

PUBLIC OPEN SPACES (POS) AND THE PANDEMICS: THE ROLE OF PUBLIC OPEN SPACES IN MITIGATING COVID-19 IN DEVELOPING CITIES

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ABSTRACT

Recently, increasing attention is paid to the urban areas after the outbreak of the Coronavirus pandemic 'COVID-19' since its first identification in December 2019. Worldwide, cities are trying to stop the spread of the pandemic by applying the quarantine which left more than billions of people under full or partial lockdown. Consequently, this caused severe disruption to physical activity, psychological well-being, social interaction, and many habits related to regular life.

As such, people have resorted to Public Open Spaces (POS) to fulfill their recreational needs, physical activities, and keep themselves healthy at the same time. Unfortunately, the lack of (POS) in many cities (as developing cities) made the connection between humans and public space more problematic. Thus, there is a need to rethink the existence of (POS) as a potential solution not only for the current world situation but also for post-COVID-19. In line with this, this paper highlights the crucial role of public open space around the world and particularly the developing cities in fostering peoples' needs during pandemics and lockdown time, as well as it will discuss how it could affect their daily behavior.

KEYWORDS

Public Open Spaces (POS), Lockdown, Socio-environmental Justice, Coronavirus, COVID-19, Social Distancing, New Normal, Reactivating Public Open Spaces (POS).

1. INTRODUCTION

In land-use-planning, the term ‘urban open space’ can describe many types of open areas including green open spaces and other public /or private spaces that are accessible and open to the sky to make up resilient ecological systems. the public open spaces (pos) contain land, watercourses, or other landscape elements include public parks, public playgrounds, public sitting areas, public plazas, public piazzas, urban squares, or other natural areas. while the privately Owned/Regulated Open spaces include higher education campuses, schoolyards, neighborhood/community parks/gardens, residential gardens, national parks, and institutional grounds. Besides, urban streets, roof tops, incidental spaces, and pocket parks are considered as other important forms of open spaces performing similar functions. undoubtedly, (pos) play a vital role in improving public physical, emotional, and mental health.

Nowadays, half of the world is living under lockdown because of coronavirus outbreak so as to minimize the infection and loss of lives. several cities asked their citizens to stay home and avoid many public places which turned off most of the urban living benefits. This new paradigm is called ‘new normal’ which involves many new realities and intensive online activities that range from retail and shopping to banking and higher education prevision, to name a few. This puts a question, does this procedure, lockdown, effective? . The new normal has a negative consequence which include loneliness, anxiety, reduced productivity, unhealthy sleeping and eating habits, potential obesity, and loss of various benefits associated with reduced human-human and human-environment interactions (salama, 2020).

“Pandemics Are Anti-Urban, Preying On Our Human Desire For Connection” (Avetisyan, 2020).

As a corollary, peoples’ need to go outside has been so important than ever before to get some fresh air, seeking exercise, spiritual needs, or converge on green spaces for collective joy. Restrictions on the use of public space and social distancing have been subjected to key policy measures to reduce the transmission of the disease and protect public health. Today, the pandemic has become a ubiquitous part of life, and ineffective management likely plays a crucial role in the failure of many strategies. cities and urban planning might be challenged by the present reality of quarantine, social distancing, and global disconnection. additionally, the crisis size, scope, and speed make cities feel that they are living through a profound transformation (honey-rosés et al., 2020).

The united nations has endorsed the understanding of public space in 2030 agenda for sustainable development, specifically target 11.7, which aims to “provide universal access to safe, inclusive and accessible, green and public spaces, in particular for women and children, older persons and persons with disabilities”. not only does this recognize the importance of (pos), but also gives priority to their accessibility to specific people. unfortunately, most of the current (pos) in many cities are still imperfectly planned for the covid-19 era, especially those that do not have enough green open spaces as in developing cities such cairo, mumbai, and last but not least karachi,. thus, this leads to raise negative consequences about social justice problems and ecological sustainability.

This theoretical research objective aims to achieve a practical understanding of how (POS) can be shaped by new measures in order to be more successful, provide quality for the psychological needs of people. It explores the impact of Covid-19 pandemic on physical distancing, its measures, and the relevant reclaiming of (POS). Then, it reviews the efforts

done before and during global pandemics which have spurred cities to make more open spaces for people. Besides that, presents some of the practices of urban recovery actions in developed and developing cities. The research discusses the raised questions about if those recovery actions in different cities are effective or not?

2. THE SIGNIFICANCE OF PUBLIC OPEN SPACES (POS)

Since the mid-1970s, urban theorists have conceived various relationships that established a common understanding of places. Canter (1977) developed an understanding of the constituents of place, which include psychological conceptions, physical attributes, actions, and behaviors while Punter (1991) introduced mental image, form, and activity. It is noticed that along urban history there has been a remarkable evolution in the functions of city spaces that mainly were divided into three vital functions (Gehl and Gemzøe, 2001): (1) As meeting place where the city was the scene of social information exchange, (2) As marketplace where the city served as venues of goods and services exchange, and (3) As connection space where the city provided access to city functions (Hanafi et al., 2013). As a corollary to the change of city functions, the patterns of individual's activities changed as well. In this sense, Gehl & Gemzøe (1996, 2001) have identified three main categories of the outdoor activities in the public spaces of the city namely (1) necessary activities, (2) optional activities, and social activities.

