crises and pandemics?

### **3. Methods and Data**

#### *3.1. The COVID-19 effects on sculpture parks visitation framework*

The data gathering is outlined in the research's general analytical framework, methodology, and analysis used in this paper to examine the influences of COVID-19 on the alteration of the sculpture park visitation statistics and how this last helped in the visitor's wellbeing during the COVID-19

time. The framework was designed and structured like the following. It comprised three groups of variables, including COVID-19 daily new cases, park visitor number changes, and the followed government restrictions and regulations. Once the data was assembled, stepwise regression analysis and correlation analysis were applied to the six European countries, which were the most affected countries by the outbreak of the COVID-19, to investigate the impacts of COVID-19 and associated policies on sculpture park visitors' numbers. This allowed studying the correlations between sculpture park visitation and numerous indicators explored in this paper. In the following section of this paper, a full methodological description is provided and detailed explanations of each process step.

### 3.2. Study area

As a first step, we looked for the most affected regions by the Covid19 on a global scale. According to the World Health Organization (WOH), Europe was the most affected region by showing the highest number of COVID-19 after its four waves. Figure 1: Situation by WHO Region from Dec. 30, 2019, to March 07, 2022. In the second step, we selected the top six European countries that had passed through the most severe COVID-19 outbreaks from its start until March 6, 2022 (Statista 2022), which are: The United Kingdom, France, Russia, Germany, Italy, and Spain. Three severity indicators were used to select the study area of this research: the total number of Covid-19 cases, fatality, and infection rates.

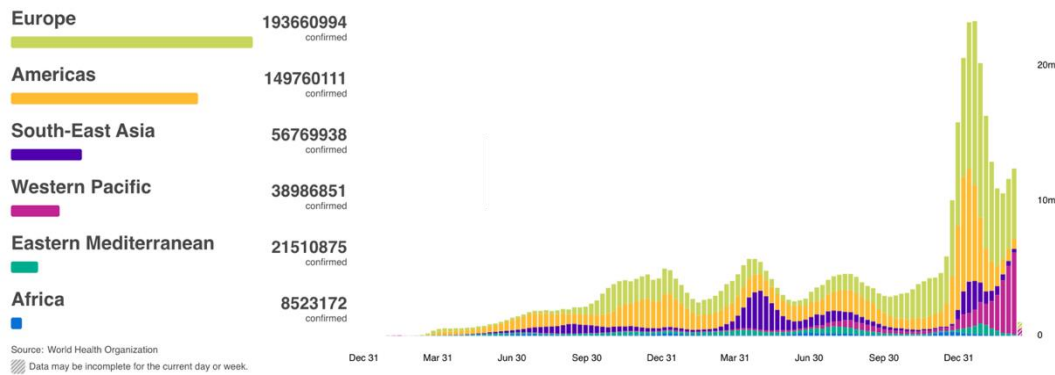


Figure 1. Situation by WHO Region from December 30, 2019, to March 07, 2022 (World Health Organization official website)

### 3.3. Variables selection and data collection

#### 3.3.1. Sculpture Park visitation data during the Covid-19 period

The Google Community Mobility Report (GCM) official website supplies the Data of park visitation acquired for this research that is continuously updated by Google and displays reports that are constantly updated by Google in the form of graphs over time by geographical area. It illustrates how people's movements have changed daily since Feb. 16th, 2020. In this Dataset, parks contain outdoor spaces such as public beaches, marinas, national parks, public gardens, and dog parks. The sculpture parks are considered parks dedicated to exhibiting artworks. This research considers that the dataset collected from Google Community Mobility for parks' visitation reports

includes the sculpture parks visitation. Park visitors' numbers were statistically obtained starting from Feb. 16th, 2020, to March 7th, 2022, for this study, spanning all COVID-19 waves for all the selected sculpture parks' regions of this research. Another vital piece of information to mention in this paper is that our study considers only the sculpture parks outdoors that remained open during the COVID-19 outbreak.

### *3.3.2. COVID-19 confirmed cases daily*

The World Health Organization's (WHO) health Emergency Dashboard supplied data on the number of daily confirmed COVID19 cases for this study. Every 15 minutes, the information is updated. Another daily affirmed COVID19 patients' dataset was used to supplement the data reported on Our World in Data's website. To be compatible with the data for park visitors' numbers, the daily confirmed instances of COVID19 assembly were acquired from Feb. 16th, 2020, to March 7th, 2022.

### *3.4. Statical analysis*

This study conducts a statistical examination of the effects of COVID19 on the number of visitors to sculpture parks on a regional scale for the six countries listed previously. Correlation analysis, stepwise regression analysis, and ANOVA analysis were all included. The Stepwise regression approach was used because it does not require any prior theoretic acquaintance of the envisioned effects of the COVID19 pandemic and the following government policies on the visitation of sculpture parks. As a result, independent variables that significantly impact the visitation of sculpture parks can be identified more easily.

