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## Impact of urban public open spaces (UPOS) on Public Health (Physical & Mental) – Present & Post COVID-19 Pandemic

### *Abstract*

Global health emergency is at its peak, the Novel Corona Virus (COVID-19) pandemic revealed its impact on our cities and health sector. The present pandemic circumstances are temporal but, reflect diverse range of inequalities in terms of socio-demographic context, urban population densities, and housing typologies. The paper explores the accessibility and usability of UPOS in Indian metropolitan regions. The study further validates the significance of UPOS and its impact on maintaining physical and mental health. The paper summarizes the guidelines, to curb the administrative enforcement and planning/design challenges, during the present and post COVID-19 pandemic

### *Keywords*

Urban public open spaces, Urban landscape, Landscape Planning, Public health, Covid-19.

### **1. Introduction**

Urban public open spaces have always been an integral part of the city's fabric. A sustainable city must take into account the quantity and quality of open spaces. Public open spaces are key built environment elements within neighborhoods intended to encourage various active participation in physical activities has numerous benefits and serves many important functions that improve the quality of life in urban areas. In urban and landscape planning studies, the quantity and quality of open spaces in a community have been eliciting increasing attention. (Hiu Ming, 2014) Cities are endowed with various with different types of UPOS such as city squares, playgrounds, maidan, small parks, and city parks.

The World Health Organization (WHO) has set a minimum limit of nine square meters of open space per capita in urban areas, the UN has pegged this figure at 30 square meters, and the EU considers 26 square meters of open space per capita as acceptable. (WHO, 2010)





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## **1.1 Open Space health and wellbeing**

Providing Open spaces in urban settings is an investment in health, well-being, and quality of life, creating places for relaxation, recreation, and social interaction. Urban open or green spaces are valuable settings for community organizations to host cultural or recreational events or provide space for intercultural activities. (WHO, 2020)

A study that found a clear connection between green spaces and mental wellbeing discovered that people who visited nature the day before felt happier, and those who visited nature regularly thought their lives were more meaningful. They found similar but weaker buffering effects for mental health. During times of crisis, open space can be a helpful buffer. Experiences with nature (such as going for a walk or admiring green landscapes) have been found to significantly improve the quality of life for people who have experienced a personal crisis.

## **2. Issues addressing the UPOS**

One of the issues regarding UPOS is that not everyone has access to these spaces. With an increase in urbanization, there is a huge demand for land which is putting our existing local, accessible open space under threat. Greener neighborhoods benefit everyone but appear to disproportionately benefit disadvantaged groups, and socioeconomic-related inequalities in health are lower in areas with greater access to open space. (UN Sustainable, 2020) The security of some places like parks, gardens, and spaces with dark spaces is also important. These places should be secured so that children and families may visit them safely. Children's and women's safety are major concerns, so dark passages, and poorly lit areas should be avoided.

## **3. Typologies of UPOS**

Urban open and green spaces can be categorized based on shapes, forms functions, and purposes. These spaces can be public or privately owned. They are categorized as follows:

- **Public Park:** This is a public open space located near the centre of a major city. It is typically larger than neighbourhood parks.



- Neighbourhood Park: The development of open space in residential areas.
- Playgrounds: The play area includes play equipment and is located in the neighborhood.
- Plazas:A city's development includes the creation of open spaces.
- Community Open Spaces: An open space system in a city includes neighborhood spaces, which include vacant land, playgrounds, community gardens, etc.
- Streets: Open space in cities is widely accessible to the public;

