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Demand for Green Infrastructure Objects During the Covid-19 Pandememy

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Abstract: *Although COVID-19 mass quarantine measures have had some effect against the spread of coronavirus, they have caused people to lose contact with nature and society. This in turn has had a drastic impact on human health, and in this article we will review and analyze how blocking measures have affected human health and mitigation measures through natural environments and landscape design.*

Keywords: *world health organization, urbanization, urban areas, elderly green infrastructure, urban environment, landscape design, biofilm design, health landscapes.*

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INTRODUCTION; Although COVID-19 mass quarantine measures have slowed the spread of coronavirus, such systemic measures have unintended consequences for both mental and physical health. The proliferation of evidence suggests that the effects of a natural recreational environment (e.g., blue-green areas) may improve human health and well-being in such situations. Our research has shown that during the blockade, people experienced different conditions in different areas, including both outdoors and indoors. The frequency of visits to open natural areas (e.g., public parks) was closed depending on the socio-cultural context. We can see an increase in other forms of contact with nature, especially spending time in private gardens and seeing the greenery outside through the window.

Evidence on the link between exposure to green infrastructure and health outcomes associated with COVID varied, of course, visits if social segregation measures were not properly maintained. , May be associated with a higher rate of COVID-19 infection and death. Conclusions on whether or not exposure to nature during the blockade helped improve health inequality green infrastructure were mixed, e.g. rsatdi. Based on these findings, we discuss green infrastructure that can have a positive impact on mental and behavioral impact in the first year of the COVID-19 pandemic under the influence of nature. Green infrastructure now and green infrastructure in the future Recovery and resilience during a health crisis can be improved through the use of nature-based solutions, interventions, designs and management.

On March 11, 2020, the World Health Organization declared the spread of coronavirus a pandemic, and in August 2021, we entered the 17th month of the global health crisis. Acute respiratory syndrome coronavirus (SARS-CoV-2) or COVID-19 has caused an unprecedented number of deaths [1,2].

To prevent the spread of infection and minimize the burden on health services, governments around the world have imposed restrictions such as blocking or other social and physical segregation

measures in the early stages of the pandemic [1,3,4] and blocking and other measures in many countries by August 2021. Also in practice. Several studies suggest that blocking measures can reduce the spread of infection and thus save the lives of millions of people [4,6].

Non-pharmaceutical approaches to combating COVID-19, blocking, self-isolation, and quarantine (hereinafter general blocking) have had a positive impact on mortality rates and health care capacity [1, 4,5]. Nevertheless, these measures have had unintended negative consequences for human health infrastructure. It should be noted that blockages may have contributed to the worsening of non-communicable diseases (e.g., cardiovascular disease, diabetes), the increase in mental illness associated with depression, anxiety and stress, and the decline in the well-being of psychosocial infrastructure [; 7.8]. There are many reasons why blocking has a negative impact on physical and mental health green infrastructure; some of the main reasons include limited lifestyle, physical inactivity, fear of infection, financial losses, insufficient information, green infrastructure, feelings of loneliness and boredom (but not limited to them) [9,10,11]. In contrast, contact with blue and green areas, houseplants, horticulture under the influence of nature can reduce the negative impact on health, which can have a positive effect [12,14]. .

The impact of nature has been identified as an ecological green infrastructure k factor that can reduce health green infrastructure imbalances [13]. In particular, exposure to nature may help improve the health of socio-economically and racially / ethnically vulnerable populations than other populations, as the former may earn more than other groups (e.g., treat chronic conditions and diseases), less green infrastructure. reducing vehicle ownership and spending more time in their own homes and less use of other recreational or exercise opportunities [11,14].