We started by analyzing the impact of COVID-19 and the following government responses and policies across the six selected European countries. The next step was the correlation between park visitation numbers, government responses, and the COVID-19 confirmed cases. Following the correlation, each country performed a stepwise regression analysis and a full assessment of the effects and drivers of the chosen variables on park visiting statistics.

## **4. Results**

### *4.1. The effects of COVID-19 on sculpture park visitation in the six selected European countries: United Kingdom, France, Russia, Germany, Italy, and Spain*

Table1 demonstrates the correlation between the park visitation number where sculpture park visitors' numbers are included –as explained previously in this research– COVID-19 daily cases numbers increase and the seven government responses for the six selected European countries. At a 95% confidence interval, most factors were negatively linked with changes in park visiting numbers. For example, in the United Kingdom, the most significant negatively correlated independent variable stays at home restrictions, followed by public events cancellations and workplace closing. The confirmed daily cases had the lowest considerable effect on the registered changes in sculpture park visitors numbers in the United Kingdom.

Various assumptions were tested before using stepwise regression analysis. First, we checked for normality; With a 95 percent statistical significance level, we used Kurtosis and skewness values to see if variables trim a normal distribution. Tolerance values and the variance inflation factor (VIF) were then determined to verify the absence of multicollinearity problems. The findings of the stepwise regression investigation are shown in Table 2.

At each level of the regression model, we added and eliminated variables, as shown in Table 2. Based on each independent variable's *P-Value*—the lower *P-Value*, the greater the statistical significance of the observed difference. *P-value* served in our analysis as an alternative to increase the confidence levels for our hypothesis testing. The independent variables for the model were chosen because each had a significant impact on the model's predictive abilities. For example, in France Model 2 showed that the stringency index had a lower *P-value* compared to all other variables (*P-value*=9,75014E-33) which mean in France Stringency index was the most important impact factor, followed by movement restrictions (*P-value*=8,49981E-10), restrictions on gatherings(*P-value*=6,06478E-09), Confirmed COVID-19 cases(*P-value*=1,96043E-06), and stay at home restrictions(*P-value*=8,49981E-10). In Italy, from Model 3 as well, we can see that the stringency index had a lower *P-value* in comparison to all other variables (*P-value*=4,52276E-97,) which makes it in Italy as well the most important factor, followed by public event cancellations (*P-value*=3,64443E-26), confirmed COVID-19 daily cases (*P-value*=1,61372E-05), and at last, the movement restrictions (*P-value*=0,000385297) with the lowest impact.

**Table 1. Correlation between park visitor numbers (including sculpture parks), governments responses, and COVID-19 in the six selected European countries (by author)**

Country	Stringency index	Workplace closing	Public events cancellations	Restrictions on gatherings	Stay at home restrictions	Movement restrictions	Confirmed COVID-19 Daily cases
<b>United Kingdom</b>	- 0,17896230 3	- 0,19181444 5	- 0,22457330 8	0,23530399 7	- 0,34843901 2	- 0,16394002 4	- 0,10223518 9
<b>France</b>	- 0,55222572	- 0,37562469 1	- 0,35347303 2	- 0,11743195 9	-0,5381225	- 0,21037376 7	0,01886601 9
<b>Russia</b>	- 0,04937630 9	- 0,00674145 2	- 0,05344720 1	0,09110554 1	- 0,52893324 1	0,04595782 7	- 0,16335256 4
<b>Germany</b>	- 0,27583649 2	- 0,17539796 2	0,10936031 5	0,00428412	- 0,33958041 2	- 0,22230868 8	- 0,11246391 7
<b>Italy</b>	- 0,58983399 6	- 0,38260516 3	- 0,13792573 4	- 0,37918327 2	- 0,11518263 5	- 0,19213817 4	0,09550314 3
<b>Spain</b>	- 0,50343894 4	- 0,52150305 7	- 0,00842220 2	0,11841058 6	- 0,18255247 5	- 0,24048931 9	0,21133990 8

Further analysis was undertaken for the selected countries. As for March 2022, we can see that the number of sculpture park visitors had increased, although in various degrees Figure 03. Considering the park definition from the official webpage of Google Community Mobility Report, sculpture parks are included in the data. The rise in park visitors in Italy, Germany, the United Kingdom, and France was between 0-250% compared to the baseline. At the same time, the rise in

park visitors in Spain was between 0-150%. The number of park visitors in Spain and Italy followed a similar pattern, starting with shrinking by more than 90% between March and April 2020. Once the governments started to control the COVID-19 situation in May 2020, the park visitation increased again and rose, exceeding the baseline. The United Kingdom and Germany also showed a similar trend in park visitation, first showing a decrease in park visitations.