It has been recognized across the literature that creating (POS) has been used as a tool to improve the urban environment, enhance urban images, and improve the urban residents' quality of life (Gehl and Gemzøe, 1996; Hanafi et al., 2013). The functions of (POS) that characterized by low levels of manmade interventions, play a vital role in the protection of nature. Thus, (POS) can be defined as those spaces that account for "provision of recreation services to society and conservation of natural values" (Udas–Mankikar, 2020). The areas with high green-coverage rate have ecological and environmental importance as they can improve the urban climate. Abate the urban heat-island effect by their ecological-balancer function and reduce environmental damages. According to their social importance, the (POS) can help the residents in adjusting to the healthy lifestyle as effects on mental health, physical fitness, social cohesion, and spiritual wellness. Through their aesthetic importance, they determine the characteristic of the built-up character of the cities or the 'sense of identity' (Balogh and Takács, 2011).

The significance of (POS), as well as their importance in the settlements' evolution has been changing continually during the development of civilization. The assessment of their importance depended on the social rules of the era and also on the needs of the citizens (Balogh and Takács, 2011). In fact, communities interact with places in many ways, and this is activated through a community development tool called 'placemaking', which is defined as, "a multifaceted approach to planning, designing and managing public spaces in order to capitalize on assets, inspiration and the potential of a local community, with the intention of creating public spaces that promote people's health, happiness and well-being" (Ferrini & Gori, 2020). A pivot towards healthy cities is likely to be accompanied by a more serious effort to make cities greener. Yet, the pandemics may change the type and distribution of green spaces people want, as well as their expectations about what green spaces should

provide. These places might be preferred as a refuge from the lockdown and the bustling city whether they are green or grey, a small park or an alley. Further to this, it has been recognized that socio- infrastructural function of open spaces plays an important role especially for vulnerable groups (like the homeless, differently abled, etc.) especially in developing cities. Several cities globally, like Vancouver in British Columbia, have rendered them as essential infrastructure open for public use, despite the lockdown.

“The stigma attached to the pandemic will prolong a period of distancing, but the craving for connection will be even more” (Jainer and Yadav, 2020)

Currently, COVID-19 pandemic made us realize the value of reachable (POS) that allow movement within dense urban areas. Physical isolation with absence of adequate open spaces is one of the major causes of discomfort and poor living conditions. While several stigmas are attached to the pandemic, the need for open spaces crucial for physical and mental health should not be one of them. Mental health is a critical issue that needs to be fought through this pandemic and many factors including not being able to get fresh air and light, no physical movement or exercise, and isolation have added stress to people (Jainer and Yadav, 2020). Despite that (POS) recognized as the key to a city’s viability, the influence of COVID-19 pandemic on the near-term status of public spaces remains uncertain.

3. GLOBAL PANDEMICS AND RELATED URBAN REFORMS

Pandemics are part of human history, outbreaks have changed humanity and sometimes changing the history. Every pandemic in the past has taught us lessons over the importance of our responses and preparedness. It is important to think about our responses at the end of the pandemic, while at the same time being ready for urgent issues like community disintegration, social disconnection and inequality, waste disposal, sanitation issues and water shortage (Jainer and Yadav, 2020). It is obvious that Coronavirus is not the only pandemic that faced the world before. There were several global epidemics and pandemics in history specifically in 19th and 20th centuries. Pandemic's transmission can make a variation in cities depending on several ways in ‘timing and public health’ and variation in ‘population health and socio-economic status’ (Avetisyan, 2020). In history, there are several evidence of characteristics of an ideal, happy city that allowing citizens to live, work, and play in safe and healthy environments, which can create a strong relation between public health and urban planning. This also includes the role of land use and built environment (public buildings, mixed land uses, pedestrian walkways, open spaces, and waterbodies) and its impacts on the health of population (Jainer and Yadav, 2020). Throughout recorded history, epidemics such as the plague, cholera, tuberculosis, and smallpox triggered public efforts to protect citizens and facing many challenges to reform the connection between public health and urban planning. For instance, in 1999 the World Health Organization (WHO) has published a report titled “Healthy cities and the city planning process” which emphasized the importance of healthy urban planning of the urban poor population of cities in the world. In the line of this, the following points summarize some of the global pandemics from (Jainer and Yadav, 2020; Klein, 2020) throughout the history and the most significant related urban reform resulted from these crises:

1. The bubonic plague ‘The black death’ - 14th century (1347 - 1352)

It has inspired radical improvements of the renaissance in which cities expanded their borders, opened larger open spaces over suffocated public spaces, and hired specialized professionals like architects and surveyors.

2. The Great Plague of Marseilles - 17th Century (1720 - 1722)

The Great Plague of Marseilles has encouraged medieval and industrial cities implementing urban planning practices to aid disease control and management of water waste has helped remake cities post pandemic.

3. Cholera, Plague, and Malaria outbreaks - 18th and 19th century

These globally outbreaks have led to the establishment of the Metropolitan Board of Health. It comprises of building and zoning codes to control overcrowding, better sanitary conditions, and propelled infrastructure investments. They have identified the need for modern sewerage and sanitation systems like citywide sewer systems. For instance, Paris had an underground sewage system by 600 km long by (1878) thanks to Baron Haussmann and the engineer Eugène Belgrand.