Among the nature and health studies published in the first year of the COVID-19 pandemic, most showed a positive correlation between the impact of nature and human health on green infrastructure. However, some studies have reported changes in the volume of contact with nature during closure, positive and negative effects on health, differences in relationship with nature, and health effects. given this diversity of evidence among the existing research that has reported mixed or non-uniform results, it seems timely and reasonable to consider the clear contribution of nature in the fight against the pandemic. To our knowledge, there is no comment that synthesizes green infrastructure evidence about nature's contribution to mitigating the effects of the COVID-19 pandemic. Given the growing number of timely studies, we aimed to synthesize green infrastructure evidence on how to interact with nature in the first year of the COVID-19 pandemic and its impact on human health infrastructure. In particular, we explore the following green infrastructure using four research question research methods:

1. What effects of nature did people experience during the blockade?

2. How has the relationship with nature changed during the blockade?

3. How did the effects of nature during the blockade relate to mental, physical, and general health?

4. How did the green infrastructure relationship between the impact of nature and human health infrastructure during the blockade differ in age, gender, socioeconomic status, and race / ethnicity?

As green infrastructure has a positive impact on health as the risk of future pandemics increases, urban planners and policymakers need to reconsider the importance of nature in increasing resilience to emergencies in the future. Thus, this review could develop the impact of nature as a mechanism to combat future pandemics and epidemics.

Although most of the studies on nature contact during COVID-19 have taken into account the effects of nature on outdoor infrastructure, some studies have also studied private gardens and indoor plants. In particular, private gardens are one of the key elements of nature exposure during COVID-19 [16,19]. During this partial blockade, having a private garden allowed them to feel

nature while staying at home [19]. However, several studies have shown that many people could live in multi-storey houses without private gardens, have green infrastructure, have a small yard or have low socio-economic status in such cases, quarantine houseplants could have balanced the need for natural influence during [15].

Assessing the impact of nature in terms of overall capabilities and proximity measures typically plays a role in indicating the potential impact of nature, but these measures typically fail to assess time spent in nature and nature-intensive green infrastructure [1, 16]. In order to measure the impact of nature in the context of direct or indirect contact, it is necessary to take into account the frequency of natural impacts, continuous green infrastructure and intensive green infrastructure, in particular the time people spend in the natural environment. Accordingly, several studies have shown that COVID-19 blockers altered the frequency of visits to natural areas and the length of time spent in nature. Numerous green infrastructure studies have shown that visits to nature and spending time outdoors during the Blockade are faster than the green infrastructure before the Blockade. However, one-third of the studies showed that contact with nature was reduced during blocking [17].

Nature-based solutions are an umbrella concept that encompasses ecosystem-based approaches that address societal problems (e.g., human health infrastructure, climate change) by ensuring the interests of human well-being and ecosystems. green infrastructure within nature-based solutions is discussed in detail in such social problems and ecosystem approaches [20]. ecosystem-based approaches with nature-based solutions, green infrastructure, and urban forestry focusing on green infrastructure are two important ways to maintain and improve health and well-being in cities during the COVID-19 crisis. Both of these approaches have the potential to expand opportunities for accumulation under the influence of nature and to address social health issues in times of crisis, such as pandemics and climate change.

Several elements of the green infrastructure can contribute to the short-term recovery of COVID-19 in response to emergencies in the future and to a green infrastructure that is resilient to health and well-being. For short-term recovery, green infrastructure elements such as green walls, small gardens or parks and public gardens can play an important role in increasing the environmental impact of green infrastructure around residential areas. In particular, green walls, small gardens, parks and small public gardens could create green areas and city parks in a relatively short period of time compared to green infrastructure elements, such as planting street trees, landscaping. It should be noted that during the COVID-19 blockade, in several cities, parking lots were converted into parks (e.g., Birmingham, England; San Francisco, California) and small parks and gardens [18,21]. Turning car parks into meaningful places to spend time and planting green spaces in small gardens and parks can bring a number of health benefits, in the short term [21]. For long-term sustainability, other elements of green infrastructure (e.g., urban parks, forests) can be implemented on several spatial scales (e.g., neighborhood, city) through spatial and urban strategic green infrastructure [21]. According to the developed rule, "Everyone should see 3 trees from their house, live in a neighborhood with at least 30% tree cover and have a green infrastructure not exceeding 300 meters to the nearest green area [21]. -19 can also help develop long-term green infrastructure planning to improve everyone's health, even in crisis situations. To ensure that, we recommend that cities and communities be included in the policy when planning and designing general urban infrastructure.