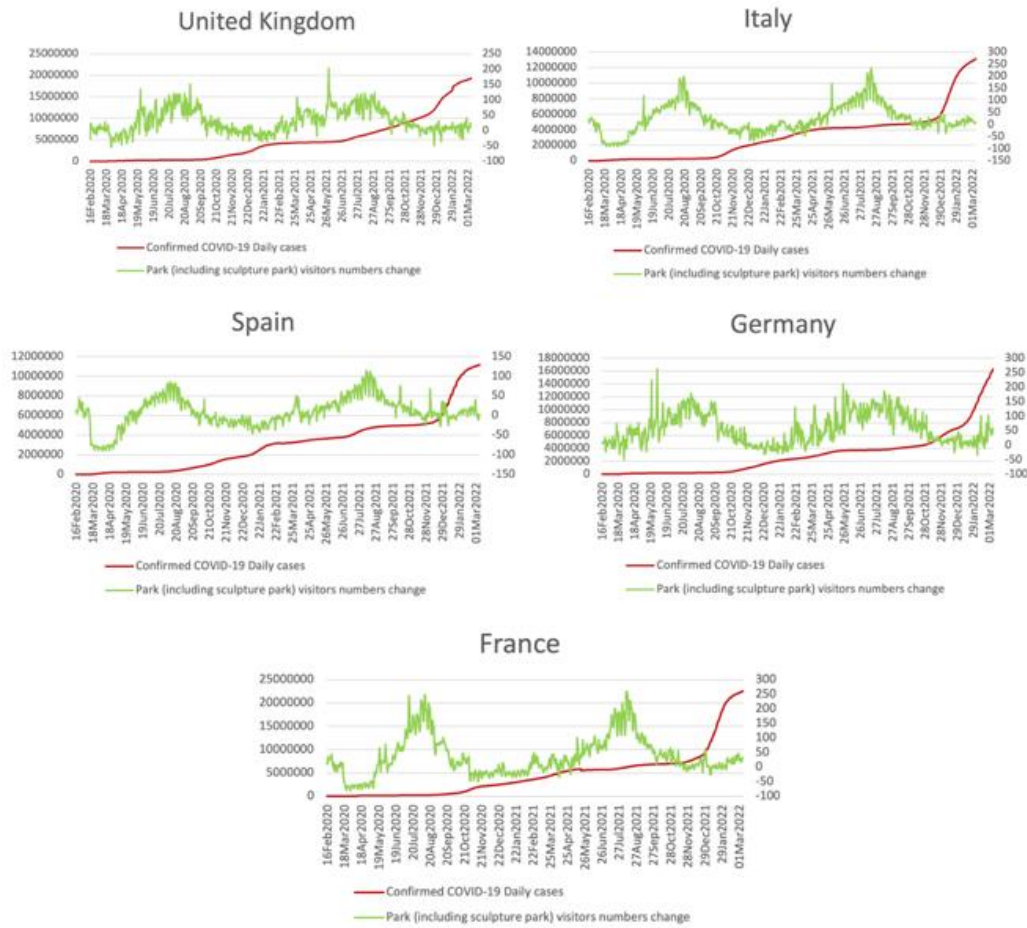
**Table 2. COVID-19's impacts on park visitation (including sculpture parks) in the six selected European countries (by author)**

Countries	Variables	Model 1	Model 2	Model 3
United Kingdom		<i>P-value</i>	<i>P-value</i>	<i>P-value</i>
	Workplace closing	0,020248902	0,014842567	
	Public events cancellations	0,36386311		
	Restrictions on gatherings	2,65999E-28	2,15891E-29	
	Stay at home restrictions	0,001612741	0,002489854	
	Movement restrictions	0,010775364	0,016582777	
	Confirmed COVID-19 daily cases	3,80667E-06	3,22537E-09	
France		<i>P-value</i>	<i>P-value</i>	
	Stringency index	4,83248E-21	9,75014E-33	
	Public events cancellations	0,191722377		
	Restrictions on gatherings	9,42107E-09	6,06478E-09	
	Stay at home restrictions	6,34534E-06	1,52496E-05	
	Movement restrictions	6,50649E-08	8,49981E-10	
Russia		<i>P-value</i>	<i>P-value</i>	
	Restrictions on gatherings	0,110743366		
	Workplace closing	0,000231226	0,000469955	
	Public events cancellations	9,48646E-26	3,13159E-25	
	Stay at home restrictions	1,44642E-81	3,85248E-81	
	Movement restrictions	1,38827E-12	3,21891E-17	
	Confirmed COVID-19 daily cases	7,33324E-08	2,02137E-10	
Germany		<i>P-value</i>	<i>P-value</i>	<i>P-value</i>
	Stringency index	0,418949891	0,429768977	
	Workplace closing	0,00574375	0,005798114	6,40554E-06
	Public events cancellations	2,96109E-07	1,39831E-07	9,19977E-08
	Restrictions on gatherings	0,009159859	0,00875179	0,010711152
	Stay at home restrictions	0,000143118	5,63357E-06	2,44407E-21
	Movement restrictions	0,022970765	0,004397385	3,20594E-07
	Confirmed COVID-19 daily cases	0,780461602		
Italy		<i>P-value</i>	<i>P-value</i>	<i>P-value</i>
	Public events cancellations	1,82643E-25	2,49487E-25	3,64443E-26
	Stringency index	3,45751E-55	6,7949E-63	4,52276E-97
	Workplace closing	0,152719722	0,158967696	
	Restrictions on gatherings	0,217780296		
	Movement restrictions	0,000732849	0,000970699	0,000385297
Confirmed COVID-19 daily cases	4,9223E-06	8,74818E-06	1,61372E-05	