When Napoleon III came to France in (1848) during a cholera outbreak, he sought to remake Paris in the wake of the pandemic open new streets, make the working-class houses healthier, and sunlight reaches everywhere. Therefore, around 12,000 buildings had been demolished, and he built tree-lined streets and parks to bring fresh air and light to all corners of the city that transformed Paris into ‘City of Light’. Sidewalks were introduced, and the gutters have been moved to the side of the street. When Baron Haussmann became prefect in (1853), the hygienist movement had become the major element in town planning.

Later, the repeated of cholera outbreaks have shaped urban design elements such as wider avenues and transformed parks in New York and other major cities urban landscapes. For instance, Olmsted and Calvert Vaux began to design Central Park and more than 100 public parks and recreation grounds in New York during the second cholera outbreak. At the end of 19th century several cities isolated spaces to defeat the pandemics and others that produced better housing specially for workers and poor to replace their slums.

4. Tuberculosis, Typhoid, Spanish flu - 20th century

The ‘open-air method’ introduced by John Coakley (1744–1815) has played a vital role in reducing the number of tuberculosis patients in hospitals. Thus, the reorientation of urban form during this period in well-ventilated houses, open air hospitals and schools, allowing for more sunlight, and encouraged people to spend much more time in (POS).

In the (1920s), the Spanish flu pandemic has shaped city housing policy on an urban scale. Improving housing conditions, providing (sunshine, space, and air), and achieving the minimum housing requirements for each citizen have played a vital role in preventing another disease outbreak.

From the previous examples, it is very necessary to look back at history and understand lessons drawn from the past of how cities to solved similar problems, for replication, and offer some relevant lessons that have reformed their urban planning. There is no doubt that urban spaces have an effective role in improving public health in urban cities. (Jainer and Yadav, 2020). This can be achieved throughout improving our planning system by developing public and collective alternatives through conserving natural systems, restoration of ecosystem services, or investing in (POS), and housing development. Additionally, encouraging people to spend as much time outdoors as possible to gain natural ventilation and sunlight. Ultimately, the challenge is to balance between human health versus public welfare.

4. REACTIVATING PUBLIC OPEN SPACES (POS) WITHIN THE NEW NORMAL

Worldwide, ‘social distancing’ or ‘physical distancing’ is known as “a set of infection control actions envisioned to slow down or delay and eventually stop the spread of an infectious disease” (Salama, 2020). Nowadays, proximity and density are the new fears of the cities, and public spaces are now experiencing a silence after they were once full of activity and vibrancy (Mehta and Dhindaw, 2020). Researchers have studied the potential impact of social distancing, arguing that it is moderately effective (Rashid et al., 2019). Therefore, social distancing has been viewed as an acceptable temporary measure regardless the socio-economic condition. As a practical response to the pandemic, technology offers the option to connect virtually with the external world while maintaining social distancing. Thus, it would limit or direct people more towards ‘passive engagement’ that involves meeting their need for encounter without becoming direct actively involved or as called ‘active engagement’ According to the common agreements worldwide, measures of social distancing are practiced at both institutional and individual levels. At an institutional level, the key element is the cancellation of mass gatherings like schools and workplaces closure. Further to this, it expanded to include closure of small businesses, restaurants, cinemas, theatre, bars, and clubs (Salama, 2020). While at an individual level, social distancing entails minimizing ‘Human-Human interaction’ which involves the avoidance of large gatherings specially in small public spaces. The COVID-19 pandemic may not last forever, and our response to it now will shape the future of our cities for the coming decades. Thus, more holistic approaches are needed to make cities healthy through the collaboration of urban planning, public policies, and design using (POS). This raises a question; can social distancing be easily applied in developing cities? In a city like Alexandria in Egypt, it is hard to keep social distancing, for example, (i.e., street markets) where it is narrow and crowded. Thus, it’s important to think about how to apply effectively social distancing in such places?

4.1. Social Distancing measures

In accordance with many investigations, researchers admit that COVID-19 spreads more easily indoors than outdoors, they also believe the concentrated use of green spaces will increase the transmission of the disease. Public health infection control measures are based largely on the evidence supporting the 2-meter social distancing rule to reduce COVID-19 transmission. The distancing rule traced back to research in the 1930s when scientists found that most of the reckoned droplets released by coughs or sneezes evaporate quickly in the air or land on a surface or a ground within 1-2 meters (Shukman, 2020). In fact, the 2-meter rule (over 6ft) is based on the outdated ‘dichotomy model’ which assumes viral transmission in either large droplets or small airborne particles. In the reality, the transmission is more complex which involves droplet size and the range of exhaled air shapes. Therefore, the distance rules need to take multiple factors including viral load, ventilation, type of activity, indoor versus outdoor setting, and masking (Qureshi et al., 2020).

However, it is not possible to stay 2 meters apart in some countries due to its local context and the imposed guidelines by regional authorities.

Thus, it is recognized that this distance could be lowered with ‘mitigations’ so people can be closer without a higher risk of transmission. Scientists agreed that every workplace or building should carry out its own assessment because the risks at each location will vary. For instance, most of social distancing rules in different countries are (Shukman, 2020):

1. (1 meter) is the adopted distance in China, Denmark, Hong Kong, Lithuania, and Singapore,
2. (1.4 meters) in South Korea,
3. (1.5 meters) in Australia, Belgium, Germany, Greece, Italy, Netherlands, Portugal, and Spain,
4. (1.8 meters) in United states, and
5. (2 meters) in Canada, United Kingdom

However, there are different social distancing rules adopted by some countries with some variations inside them. For example, Germany's general guidance is to keep a distance of 1.5 meter, but it is more in some parts of the country. In Egypt, it ranges between 1-2 m. However, this measure is not be applied, because of the crowded streets, transportation and the lack of public open spaces. Spain also observes 1.5 meter, but in Catalonia, for example, this can be reduced at open-air events if masks are worn (Shukman, 2020).