COVID-19 blockers have shown a green infrastructure that needs the influence of internal and external nature for mental and physical health. When blocking, working at home, and living in nature in general, we use "biophilic design" for interior and exterior design to ensure different effects of nature (interior and exterior design using natural elements and plants based on natural environments in architectural design) we recommend adopting and implementing nature-based design principles such as. as noted, biophilic design principles focus on buildings and constructed

landscapes that strengthen human health green infrastructure by enhancing connectivity with the natural world. presented three categories (i.e., green infrastructure in nature, natural analogues, and the nature of space) and fourteen patterns of biophilic design (e.g., visual communication, water availability, green infrastructure) that can reflect nature-health relationships . under different environmental conditions. In particular, visual contact with nature should be considered as an important principle in the design of buildings. As we have discussed, the appearance of a green infrastructure window in green has shown consistent links with a number of health outcomes, and the design of the building should be considered in a way that maximizes visual contact with the outdoor landscaping.

Non-visual connections (e.g. hearing) should also be carefully considered when designing buildings and exterior landscape elements. For example, priority should be given to maximizing the sounds of nature over urban sounds [14]. In this regard, during COVID-19, people with high mental stress were more likely to recover mentally through water noises than in green infrastructure samples before coronavirus. Based on such evidence, the presence of a small water flow in both the house and the neighborhood should be considered as a basic design principle of increasing water exposure while staying at home. Design patterns such as perspective and shelter, biomorphic shapes should also be integrated into urban design to enhance the overall connections of nature through the many emotional experiences of nature as part of daily life. It should be noted that the "Biophile Cities" [22], a global network of 24 partner cities (e.g., Edinburgh, Barcelona, Washington, Colombia's green infrastructure) is currently combined with nature-based solutions to enhance the impact of nature. The biophile promotes urban design. city setting. Such initiatives should be widely used and replicated in other cities around the world.

Conclusion: In this article, we have synthesized evidence about the impact of green infrastructure on human health about the role of green infrastructure in combating the COVID-19 pandemic. In the first year of the COVID-19 pandemic, various species of nature, characterized by extensive Blockade, were observed and studied. Many researchers have studied the effects of nature in the open air (e.g., green space of dwellings, access to parks), indoor (e.g., plants), and simulated (e.g., virtual reality) and their health, well-being. and COVID - related outcomes were examined. Our review of the evidence highlights a number of important roles of natural impact in the first year of the COVID-19 pandemic:

- During the COVID-19 Blockade, many people intensified their contact with nature. In particular, spending time in private green spaces, such as parks, has increased significantly, as has visits to select outdoor natural spaces. However, the green infrastructure and frequency of visits to public places were influenced by Blockchain's green infrastructure, COVID-19 mortality rate, and sociocultural factors.
- Exposure to nature during the COVID-19 pandemic was associated with improved mental health and well-being. Studies have shown that more exposure to nature in different types of green infrastructure helps reduce feelings associated with depression, stress, loneliness and anxiety.

In summary, in the first year of the COVID-19 pandemic, exposure to nature played an important role, characterized by extensive blockade, and this may have prevented further deterioration of mental and physical health. These findings should be interpreted on the basis of research using cross-sectional data from different populations and contexts. Nevertheless, given the consistency of the green infrastructure positive relationship between the impact of nature and health outcomes on green infrastructure, we believe that nature-based solutions, interventions, biophilic designs to restore and sustain health in the current green infrastructure and future crisis and emphasize that management can be strengthened through the use of strategic green infrastructure practices.

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