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RESEARCH AND ANALYSIS

Adaptability of Public Spaces and Mental Health Inequalities during the COVID-19 Pandemic

Razieh Zandieh (1), Mark Nieuwenhuijsen (2) and Mahdi Zandieh (3)

(1) *Department of Planning and Environmental Management, University of Manchester, Manchester, UK*

*Corresponding author: Razieh.zandieh@manchester.ac.uk

(2) *ISGlobal (Barcelona Institute for Global Health), Barcelona, Spain* (3) *Faculty of Architecture and Urban Development, Imam Khomeini International University (IKIU), Qazvin, Iran*

Abstract

Public spaces (e.g., streets and squares) are hubs of different types of activities (e.g., shopping, sitting, eating, walking, and resting) and have potential for improving mental health. With the COVID-19 pandemic, many streets and squares emptied from activities and people due to city lockdowns, and governments imposed restrictions on people's behavior. These changes affected the ability of public spaces to attract people and offer mental health benefits. The changes in how people have so far used public spaces during the pandemic have underlined the importance of adaptability and resilience of public spaces against pressures, such as the pandemic. This commentary aims to discuss the importance of adaptability of public spaces for reducing mental health inequalities during the pandemic. It outlines some possible solution and suggests further research on this issue in cities.

Introduction

Public spaces in the context of this commentary refers to urban spaces that are freely accessible to all people. Depending on the level of accessibility to the general public, there are three types of public spaces, shown in Table 1 (Newman, 1996). High-quality public spaces are multi-functional and support a variety of activities, including necessary activities, such as going to work, school, or shopping; optional activities, such as taking recreational walks, physical activity, and playing; and social activities, such as talking to people and participating in arranged social activities (Gehl, 1987; Mehta, 2014). They offer enormous economic, social, and environmental benefits to people (CABE Space, 2004). High-quality public spaces are identifiable, inclusive, accessible, clearly delineated from private spaces, and engaging (e.g., by offering active uses such as shops, cafes, bars). They are conducive to social interactions and meaningful (e.g., through incorporating landscape features, such as greenery and trees, and other amenities, such as big screens, paddling pools, fountains, sports facilities, play equipment, lighting displays) (Carmona, 2019). High-quality public spaces are also safe (e.g., by offering public surveillance and providing balance between pedestrians and traffic), comfortable, and relaxing (Carmona, 2019).

The success of public spaces depends on their adaptability to change and withstanding against pressures (Carmona, 2019). As Schneider (2000) has discussed: *"The long-term stability of public space as a system depends on the adaptability of its structure and on the ability to change its uses, its unspecific multi-functionality"* (Schneider, 2000, p. 136. Cited in (Frick, 2007)). There are some studies on adaptation of public spaces to climate changes and natural disasters (Sharifi and Boland, 2017; Silva and Costa, 2018). However, public spaces adaptation to a pandemic has been rarely discussed in research published before 2019. Recently – with the COVID-19 outbreak – the importance of adaptability of public spaces to the pandemic has been addressed in studies and official guidance documents (Honey-Rosés et al., 2020; UN-Habitat, 2020). Although studies on adaptability of public spaces to the COVID-19 pandemic and its

wider health effects, such as mental health, are growing (Slater et al., 2020; Venter et al., 2020), knowledge on this issue, especially from a social and spatial inequality perspective, is still limited. Therefore, this commentary aims to discuss the importance of adaptability of public spaces (i.e., streets, squares, semi-public and semi-private spaces) for reducing mental health inequalities during the pandemic.

Table 1: Type of spaces based on public accessibility (Newman, 1996)

Type of space	Level of accessibility	Example
Public spaces	Accessible to everyone	Streets, squares and parks
Semi-public spaces	Limited access to the public	Outdoor communal area
Semi-private spaces	Very limited access to the public	Front garden of house

* Private space (e.g., back garden of houses) is not included in the table, since it provides no access to public.

Health benefits of public spaces have been widely recognised (Boarnet et al., 2011; Kondo et al., 2018; Sugiyama et al., 2009; Vanaken and Danckaerts, 2018). However, these studies have mainly addressed physical activity (Boarnet et al., 2011; Sugiyama et al., 2009), or they have focused only on a specific type of public space: green spaces (Kondo et al., 2018; Vanaken and Danckaerts, 2018). Although studies on the influences of streets and squares on mental health are limited, there are a few studies showing positive relationships between green streetscape and mental health (De Vries et al., 2013; Liu et al., 2020). Moreover, findings of research on positive relationships between specific factors of urban environment (i.e., encouraging social interactions and physical activity, safety, and nature and greenery) and mental health (De Vries et al., 2013; McCay et al., 2019) bolster the idea that streets and squares have positive impacts on mental health.

With the COVID-19 pandemic, in many places physical distancing rules were introduced, and half of the worlds' population stayed at home to help prevent the spread of the pandemic (Sandford, 2020). Although the lockdown helped save people from the contagious disease, it negatively influenced mental health of people, especially those with lower socio-economic status, mental health problems, women, young people, older adults, disabled people, and pre-school children (Banks and Xu, 2020; Douglas et al., 2020; Pierce et al., 2020). Therefore, in many countries, but not all, people were allowed to go outside home (once a day) for essential purposes, such as physical activity (e.g., walking and running) (UK Cabinet Office, 2020).