Some countries have adopted the guidance of (WHO) of keeping a distance of at least 1m, often because they also insist on people wearing masks. The Scientific Advisory Group for Emergencies (SAGE) in England claimed that current evidence suggests being 1m (just over 3ft) apart carries between two and 10 times the risk of being 2 meters apart. In this sense, the Prime Minister Boris Johnson in England introduced the ‘one meter plus’ social distancing rule on 4 July 2020 but with additional precautions. The additional precautions could be wearing face coverings (i.e. a mask or plastic screen), not facing each other, or minimize the length of time spent together or in the place. Some people cannot estimate the 1-meter

distance correctly, thus they can compare the required distance with a full size of acoustic guitar, half the length of a bed, or one long adult step. On the other hand, the 2 meters distance can be equivalent to two-three steps, bed, two shopping trolleys, half a parking space, or two public benches.

Despite proximity and surface contact are considered as the major transmission routes, timing is also seen as a key. For instance, the United Kingdom scientists admitted that spending 6 seconds at a distance of 1 meter from someone is the same as spending 1 minute at a distance of 2 meters. Being 2m away from a cough carries the same risk as someone talking to you for 30 minutes at the same distance (Shukman, 2020).

4.2. Recovery of Public Open Spaces (POS)

It is discussed that in the post Covid-19 world, humankind will change the ways in which people work or study, but the significance of community connection will be stronger than ever. So, as much as connections and proximity are in question today, these are also the path to recovery and rebuilding to bring back the city's vitality in the new normal. It is then imperative to think of measures that can make different types of public spaces functional in the near future (Mehta and Dhindaw, 2020). The multiplicity of opportunities for shaping, upgrading, and rebuilding places of public gathering, from global paradigms to local realities, have stimulated many urban complexities. Therefore, reconsidering places for public gathering nowadays implies a transdisciplinary understanding and a multifaceted perspective. The superimposing of changing and imported concepts has critically transformed settings, structure, and functions of places for public gathering.

In England, Ministry of Housing, Communities and Local Government released a local report for guidance on accessing urban centers and green space. The guidance sets out how high streets and areas around transport hubs and parks can be managed and operated safely, thus giving people confidence to return to public spaces.

The guidance also suggests practical measures owners and operators can take to help people socially distance in public places. According to (Jainer and Yadav, 2020; Mehta and Dhindaw, 2020), they suggested mechanisms for reactivating (POS) within the new normal that can be taken to make them operational again for urban recovery in cities. Accordingly, different recovery actions or potential interventions are grouped under 8 pointers. some points are addressed through raising questions on how to apply them and the challenges they will face in developing cities. could be as follows:

Pointer 1: Organizing public spaces through crowd management techniques

1. Control people inflows to spaces by time regulations and number of people.
2. Limiting physical activities to spaces over time periods.
3. Extending hours for spaces that have regulated access.
4. Control people entering and exiting spaces from different types of transport (i.e. cars, foot, bus, train) to the same area.
5. Provide separate entry and exit routes for pedestrian access with clear signs.

6. Reduce unnecessary obstacles (i.e. Planters) and add markings/tape on seating to maintain social distancing (i.e., one-way flow markings).

7. Verbal communications and signs of distance requirements to guide pedestrians (i.e., spray markings, signs at movement intersections, etc.).

This raises a question of how to apply guidelines to those in narrow and crowded streets as in (street markets) or congested transportations in poor cities in (i.e., Egypt, or India). The challenge is how to recover open spaces in overcrowded and poor urban areas by providing safe and healthy open public space.

Pointer 2: Increase the supply of public spaces

This can be achieved through ‘shared use agreements’ of the privately owned/regulated open spaces like school playgrounds, commercial and public building roof top access, community parks, etc. that can be open for public use with time limits. This would result in better management through dispersed use and have the co-benefits that result from enhancing natural infrastructure.

in India, there was a suggested idea to use houses roofs as open spaces during the lockdown. It keeps social distance and at the same time makes social interaction between neighbors.

Pointer 3: Reduce load on public transport and workplaces

1. Workplaces may be divided as certain days of a week from office and rest from home which will reduce crowding on roads and streets.
2. Avoidance of non-essential use of public transport especially during rush hours.

Pointer 4: Collaboration with local health departments

This collaboration is for daily sanitization of public spaces and for adequate provision of clean public toilets and hand washing facilities is essential (i.e., taps operated by foot-pedals).

Pointer 5: Creating complete streets and pedestrianize roads

1. This can be done on existing streets through staggered access.
2. Certain streets can be used by pedestrians and non-motorized transport only through closing certain traffic lanes and made it one way or completely pedestrianized. For example, Al Alfy street in Cairo downtown, the Egyptian capital, was converted to a pedestrian road. This provided a public open space for pedestrians in the middle of a crowded area. Place like this can easily apply the social distancing. But the question is, does this street provide adequate pedestrian open space for this condensed area in Cairo, or do we need more spaces like this?
3. Reduce traffic speeds using traffic calming measures.