		<i>P-value</i>		
<b>Spain</b>	Stringency index	4,9399E-106		
	Workplace closing	0,000515179		
	Public events cancellations	7,93951E-34		
	Restrictions on gatherings	5,3994E-71		
	Stay at home restrictions	1,18143E-22		
	Movement restriction	5,15131E-13		
	Confirmed COVID-19 daily cases	7,5764E-16		

In contrast, the confirmed case decreased rapidly and after quickly increased, reaching high levels above the bassline. In France, the lowest value sculpture park visitation arrived below the baseline was only at the beginning of the outbreak in March, and April 2020 going -50% lower than the bassline. After, there were mainly increases above the bassline during the rest of the epidemic.

COVID-19 impacted the government's responses and restrictions in the six countries studied. The daily increase has a significant effect on the change in sculpture park visitation in the six designated countries, the daily growth in the confirmed cases of COVID-19, government stringency index, and stay at home restrictions usually received very low *P-value*, implying that these variables had a detrimental impact on sculpture park visitation. Other conditions, like social gatherings restrictions, workplaces closure, internal movements, and the cancellations of public events, tended to affect the sculpture park's visitation positively.



**Figure 2. The daily COVID-19 cases and the park visits numbers in the chosen six European countries (by author)**

## 5. Discussion

### 5.1. Impact of COVID-19 and the related government reactions on sculpture park visitor numbers in the six selected European countries

Numerous governments acted quickly in response to COVID-19. Dramatic shifts in social behavior have muddled relatively comparable data (such as the number of new cases every day) (Hockings et al. 2020). Most outdoor sculpture parks in most nations are still open, and many have increased visitors since the COVID-19 outbreak. However, the governmental responses included the closing of workplaces, social gatherings restrictions, and internal movements. For example, the number of visitors in Germany is higher (Fisher and Grima, 2020). In contrast, stay-at-home measures and government stringency index regulations were linked to a decline in sculpture park visitors.

The mental health consequences of regime reactions to the pandemic crisis and the importance of green open spaces, in enhancing the role of green open spaces during this global pandemic crisis are two possible explanations for these findings. Many people went above and beyond what the



government asked, changing their behavior to decrease or protect themselves from the risk of the virus and engaging in scarcer everyday activities and routines (Ferguson 2007). According to previous studies, controlled social and physical engagement with others confinement throughout severe pandemics may lead to frustration, grief, social separation and might aggravate people's mental health, physical distress, and well-being (Cava et al. 2005). With this psychological stress, limited social interaction with others, and growing worries about mental health, individuals may seek out connections with nature and alleviate the harmful effects of self-quarantine by visiting adjacent green spaces, including sculpture parks green open areas.

The second cause for increased park visitation might be the workplace closure regulation. Working from home rules dramatically alter people's everyday routines. Lack of exercise might increase people's stress and discontent while diminishing their urge to go outside, according to an earlier study on the mental effect of SARS confinement (Reynolds et al. 2007; Hawryluk et al. 2004; Robertson et al. 2004). Also, due to the closing of other frequently visited public places, such as restaurants and shopping malls sculpture parks become one of the outdoor places where people are allowed to go for their outdoor activities (Freeman and Eykelbosh 2020).

The model's first variable was chosen throughout most groups, given the high *P-value*. This corresponds with past findings. During or after a health emergency crisis, the government's strictness significantly impacts human conduct, such as isolation or self-quarantine. (Hussain 2020). COVID-19 and the accompanying government actions have various effects on park visitation on a regional basis. Even though the government stringency index was the initial option in most countries' stepwise regression models, the coefficients varied by country. The relationship between rising COVID19 daily cases and park visitation fluctuations switched from a negative to a significant positive correlation. The brutality of the outbreak and the sternness of government restrictions in every country account for this. As an example, in nations with COVID-19 severe case numbers and rigorous government measures, the government stringency index had negative coefficient values, restricting people's ability to attend open green spaces, including the sculpture parks outdoors area. Social gathering prohibitions considerably influenced park visitor numbers among the variables studied. During the outbreak of COVID-19, more people went to green open places as the social gathering prohibition became stricter and the public COVID-19 awareness campaign became more prominent –including the open sculpture park's outdoor spaces– and stayed longer.

Intensive COVID-19 awareness campaigns, in conjunction with the epidemic's severity, may have convinced people to respect the regulations they can frequently follow while visiting the outdoor open spaces of sculpture parks. In addition, the number of visitors rose in the selected countries compared to the numbers recorded before the Covid-19 crisis started. On the other hand, sculpture Park visitation levels and trends differed significantly. Sculpture Park visits increased between 0-250 percent in Italy and Spain above zero. Meanwhile, the sculpture parks visitation numbers in the UK surged by more than 100 percent. Park visitor numbers first declined dramatically in countries like Italy, which suffered a severe COVID-19 epidemic and enforced highly stringent restrictions. Once the epidemic was beneath control and the government slacked certain conditions, sculpture parks visits rose to levels slightly above baseline.