During the lockdown period, many people chose to spend more time in public spaces such as green spaces than in streets and squares. As was reported in the news, while thousands of people used green spaces, especially during warm weather, (BBC, 2020a; Chiacu and Allen, 2020; Yeginsu, 2020), many streets and squares – that used to be hubs of activities - were left silent and empty in different cities around the world (BBC, 2020b). Although different cities did not experience different phases of the pandemic at the same time and did not apply the same strategies to cope with the situation, streets of diverse cities, such as New York, Rome, Barcelona, Wuhan, London, Buenos Aires, Madrid, and Kunnamkulam (Figure 1), appeared ghostly at specific phases of the pandemic (Honey-Rosés et al., 2020). This change in using streets and squares was influenced by physical distancing rules on frequency of using public spaces and also shutting business and active use (e.g., shops, restaurants, and pubs) down, which killed people's motivation for using these spaces, especially commercialised public spaces that were heavily reliant on active use. While active use and commercial functions of public spaces can be beneficial in encouraging engagement in normal times, heavy reliance on a single function of public

spaces (commercial) has demonstrated the limited adaptability of these spaces to the lockdown, along with reduced opportunities for these spaces to improve mental health.



Figure 1: Empty streets during the COVID-19 pandemic in (1) London, the United Kingdom, (2) Buenos Aires, Argentina, (3) Madrid, Spain, and (4) Kunnamkulam, India (Wikimedia Commons, 2020a, 2020b, 2020c, 2020d)

Mental health inequalities and adaptability of public spaces to the pandemic

Green spaces

The success of green spaces in attracting people and offering mental health benefits during the pandemic led to recommendations on keeping green spaces open for improving mental health during the pandemic (Slater et al., 2020). However, focusing merely on green spaces was not in itself an optimum strategy for improving mental health during the pandemic due to two problems:

1. **Unequal access to green spaces:** There are inequalities in access to green spaces in cities (Wolch et al., 2014). People living in high-deprivation areas or in compact urban areas (Haaland and van Den Bosch, 2015; Wolch et al., 2014), and those living in high rise buildings (Larcombe et al., 2019) are at higher risk of having mental health issues, including due to the pandemic and lockdown (Douglas et al., 2020). People with low socio-economic status are also less likely to have good access to green spaces distally (as less likely to have access to private cars, and generally more reluctant to use public transport during the pandemic). As such, many city residents have limited opportunities to access the green space benefits for mental health.
2. **High density of people in green spaces:** There are limited number of green spaces in cities. From observation, framing green spaces as the only attractive public spaces available for exercise and leisure during the pandemic resulted in high-density of people using these limited spaces - and as such, short physical distances between individuals. Some people, such as pregnant women, children and older

adults, may avoid going to crowded green spaces due to anxiety about the risk of COVID-19 transmission. And in some cities, green spaces had to be closed due to the risk of disease transmission created by overcrowding. Hence, while green space access is important for mental health, relying merely on 'keeping green spaces open' limits enjoying mental health benefits of public spaces during the pandemic.

Optimising public spaces for access to nature

Creating small green spaces (Honey-Rosés et al., 2020) and improving adaptability of streets, squares, and semi-public spaces may help to provide more equal opportunities for improving mental health during the pandemic. Adaptable squares and streets are multi-functional (Carmona 2019, Schneider, 2000, p. 136. Cited in (Frick, 2007)). Therefore, in the absence of specific (i.e., commercial) functions and social activities during the pandemic, they are still able to improve mental health by continuing their other functions, including providing physical activity opportunities and offering restorative benefits during the lockdown period. Stronger use of amenities - such as natural features, pedestrian and cycling infrastructure, and urban furniture - and safety in streets and squares may improve adaptability of these spaces to the pandemic.

Providing natural features within public spaces that are not formally designated as green spaces, such as trees, greenery, fountain and paddling pools, increases access to the nature and enhances restorative benefits of nearby streets and squares, which are accessible to everyone. Moreover, creating networks of green streets (green street networks) is one of the solutions for improving access to nature in compact urban areas, where access to green spaces is limited (Haaland and van Den Bosch, 2015). The green network distributes nature and greenery in wider areas of the city. In doing so, it may help to reduce density of users (and consequently, help to increase distances between people) in green spaces, and offer mental health benefits in urban areas with limited access to green spaces.

Optimising public spaces for physical activity

In the absence of gyms and sport centres during the pandemic, providing amenities for physical activity (e.g., pedestrian and cycling infrastructure) in nearby streets and squares helped attract people to public spaces.

Although presence of sport facilities and playing equipment in public spaces increases multi-functionality of these spaces, touching this equipment may increase risks of spreading the disease. In this situation, providing non-touch playing opportunities (e.g., colorful drawings on the ground) may be a more suitable option for children playing in public spaces.