Pointer 6: Temporary/emergency infrastructure

For instance, some cities are employing ‘Tactical urbanism’ that can involve many forms of interim improvements including creating or widening sidewalks and cycle lanes with brightly painted concrete blocks and planters. Thus, this can urge their citizens to walk and cycle instead of the unnecessary use private cars or public transport.

Pointer 7: More refined urban planning and design approach towards blue-green infrastructure

1. Promoting the use of blue-green open spaces such as parks, lakes/waterbodies within neighborhoods level for several activities can help negate the infectious diseases impacts in the future. For instance, these multipurpose (POS) can be used to create temporary shelters to accommodate migrants struggling during the lockdown.

For instance, in Alexandria Egypt, there was an open waterway (*Al Mahmodya canal*) that can be developed and used to increase public open spaces to support health and can help in applying social distance, but in the most crowded part in Moharram Bek district, the canal was covered to construct a road. This increased paved area, streets, and decreased open spaces and places for the pedestrians. The best way to deal with an existing neglected waterway and traffic congestion.

2. It is essential to demand the decentralization of important services and ensure the distance, proximity, size, quality, and connectivity of open spaces at a local level through urban planning and design.
3. Mapping of underused and low-functioning sites and their reclamation can be another approach at local levels.

Pointer 8: Facilitation by government and individual level behavioral change

Encourage civic responsibility such as respecting distancing and being mindful of others sharing the space, not spitting, limiting waste generation, ensuring proper disposal, and avoidance of contact with someone who is displaying symptoms (COVID-19).

Individual behavior base on the amount of awareness and education. Poor cities lack to aware people of the danger of pandemic. They care about their income and living cost more than health. For example, some poor and condensed cities in Egypt and India, people could not obey lockdown restrictions and started their business to earn money. They don’t follow the government instructions to avoid crowded places, as this interferes with their lifestyle and work as sellers in street markets. Those places did not follow the right design criteria from the beginning. Therefore, it is impossible to achieve social distance in crowded, narrowed street markets.

4.3. Global practices of recovery actions, from developing and developed cities.

In some countries, the government allowed people to leave their homes for exercise and physical activity. In New York City, Domino Park responded to COVID-19 with a unique design intervention of social distancing circles which ensure that people lounging on the lawns remain at least 1.80 meters (6 feet) apart (see Figure 1, a). These circles give visitors

visual guides that delimit safe socializing areas which make people sunbathe, inhale fresh air, and enjoy time outdoors while maintaining the required distance.



Figure 1: (a) Photo of the ‘Social Distancing Circles’ at Domino waterfront Park, Brooklyn, New York city. Photo’s credential: Marcella Winograd on May 2020. (b)The socially distant outdoor ‘Yoga Domes’ in the open spaces of Toronto, Canada. Photos credential: Christele Harroukon June 2020. Source: <https://www.archdaily.com/> and <https://www.weforum.org/>. (c) Photo of 'mi casa, your casa' playful urban installation. Photo credential: esrawe studio + cadena. Source: <https://www.designboom.com/>

While in Toronto, Canada the 50 private, clear, geodesic domes in the open spaces created by ‘Lmnts Outdoor Studio’ bring Yoga and fitness workouts safely to an outdoor setting while respecting social distancing measures. The geodesic dome standing more than 2 meters tall and 3 meters wide (see Figure 1,b), each dome offers participants over 10.21 square meter (110 square feet) of private space. Another example of interventions is the creation of a new function for ‘mi casa, your casa’ installation designed by ‘esrawe studio + cadena’ in 2014 (see Figure 1,c). In other cities as India or Egypt, where are slums, applying social distancing in public open spaces, that do not exist, is considered welfare.

The installations first established in Atlanta to create a new relationship between the high museum and the neighborhood. After Atlanta, the installation was placed in several museums, streets and public parks in different cities and served as a temporary refuge for some families that lost their homes during the earthquake of 2017 in Mexico. In the time of social distancing in 2020, the series of red frames offers a perfect solution to reignite communities and bring people safely back to public spaces considering the recommended distance.

These red installations highlight the need to socialize at its core, and with its playful design it aims to show the value of human interaction.

In the streets of Brno in the Czech Republic, the stagnant restaurant businesses in Gastro Safe Zone have been awakened by the design of ‘HUA HUA Architects’ that regulates outdoor dining area and ensures the required social distancing measures. The installation of first prototype of brightly colored ground markings transformed the public space into a space grid form. It divides public space into defined safe zones which include a one- piece dining set with 3 stable seats joined to a round table made of materials that can be easily disinfected (see Figure 2,a).