#### **4. Urban Public Open Spaces (UPOS) and Covid-19**

##### **4.1 UPOS in Indian metropolitan cities.**

Green space and public open spaces serve as a link between people and nature, and they are required to maintain the quality of the urban landscape. Rapid urbanization and population growth place enormous strain on public open areas, lowering the quality of the urban landscape. Table 1 shows the population in the 13 populous cities as of the 2018 Estimated Census which was collected from the India Environment and Population Portal. The table also provides information about the geographical area, forest and tree cover, and per capita green space in these cities. Overcrowding in Table 1 lists the population of India's 13 most populated cities as of the 2018 Estimated Census, as compiled by the India Environment and Population Portal. The table also includes data on the city's geographical location, forest and tree cover, and per capita green space. Overcrowding in India's major cities, such as Mumbai and Delhi. Mumbai, Kolkata, Delhi, and Chennai have put a huge strain on energy, water, and

transportation management, as well as hurting the atmosphere, climate, lithosphere, biosphere, hydrosphere, and land, and water resources. The cities that include below 9.00 m<sup>2</sup> per capita green cover are Mumbai, Kolkata, Bangalore, Hyderabad, Surat, and Jaipur.

##### **4.2 The Impact of enforced lockdown on mental health.**

The city's way of life has changed as a result of a year of lockdown, and its primary function as a place for diverse events and social interactions has been negated. The hazards of long-term isolation and being cut off from metropolitan life are not just a personal difficulty, but they also pose a threat on a social level. Interpersonal relationships that are hampered, stress, and fear of another person all reduce one's life quality and may contribute to the development of mental disorders.

The epidemic of COVID-19 and the resulting limitations enforced by governments around the world have had enormous social and psychological consequences, especially for young adults. Sleep quality and diurnal preference, anxiety or depression, wellbeing and loneliness, and alcohol consumption were all measured in this study, which employed observational studies to characterize effects on mental health and behavior in a UK student sample.

##### **4.3 Transformation of accessible UOPS for essential activities**

New urban landscapes have taken the place of earlier public spaces in many countries, transforming private spaces into public ones



It is clear from the study of some of these spaces that they have the potential to participate in educational and artistic activities, which may be especially critical these days when it is difficult to find suitable spaces for schools, artistic performances, and many other activities that cannot be carried out in closed spaces, due to lack of appropriate physical distance. As part of Covid-19, places and spaces should be rethought to create a more liveable city for all and to allow for their healthily widening use.

Furthermore, the studies suggest that inequitable access and utilization of parks and greenspace in socially vulnerable communities may exacerbate pre-existing health disparities caused by the COVID-19 pandemic.

## 5. Discussion

The UPOS are studied under various factors such as accessibility, users, activities, challenges due to enforced lockdown, and impact on human wellbeing. The hierarchical nature of UPOS is perceived through distinct situations, current pandemic and post-pandemic and recommendations arrive.

### 5.1 Framework for UPOS Neighbourhood Park.

#### 5.1.1 UPOS and accessibility

Current pandemic Situation: Dense urban neighborhoods are majorly affected by Covid-19 due to less availability of open spaces.

Post pandemic Situation: Restructuring of dense neighborhoods and defining opportunities of urban open spaces.

Recommendations: A proportionate open space delineations considering the scale and population densities.

#### 5.1.2 Enforced lock-down and UPOS

Current pandemic Situation: Enforced lockdown curb many residences to access urban open spaces within the vicinity and beyond the containment zone.

Post pandemic Situation: Space dynamic consideration and flexible neighborhood to define the containment zones, still self-contained in terms of UOPS.

Recommendations: Self-contained neighbourhood and strategically defined micro spaces such as parks, pocket parks, and linear parks.

#### 5.1.3 Transformation of UPOS

Current pandemic Situation: Along with recreation neighbourhood parks space accommodates essential vending spaces.

Post pandemic Situation: Flexible and dynamic open spaces planning to accommodate futuristic needs with recreation.

Recommendations: Detailed space planning and flexible programming of UPOS.

### 5.2 Framework for UPOS - Public Plazas

#### 5.2.1 UPOS and accessibility

Current pandemic Situation: The large plazas and congregation spaces are not allowed to access to control the spread of the virus.

Post pandemic Situation: All day all night vending and commercial activities to avoid overcrowding and to maintain social distancing.