Presence of public toilets is an important issue for older adults walking in their neighborhoods (Zandieh et al., 2016), especially when it is not possible to use public toilets in shops. Providing public toilets with automatic sanitation in public spaces (UK Government, 2020), may facilitate older adults' use of these spaces during the pandemic.

Optimising public space for safe use

It is not easy to provide safety in public spaces while active uses (e.g., shops, restaurants, and pubs) are shut down, and public surveillance is reduced due to low presence of people in streets and squares. The presence of people doing physical activity or relaxing in public spaces, and presence of residents at home, usually provide surveillance in residential areas, but improved security monitoring (e.g., regular police surveillance) may be required to ensure safety for users in neighborhoods that are perceived to be unsafe. In addition to safety from crime, safety from the disease and traffic are important issues during the pandemic. Existing official guidance documents (UK Government, 2020; UN-Habitat, 2020) have outlined relevant guides (e.g., wide pavements to maintain 2m distancing, signs for movements, water points and appropriate cleaning products) on these issues.

Optimizing semi-public and semi-private spaces for mental health

Adaptability of semi-public and semi-private spaces, such as communal areas and rooftops of high rises may help to improve mental health. During the pandemic, some people living in high rise buildings – in the United States (Hankova, 2020), Italy (The Daily Star, 2020), the United Kingdom (Vittozzi, 2020), and Iran (Figure 2) – used these spaces for relaxing and physical activity, whilst these spaces were not necessarily designed for these activities. To respect physical distancing, the use of these spaces at different times of the day may be re-arranged by the residents of the blocks. Considering the size / area (m²), location of utilities, access to water points, and safety issues of these spaces in design of high rise buildings paves the ground for providing amenities (e.g., greenery and furniture for different weather conditions) in these spaces. The amenities may be included in design or may be provided by residents' participation in creating the adaptable space. Mental health benefits of these spaces may be especially important for people living in areas with poor access to green spaces. Inclusive design of these spaces and access to these spaces, as well as inclusive design of streets and squares, is necessary for inviting disabled people, who are at higher risks of mental health during the pandemic and more likely to have access limitations, to these spaces.



Figure 2. People's use of rooftops in lockdown period in Iran, photo by Erfan Kouchari (Tashim News Agency, 2020)

Conclusion

The COVID-19 pandemic brought a new pressure to the city and underlined an important urban design lesson: adaptable public spaces. This commentary focused on squares, streets, and semi-public and semi-private spaces and discussed the importance of adaptability of these spaces for reducing mental health inequalities during the pandemic. We argue that focusing merely on using green spaces is not an efficient strategy for improving mental health during the pandemic, due to unequal access to green spaces in the city and attracting crowds to these spaces, which may limit opportunities for social distancing and increase risks of the disease spread. Improving adaptability of squares, streets, semi-public, and semi-private spaces – through providing natural features, green street networks, amenities for physical activity, public toilets with automatic sanitations non-touch playing opportunities, safety from crime, disease and

traffic, and considering size of semi-public spaces, location of utilities, access to water points, safety issues in these spaces, and inclusive design – may help provide more equal opportunities for improving mental health, especially among people who are at higher risks of mental health issues during the pandemic.

This discussion is supported by previous research on mental health and public spaces, recent relevant studies and guidelines on COVID-19, and COVID-19 news stories, but it is not an empirical study. Future empirical research may study the influence of characteristics of public spaces on inequalities in mental health during (and after) the pandemic and improve knowledge on people's needs in public spaces during the lockdown. Moreover, governments applied different COVID-19 strategies, which influenced people's behavior and use of public spaces during the pandemic in different countries. Further empirical research may investigate different governments' COVID-19 strategies and their influences on people's use of public spaces and mental health during the pandemic. This debate informs urban design approaches for healthy and adaptable public spaces for the COVID-19 pandemic and other pandemic. However, in order to create adaptable public spaces, collaboration of different sectors (e.g., urban design, urban planning, public health, architecture) is required.

Author biographies

Razieh Zandieh, PhD is Lecturer (Assistant Professor) in **Razieh Zandieh**, PhD is Lecturer (Assistant Professor) in Urban design and Planning at the University of Manchester, UK. Her focus areas of investigation are healthy urban planning and design, walkability and sustainability, social and spatial inequalities, and age-friendly city.

Twitter: [@RaziehZandieh](https://twitter.com/RaziehZandieh)

Mark J Nieuwenhuijsen, PhD is a world leading expert in environmental exposure assessment, epidemiology, and health impact assessment with a strong focus and interest on healthy urban living. He has edited three books on Exposure Assessment and on Environmental Epidemiology, and one on Integrating human health into Urban and Transport planning, one on Transportation and Health, and has co-authored more than 450 papers published in peer reviewed journals and 35 book chapters. In 2018, he was awarded the ISEE John Goldsmith Award for Outstanding Contributions to Environmental Epidemiology. In both 2018 and 2019 he was among the 1% most cited scientists in the world.

Mahdi Zandieh, PhD is Associate Professor in Landscape Architecture and Vice Chancellor of Research and Technology at Imam Khomeini International University (IKIU), Iran. His research interests are architecture, landscape architecture, urban design, and urban landscape. He has published books and journal articles.

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