Figure 2: (a) Photo of ‘Gastro Safe Zone’ prototype installed in the streets of Brno in the [Czech Republic](#), which uses brightly yellow ground markings. Photo credential: Hary Marwel May 2020. Source: <https://edition.cnn.com/>. (b) 1.8-meter grid of squares of ‘StoDistante [installation](#)’ Piazza Giotto, Italy. Photo credential: Natashah Hitti May 2020. Source: <https://www.dezeen.com/>. (c) ‘Social distancing Blanket’ with an outline of a circle and four separate pieces circles. Photo credential: Natashah Hitti, May 2020. Source: <https://www.dezeen.com/>

In Italy, a practice designed by ‘Caret Studio’ called the ‘StoDistante installation’ located in Piazza Giotto, a square in the town of Vicchio near Florence, Italy which act as visual representations of the social-distancing advice to slow the spread of the Covid-19 virus. The designer described the installation as a temporary solution for ‘conscious use’ of the public space under the country's current safety measures and also for reactivating public spaces after Covid-19 lockdown ends. The Sto Distant installation features a 1.8-meter grid of white squares painted onto the cobblestones of the Piazza (Figure 2,b) in a lattice-like layout to act as a marker of how people can safely navigate around the square. The installation is arranged in a gridded formation, the squares get larger the closer to the center they are. This gradient style is designed to offer different perspectives and interactions within the piazza.

Noticeably, the civic responsibility towards sharing the space and respecting social distancing has been reflected on individual level behavioral change. For instance, the creative design solution by ‘Paul Cocksedge Studio’ as shown in (Figure 2,c) aims to encourage people to aid them socialize safely. This design emphasizes that social distancing does not necessarily have to compromise closeness. The circular yellow blanket has been designed keeping in mind the 2-meter mandatory spacing, and allow for a range of small social gatherings, such as a picnic in the park, or sunbathing with friends. Coupled with this, the design of the blanket is also free to download to encourage people to get inspired and form their own versions of it.

Some cities around the world have already started embracing the movement using a so-called ‘tactical urbanism’ to make their streets work better for people more than cars (i.e. Berlin and Bogotá) as a social distancing measure. Tactical urbanism can involve many forms of improvements to the public realm including creating or widening sidewalks, cycle lanes (Figures 3), squares, parks, urban voids, or any kind of urban space. There are no minimum or maximum dimensions for the intervention: what really counts is the impact that it can generate in the environment in which it is inserted, giving positive answers to contemporary urban issues.



Figure 3: (a) Photo of a closed street to through-traffic on Saturday to maintain a safe distance for residents, Oakland, California. Photo credential: Jim Wilson April 2020. Source: <https://www.nytimes.com/>. (b) Photo of a temporary cycle lane put into place to relieve pressure on public transportation in Grenoble, France. Photo credential: Philippe Desmazes May 2020. Source: <https://edition.cnn.com/>. (c) Photo of a temporary protected cycle lane on Müllerstraße, Berlin. Photo credential: Paul Zinken April 2020. Source: <https://www.forbes.com/>

In Oakland, California, almost 10% of roadways have been closed to through-traffic (Figure 3), while Bogota, Colombia, has opened 47 miles of temporary cycle lanes. Milan plans to build 22 miles of new cycle lanes and permanently widen sidewalks after its lockdown lifts. Authorities in Hungary's capital, Budapest, have suggested that its new cycle lanes may become permanent if the measures prove favorable. New York has begun trialing seven miles of ‘open streets’ to ease crowding in parks, with Auckland, Mexico City and Quito among dozens of other world cities adopting similar measures. There are many purported benefits of reclaiming the streets during a pandemic. Encouraging cycling may reduce crowding on buses and subways, where people can struggle to get distance from one another. Car-free roads also offer those without access to parks the ability to exercise safely (Holland, 2020).

For instance, in Brazil, Boston, Minneapolis and Oakland, California have implemented temporary, low-cost urban design changes in public spaces, like closing down specific streets to through motor traffic. Others are extending sidewalks to make more space for pedestrians looking to stay at least six feet apart (i.e. the temporary pedestrianization of downtown Yonge street in Toronto). There are a few sidewalks in all North America, where two people can cross paths (Figure 4) while maintaining a comfortable 6 feet distance (Jainer and Yadav, 2020). Moreover, cities in the US, Canada and Australia have reconfigured traffic lights so that will now

remain button-free and ‘placebo buttons’ are used only in case many pedestrian crossings (Holland, 2020).



Figure 4: (a) photo of one-way flow markings to regulate pedestrian movement, Knowsley, England. (b) Photo of pavement markings to regulate pedestrian movement, London. Source credential: <https://www.gov.uk/>. (c) photo of an envisaged public bench equipped with plexiglass ‘shield dividers’, Milano, Italy. Photo credential: Antonio Lanzillo & Partners. Source: <https://edition.cnn.com/>.

In *Marsa Matruh*, Egypt, during *Eid el Adha* only, the government closed Cornish Street in front of cars. Thus, it became pedestrian-only which provide wide and long open space with restriction of big group gathering. A procedure like this succeeded in achieving social distance and healthy space for a bike and walk. This raises a question, can this procedure last during/after a pandemic and seeking alternatives streets for cars, or no? can this main coastal street be developed to be a public open space (waterfront) for opening access for the pedestrian to water and parks? Procedure as this proved it's successful in a low dense city, what about high dense cities as Cairo or Alexandria where there is a lack of public open spaces (almost no exist)? can Cornish Street in Alexandria be converted to pedestrian and developed to waterfront parks and open spaces?