In nations with significant COVID-19 epidemics, the much more relevant factor negatively correlated with sculpture park visiting was the daily increase in cases. In countries where the

COVID-19 situation has been less complicated, neither the government policies nor daily increase in cases was correlated to park visitor numbers. Limits on social gatherings and workplace closures were related to higher visits, perhaps because people escaped to parks, including the outdoor green area of sculpture parks when they escaped from their daily routine to avoid the sensation of isolation resulting from the less social interaction.

## **6. The advantages of sculpture parks and open green areas in the context of the COVID-19 pandemic**

*6.1. Advantages of visiting the sculpture park's outdoors on mental health and stress reduction.* Open Natural areas are universally recognized to supply significant public benefits, notably during health emergencies like the COVID-19 crisis. As a result of the virus's spread and the government's response, the public has begun to recognize the long-overlooked benefits of green open spaces. (Hockings et al. 2020). The results from this research showed that there was an increase in the demand for sculpture parks outdoors during the COVID-19 pandemic.

The epidemic has created substantial psychological issues for many people and is a major worldwide health disaster (Bavel et al. 2020). The effects of the self-quarantine and other response regulations, particularly the fear of the virus, on people's mental health, are expected to be consequential (Freeman and Eykelbosh 2020). The duration of confinement, worries of infection, frustration, boredom, and insufficient information are all factors that severely influence people's mental health and wellbeing (Brook et al. 2021). Self-quarantine for longer lengths of time might result in poor psychological health, anxiety signs, and further severe mental consequences. (Brooks et al. 2020; Wilken et al. 2017).

During a significant health crisis, sculpture parks may alleviate stress and provide a variety of psychological and emotional advantages (Annerstdt et al. 2012). They offer potential to visitors such as open green space, serenity, wildness, lush environment, and being close and exposed to art, which helps in reducing the risk of anxiety, stress, and poor mental health. Various research has shown that spending time in nature and being exposed to art decreases stress and enhances self-esteem, improves general welfare and psychological well-being, and increases creativity significantly, which is highly needed during a pandemic crisis like the COVID-19 (DayOne 2020). Also, sculpture parks outdoors may improve social cohesiveness and offer high levels of communal feelings of belonging and integration may decrease the danger of antisocial conduct, particularly throughout outbreaks of diseases like the COVID-19.

The significance of the sculpture park at the level of education and display is to bring the public to a more open outdoor space and encourage them to face the inspiration of the visual and perceptual experience of the individual's body. Sculpture Park During the COVID-19 pandemic has been a challenge rather than a struggle. Do people want to spend more time staring at the screen when they stay at home? Alternatively, maybe they want something different?" Whether people are stuck at home and want to be spending yet more time staring at the screen, or might they want something different may not be possible in the indoor space of the Art Museum during the epidemic. Still, the outdoors of the sculpture park can develop another kind of museum's white cube galleries to the Green open maze that the sculpture park can supply for this purpose. The visitors can walk in this

area to experience different ways of viewing. Under the raging epidemic, the sculpture park must be a premier critical outdoor sculpture museum.

### *6.2. Benefits of visiting sculpture parks outdoors area on the physical health*

The government has banned many daily activities; outdoors sculpture parks were one of the open green areas that responded by giving green space for physical exercise and fresh air. Many people believe that good physical health and a rapid well-coordinated immune system reaction are the first lines of defense against sickness. Visits to sculpture parks' green outdoor places and other natural places have long been acknowledged for their physical benefits. According to the US Centers for Disease Control and Prevention, visiting parks can improve personal and community health, with individuals who work out in gardens at average three or four times per week claiming a 25% increase in reported physical health and wellbeing (Eastern Kentucky University Recreation and Park Administration 2013). It is healthy knowledge that spending time in open green spaces benefits pulmonary and cardiovascular health; Humans' Natural Killer (NK) cells can be activated by spending time in parks and other natural environments (Freeman and Eykelbosh 2020).

In addition, a sculpture park is like a "playground," where the visitors can choose to travel more freely and flexibly among the sculptures and the natural environment and voluntarily choose to play in the distance or at a close distance. Look at the sculptures and art pieces and be exposed to art pieces from different angles, such as light and shadow and surrounding plants and insects. Therefore, the art viewing in the sculpture park involves a comprehensive body perception, from the integration and interaction of vision, hearing, smell, and touch, to become an experience of knowing art and art that communicates with the world, nature, and the observer himself. This experience of watching, moving around, exploring, and participating in art slowly changes the traditional museum display and education model. The process of art being displayed outdoors will be surprisingly relaxing and calming, especially during a pandemic outbreak when people are more exposed to the risk of suffering from stress—lack of physical activities and anxiety.