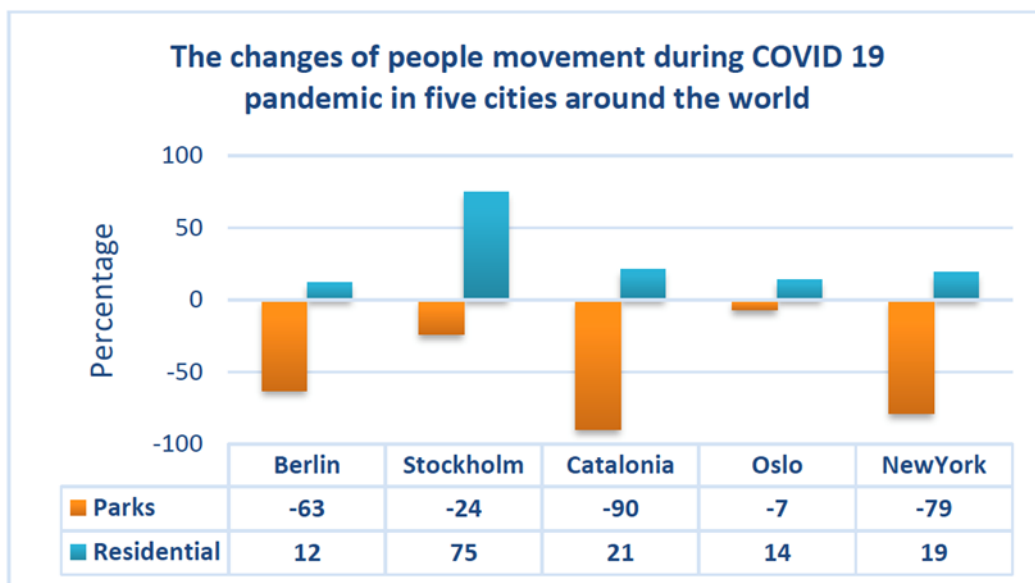
5. THE LOCKDOWN AND CHANGING IN HUMAN RESPONSE

It has been observed that a significant number of people changed their behavior during the lockdown in a way that cannot predict. After reopening, there is a higher increase among elders, children, and families in spending more time outside their home in (POS) (i.e. gardens, streets, or beaches) in exercising, running, walking, biking, and playing more than before (Gehl, 2020). A recent study about the most reasons that motivates people for using (POS) are 81 % for exercise in fresh air and sun, 72 % for relaxation physically and mental health, and 52% for errands. Consequently, cities need to focus more on the user’s needs concluded from their behavior and then implement the suitable recovery actions according to the new normal measures. The COVID-19 pandemic may not last forever, and our response to it now will shape the future of our cities for the coming decades.

In fact, COVID-19 has raised many questions as: Are the distribution of (POS) equal across cities? What is the impact of home lockdown on human health? and are there any alternatives to (POS) as green roofs in dense population cities? Thus, it will be important to observe and measure all changes in human behavior towards new normal as well as the connection between new people practice, new city’s needs, and resilient

urban development that will help designers and urban planners to be ready for the pandemic crisis in the future. Statistics from the ‘Google community of mobility data’ during Covid-19 lockdown from February 16 March 29 and restrictions in cities on public spaces, there is a varied move to parks and residential in different cities as Berlin, Oslo, Catalonia, New York, and Stockholm.

The data showed that people during restrictions on normal access to public spaces need to open-air public spaces more than compared to pre-COVID 19 as a result, walking around their residential area was the most reaction of people do during the lockdown. Reasons to use such spaces because the accessibility of public green spaces has been restricted, which led to a decline in use green public space/parks dramatically in several cities as Catalonia and New York reach (-90%) compared to the base line* as illustrated in (Figure 5). While in Oslo there was an increase in (POS) use such as parks (-7%), streets, and forests that are close to their home, thus, there was a decline in residential movement compared to parks. Therefore, the research findings emphasize on the importance of (POS) during the lockdown.



Note*: The baseline is the median value, for a corresponding day of the week, during the 5-week period Jan 3–Feb 6, 2020

Figure 5: The changes of people movement during COVID-19 pandemic in five cities around the world from February 16 – March 29. Source: (Barton et al., 2020) and <https://www.gstatic.com/covid19/mobility/>

Moreover, there is an unequal distribution of green public spaces in urban with some variations in quantity and quality, size of green spaces, and plantation. Certainly, not all people have green spaces in their residential or private houses to enjoy fresh air and sun. Therefore, the Coronavirus crisis has emphasized the importance of equality in open spaces distribution in different areas of the cities particularly in time of the lockdown situation and when public transports will not be allowed (Barton, et al , 2020).

The current pandemic has highlighted the inadequacy of (POS) and unequal access to parks for the high-density and developing countries which do not have enough access for blue-green open spaces. Everyone should have the right to access (POS) easily to achieve what is called ‘Socio-environmental Justice’. It has been recognized across the literature that the widening disparity in (POS) distribution between the urban poor

and the rich will lead to a gap in health inequities. The priority of providing life quality, better interaction, equal distribution, accessible, healthy, safety, and environmental (POS) must be taken into consideration through design and planning process. In 2016, Singapore has been provided a therapeutic garden in public parks to promote the mental and emotional well-being of citizens. While In Tokyo, citizens and urban designers were involved together to greenify their neighborhoods to improve their health.