## **7. Recommendations for future sculpture park outdoors' planning and development**

### *7.1. Use of sculpture park outdoor area during the COVID-19 epidemic*

In the case of subsequent waves or similar health crises, we urge that the use of sculpture parks be allowed throughout the COVID19 epidemic. Sculpture Parks green outdoor spaces supply essential ecosystem services and open museum art galleries that mitigate some of the anxiety associated with a pandemic crisis and secure mental and physical health. Implementing government measures to COVID-19 severely limits people's social and physical interaction with others. Many sculpture parks allow individuals to go outside without infringing social distancing regulations due to their vast open green spaces and providing advantages that support people in dealing with the mental and physical challenges caused by the epidemic. Also, it is essential to mention that city dwellers in nations with high rates of infection and recorded cases should be encouraged to visit adjacent sculpture parks as long as they respect the safety standards and instructions, such as keeping a safe distance between them.

Several studies proved that the restrictions on green spaces could result in people's severe mental health and physical problems, notably for those living in urban areas during the COVID-19 pandemic (Sallis and Pratt 2020; Slater, Christiana, and Gustat 2020). With a better understanding of how to control and prevent the virus spread, some restrictive government rules, such as staying at home policies, were gradually loosened in society, permitting individuals to access the closed open green areas, such as the sculpture parks' outdoor areas and green spaces, to gain larger spaces for some recreational activities while remaining protected from virus spread. This study strongly encourages and recommends that the outdoor open spaces of Sculpture Parks be used as critical natural services to individual and community well-being in future similar health crises, provided that individuals understand and strictly adhere to the social-distancing guidelines.

## 8. Conclusion

The correlation between the COVID-19 pandemic, the corresponding governments' responses, and sculpture parks' outdoor visitation in the six selected European nations was investigated in this study. In these nations, the visitor numbers of the sculpture park outdoors areas had significantly increased compared to the baseline reported earlier than the COVID-19 commencement. Expanded sculpture park outdoor visitation was tied to public regulations that limited people's social and physical connections. This research has confirmed that the people's need to access the sculpture parks outdoors has significantly increased during the COVID-19 pandemic.

The limitations and the future recommendations of this research are: first, according to the GCM Report, the change in park visitors' numbers was set by the median value of park visitors during the four seasons of the year. However, this change may be influenced by seasonal climate change and the weather. That is why further research is needed after eliminating the effects of these changes on the outdoors of sculpture park visitation. Second, it is highly recommended to conduct another research with focused data only on the sculpture park's visitation, for example, selecting a specific list of sculpture parks and searching for the dataset of their specific visitation numbers.

## References:

- Annerstedt, Matilda, Per-Olof Östergren, Jonas Björk, Patrik Grahn, Erik Skärbäck, and Peter Währborg. 2012. "Green Qualities in the Neighbourhood and Mental Health – Results from a Longitudinal Cohort Study in Southern Sweden." *BMC Public Health* 12 (1). <https://doi.org/10.1186/1471-2458-12-337>.
- Barkhorn, Eleanor. 2020. "Opinion | Rules for Using the Sidewalk during the Coronavirus." *The New York Times*, April 5, 2020, sec. Opinion. <https://www.nytimes.com/2020/04/05/opinion/coronavirus-walk-outside.html>.
- Bavel, Jay J. Van, Katherine Baicker, Paulo S. Boggio, Valerio Capraro, Aleksandra Cichocka, Mina Cikara, Molly J. Crockett, et al. 2020. "Using Social and Behavioural Science to Support COVID-19 Pandemic Response." *Nature Human Behaviour* 4 (1): 460–71. <https://doi.org/10.1038/s41562-020-0884-z>.
- Bratman, Gregory N., Christopher B. Anderson, Marc G. Berman, Bobby Cochran, Sjerp de Vries, Jon Flanders, Carl Folke, et al. 2019. "Nature and Mental Health: An Ecosystem Service Perspective." *Science Advances* 5 (7): eaax0903. <https://doi.org/10.1126/sciadv.aax0903>.

- Braunack-Mayer, Annette, Rebecca Tooher, Joanne E Collins, Jackie M Street, and Helen Marshall. 2013. "Understanding the School Community's Response to School Closures during the H1N1 2009 Influenza Pandemic." *BMC Public Health* 13 (1). <https://doi.org/10.1186/1471-2458-13-344>.
- Brooks, Samantha K., Rebecca K. Webster, Louise E. Smith, Lisa Woodland, Simon Wessely, Neil Greenberg, and Gideon James Rubin. 2020. "The Psychological Impact of Quarantine and How to Reduce It: Rapid Review of the Evidence." *The Lancet* 395 (10227): 912–20. [https://doi.org/10.1016/S0140-6736\(20\)30460-8](https://doi.org/10.1016/S0140-6736(20)30460-8).
- Catanzaro, Michele, Francesca Fagiani, Marco Racchi, Emanuela Corsini, Stefano Govoni, and Cristina Lanni. 2020. "Immune Response in COVID-19: Addressing a Pharmacological Challenge by Targeting Pathways Triggered by SARS-CoV-2." *Signal Transduction and Targeted Therapy* 5 (1): 1–10. <https://doi.org/10.1038/s41392-020-0191-1>.
- Cava, Maureen A., Krissa E. Fay, Heather J. Beanlands, Elizabeth A. McCay, and Rouleen Wignall. 2005. "The Experience of Quarantine for Individuals Affected by SARS in Toronto." *Public Health Nursing* 22 (5): 398–406. <https://doi.org/10.1111/j.0737-1209.2005.220504.x>.
- DayOne. 2020. "Taking Care of Our Wellbeing at Yorkshire Sculpture Park." ELearning News and Views. February 7, 2020. <https://www.dayonetech.com/blog/taking-care-of-our-wellbeing-at-yorkshire-sculpture-park/>.
- Eastern Kentucky University Recreation and Park Administration. 2013. "Importance of Parks and Recreation | Recreation and Park Administration | Eastern Kentucky University." Eku.edu. 2013. <https://recreation.eku.edu/importance-parks-and-recreation>.
- "Europe: COVID-19 Cases, by Country." 2022. Statista. March 6, 2022. <https://www.statista.com/statistics/1104837/coronavirus-cases-europe-by-country/>.
- Ferguson, Neil. 2007. "Capturing Human Behaviour." *Nature* 446 (7137): 733–33. <https://doi.org/10.1038/446733a>.
- Field, Andy. 2012. *Discovering Statistics Using SPSS : (and Sex and Drugs and Rock'n'roll)*. London: Sage.
- Fisher, and Nelson Grima. 2020. "The Importance of Urban Natural Areas and Urban Ecosystem Services during the COVID-19 Pandemic," June. <https://doi.org/10.31235/osf.io/sd3h6>.
- Freeman, Shirra, and Angela Eykelbosh. 2020. "COVID-19 and Outdoor Safety: Considerations for the use of Outdoor Recreational Spaces Prepared By." ResearchGate. unknown. April 16, 2020. [https://www.researchgate.net/publication/340721289\\_COVID-19\\_and\\_outdoor\\_safety\\_Considerations\\_for\\_use\\_of\\_outdoor\\_recreational\\_spaces\\_Prepared\\_by](https://www.researchgate.net/publication/340721289_COVID-19_and_outdoor_safety_Considerations_for_use_of_outdoor_recreational_spaces_Prepared_by).
- Gostin, Lawrence O., and Lindsay F. Wiley. 2020. "Governmental Public Health Powers during the COVID-19 Pandemic." *JAMA* 323 (21). <https://doi.org/10.1001/jama.2020.5460>.
- Hawryluck, Laura, Wayne L. Gold, Susan Robinson, Stephen Pogorski, Sandro Galea, and Rima Styra. 2004. "SARS Control and Psychological Effects of Quarantine, Toronto, Canada." *Emerging Infectious Diseases* 10 (7): 1206–12. <https://doi.org/10.3201/eid1007.030703>.