Using this as an opportunity to better city design for public health and sustainability, city officials must consider reviewing the (POS) norms and supply status in cities specially the urban green spaces. According to UN (United Nations) and (WHO) recommended that every city is to provide a minimum of 9 square meters of urban green space for each person which is accessible, safe, and functional. (WHO) also suggest that an ideal amount of urban green space can be generously provided as much as 50 square meters per person (World Health organization, 2010). Most Indian cities are unsurprisingly below this norm for example, Mumbai has a mere 1.28 square meters per person, Bengaluru offers 2 square meters, while Chennai has 0.81 square meters per capita and Delhi's 22 square meters per capita space (heavily concentrated in Lutyens' Delhi). Given this situation, regulations should be amended to encourage upper limit provisions of open space in public and private developments, while also looking at ways of efficiently managing and increasing green cover through micro interventions like pocket parks and connected green infrastructure (Mehta and Dhindaw, 2020).

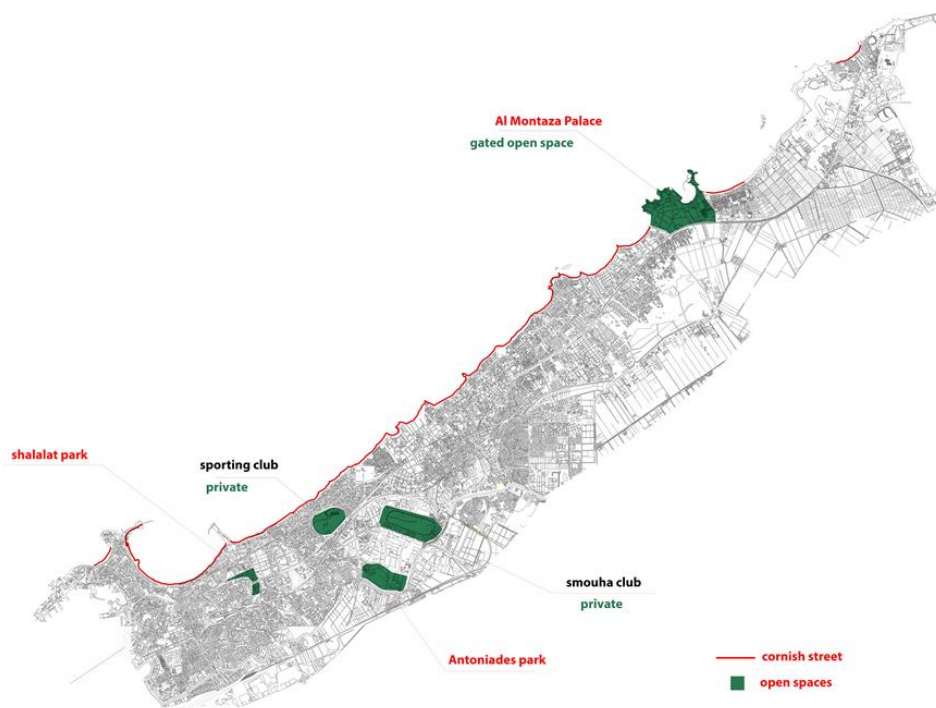


Figure 6 . Map of Alexandria city, Egypt show the open spaces compare to buildings blocks. Sporting and *smouha* clubs are open for their members only. *A-lmontaza* palace is open for public but with tickets. Only *shalalat* and *antoniades* are open for public.

A small study on public open spaces in one of the dense cities, Alexandria in Egypt. (Figure 6) green and public open spaces that are located on the map showing that there is a lack of green open spaces compared to the dense building's blocks. Those green open space are not public actually two of them is a sports clubs for specific people and the other are gated. The only affordable public open spaces are Cornish Street. Although, most of the Cornish area is hired to the private sector for expensive cafes and restaurants.

6. CONCLUSION

This paper highlights the significance of (POS) during the outbreak of COVID-19 pandemic. It stresses on the role of (POS) in fostering peoples' needs within the new normal and how they can affect their daily behavior. Concentrating on previous global pandemics, it showed how pandemics have transformed cities urban planning throughout history through various improvements in many cities such as increasing public green areas, reformation of sanitation issues, water shortage, and infrastructure of the cities.

Consequently, lessons can be learned from past pandemics in which a strong connection between public health and urban planning reformation was established. Thus, the link between global pandemic and urban reform will aid in achieving more successful policymaking when dealing with the current pandemic of COVID-19. Undoubtedly, the extent of these transformations is unclear, especially when it relates to the current or future design use, current pandemics, and the perceptions of (POS). Then, the authors highlighted some pointers and their urban recovery actions for (POS) to make them operational again in developing cities. These actions emphasize on many important social distancing measures for instance regulating people inflows to spaces through some considerations for pedestrian movement, queuing, traffic management, time regulations for physical activities, and staggering entry times with other venues. Certainly, it is still unclear if these proposed urban recovery actions will continue or stop once the pandemic is over. Some examples in different cities put these recovery actions in practice and this paper presented different ideas about urban solutions and their associated incidence of a pandemic.

Eventually, it is recognized that COVID-19 pandemic has a critical role in shaping human behavior and response towards the new changes during the lockdown. Some studies found that people began to spend more time outside their homes in open public spaces for exercising, running, and walking. As a result, it is important to think about people's needs according to the new normal situation as well as focusing on other aspects as the disparity in public spaces distribution, accessibility, health, and safety. Although this paper discussed some issues that have arose by the researchers, but there are some questions that need to be answered in further studies: What will be the long-term impacts of the COVID-19 pandemic on (POS) once the restrictions have been lifted? For further research, this paper also did not cover the entire spectrum of issues and potential impacts arising from social distancing and the new normal like the issues associated with construction processes and risk management.

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