- Hockings, Marc, Nigel Dudley, Wendy Ellio, Mariana Ferreira, Kathy Mackinnon, Mks Pasha, Adrian Phillips, et al. 2020. "EDITORIAL ESSAY: COVID-19 and PROTECTED and CONSERVED AREAS." *PARKS* 26. <https://doi.org/10.2305/IUCN.CH.2020.PARKS-26-1MH.en>.
- Hussain, A H M Belayeth. 2020. "Stringency in Policy Responses to Covid-19 Pandemic and Social Distancing Behavior in Selected Countries." *SSRN Electronic Journal*. <https://doi.org/10.2139/ssrn.3586319>.
- ICOM - International Council of Museums. 2020. "Museums, Museum Professionals and COVID-19: Follow-up Survey ICOM -International Council of Museums 1." [https://icom.museum/wp-content/uploads/2020/11/FINAL-EN\\_Follow-up-survey.pdf](https://icom.museum/wp-content/uploads/2020/11/FINAL-EN_Follow-up-survey.pdf).
- Larson, Lincoln R., Samuel J. Keith, Mariela Fernandez, Jeffrey C. Hallo, C. Scott Shafer, and Viniece Jennings. 2016. "Ecosystem Services and Urban Greenways: What's the Public's Perspective?" *Ecosystem Services* 22 (December): 111–16. <https://doi.org/10.1016/j.ecoser.2016.10.004>.
- Laster Pirtle, Whitney N. 2020. "Racial Capitalism: A Fundamental Cause of Novel Coronavirus (COVID-19) Pandemic Inequities in the United States." *Health Education & Behavior* 47 (4): 109019812092294. <https://doi.org/10.1177/1090198120922942>.
- Lee, Jee-Yon, and Duk-Chul Lee. 2014. "Cardiac and Pulmonary Benefits of Forest Walking versus City Walking in Elderly Women: A Randomised, Controlled, Open-Label Trial." *European Journal of Integrative Medicine* 6 (1): 5–11. <https://doi.org/10.1016/j.eujim.2013.10.006>.
- Li, Q., K. Morimoto, A. Nakadai, H. Inagaki, M. Katsumata, T. Shimizu, Y. Hirata, et al. 2007. "Forest Bathing Enhances Human Natural Killer Activity and Expression of Anti-Cancer Proteins." *International Journal of Immunopathology and Pharmacology* 20 (2 Suppl 2): 3–8. <https://doi.org/10.1177/03946320070200S202>.
- Nesbitt, Lorien, Michael J. Meitner, Cynthia Girling, Stephen R.J. Sheppard, and Yuhao Lu. 2019. "Who Has Access to Urban Vegetation? A Spatial Analysis of Distributional Green Equity in 10 US Cities." *Landscape and Urban Planning* 181 (January): 51–79. <https://doi.org/10.1016/j.landurbplan.2018.08.007>.
- Rajkumar, Ravi Philip. 2020. "COVID-19 and Mental Health: A Review of the Existing Literature." *Asian Journal of Psychiatry* 52 (102066): 102066. <https://doi.org/10.1016/j.ajp.2020.102066>.
- Randolph, Haley E., and Luis B. Barreiro. 2020. "Herd Immunity: Understanding COVID-19." *Immunity* 52 (5): 737–41. <https://doi.org/10.1016/j.immuni.2020.04.012>.
- Reynolds, D. L., J. R. Garay, S. L. Deamond, M. K. Moran, W. Gold, and R. Styra. 2007. "Understanding, Compliance and Psychological Impact of the SARS Quarantine Experience." *Epidemiology and Infection* 136 (7): 997–1007. <https://doi.org/10.1017/s0950268807009156>.
- Robertson, Emma, Karen Hershenfield, Sherry Lynn Grace, and Donna Eileen Stewart. 2004. "The Psychosocial Effects of Being Quarantined Following Exposure to SARS: A Qualitative Study of Toronto Health Care Workers." *The Canadian Journal of Psychiatry* 49 (6): 403–7. <https://doi.org/10.1177/070674370404900612>.

- Sallis, James F., and Michael Pratt. 2020. "Multiple Benefits of Physical Activity during the Coronavirus Pandemic." *Revista Brasileira de Atividade Física & Saúde* 25 (July): 1–5. <https://doi.org/10.12820/rbafs.25e0112>.
- Saunders, Matthew J., and Carlton A. Evans. 2020. "COVID-19, Tuberculosis and Poverty: Preventing a Perfect Storm." *European Respiratory Journal* 56 (1): 2001348. <https://doi.org/10.1183/13993003.01348-2020>.
- Seaman, Peter J, Russell Jones, and Anne Ellaway. 2010. "It's Not Just about the Park, It's about Integration Too: Why People Choose to Use or Not Use Urban Greenspaces." *International Journal of Behavioral Nutrition and Physical Activity* 7 (1): 78. <https://doi.org/10.1186/1479-5868-7-78>.
- Slater, Sandy J., Richard W. Christiana, and Jeanette Gustat. 2020. "Recommendations for Keeping Parks and Green Space Accessible for Mental and Physical Health during COVID-19 and Other Pandemics." *Preventing Chronic Disease* 17 (July). <https://doi.org/10.5888/pcd17.200204>.
- Torales, Julio, Marcelo O'Higgins, João Mauricio Castaldelli-Maia, and Antonio Ventriglio. 2020. "The Outbreak of COVID-19 Coronavirus and Its Impact on Global Mental Health." *International Journal of Social Psychiatry* 66 (4): 317–20. <https://doi.org/10.1177/0020764020915212>.
- UNESCO [62229]. 2020. "Museums around the World in the Face of COVID-19." Unesco.org. 2020. <https://unesdoc.unesco.org/ark:/48223/pf0000373530>.
- Vivier, Eric, Elena Tomasello, Myriam Baratin, Thierry Walzer, and Sophie Ugolini. 2008. "Functions of Natural Killer Cells." *Nature Immunology* 9 (5): 503–10. <https://doi.org/10.1038/ni1582>.
- WHO. 2020. "WHO Director-General's Opening Remarks at the Media Briefing on COVID-19 - 11 March 2020." World Health Organization. March 11, 2020. <https://www.who.int/director-general/speeches/detail/who-director-general-s-opening-remarks-at-the-media-briefing-on-covid-19---11-march-2020>.
- Wilken, Jason A., Paran Pordell, Brant Goode, Rachel Jarteh, Zayzay Miller, Benjamin G. Saygar, Leroy Maximore, et al. 2017. "Knowledge, Attitudes, and Practices among Members of Households Actively Monitored or Quarantined to Prevent Transmission of Ebola Virus Disease — Margibi County, Liberia: February-March 2015." *Prehospital and Disaster Medicine* 32 (6): 673–78. <https://doi.org/10.1017/s1049023x17006720>.