Recommendations: Delineation of each public plaza severing the essential goods/services, considering the users' requirements and special configuration.

### 5.2.2 Enforced lock-down and UPOS

Current pandemic Situation: Limited or complete access was prohibited to visit the public plazas. Due to lack of pedestrian connectivity, the spacious public plazas are not consumed up to their maximum extent for essential vending.

Post pandemic Situation: The deficiency of pedestrian access permitted to visit the plazas to users of limited social strata.

Recommendations: Identification and development of necessary infrastructure for strategically located public plazas.

### 5.2.3 Transformation of UPOS

Current pandemic Situation: Defined vending clusters supervised by local authority abiding the covid appropriate behaviours.

Post pandemic Situation: Outdoor commercial opportunities to avoid conditioned and claustrophobic market spaces.

Recommendations: Space program the plazas to accommodate the present and futuristic needs considering the seasonal changes.

## 5.3 Framework for UPOS - Streetscapes

### 5.3.1 UPOS and accessibility

Current pandemic Situation: Limited access permitted for stipulated hours to approach essential shopping. Pick hours overcrowding and violations of covid appropriate behaviour was a common scenario in many cities.

Post pandemic Situation: Pedestrian-friendly streets and decentralization of vending spaces facilities ease of access.

Recommendations: Less wide streets legitimated to only pedestrian streets to access nearer and daily essential shopping and wider streets for longer trips.

## 6. Anticipated activity analysis and public health benefits of UPOS

The present activities are studied to understand the projected activities during the lockdown to diminish the adverse effect on physical and mental health. A list of permissible activities is proposed considering the type, scale, configuration, and users of UPOS. Further, the proposed activities are supplemented to understand the benefits of physical and mental health.



Table No-2 UPOS & Present and acceptable activities.

UPOS	Present Activities	Acceptable Activities
Neighborhood Park	Jogging /walking /skating, Sports &Community events.	Jogging walking /skating, cycling &Strolling.
Pocket Park	Social gathering Childers play, yoga Meditation, outdoor games& exercise.	Exercise & yoga/meditation
Linear Park	Cycling &Last mile connectivity to the nearest urban node	Cycling &last-mile connectivity to nearest urban node.
Public Plazas	Social interactions, public events, community gathering and vending	Essential vending &small-scale community gathering respecting co-vid regulation and social distancing guidelines.
Streetscape	Vehicular circulation and pedestrian trespassing.	In addition to regular vehicular circulation facilities to accommodate small essential vending kiosks. Defined bicycle path and shaded pedestrian path.

Table No-3 UPOS & Present and permissible activities.

UPOS	Mental health benefits	Physical Health benefits
Neighborhood Park	Prospects passive recreation provides the visual retreat.	Prospects active recreation irrespective of age/gender /social status of users
Pocket Park	Certainly Reachable open spaces for smaller groups and personal delights.	Amicable space for physical activity and sunlight exposure to geriatric phase users.
Linear Park	Comfortable thoroughfare	Shaded walking opportunities for through the day
Public Plazas	Breathing spaces in denser urban mix/ commercial neighborhood.	Opportunities for sunlight exposure. Medical camps Awareness facility.
Streetscape	Pedestrian-friendly shaded streets to approach essential nearest vending facility.	Retrofitted smart streets to accommodate Bicycling/ walking jogging and barrier-free access to all users.



## 7. Conclusion

The pandemic has made people realize the importance of open spaces and has allowed examining the links associated with health and well-being. Having been confined to their homes, the perception of open spaces has changed.

To address the pandemic, we need to rethink open spaces in terms of approach, access, and usage to promote good physical and mental health. Regardless of income, there must be anomalies in the distribution of open areas.

Secondly, globally, the epidemic has had a significant influence on mental health. The open spaces have become even more pronounced. There has been some recognition from the government. In the form of the National Flagship Mission, which is a major step for managing cities.

We aim to improve people's perceptions of urban green areas so that they can contribute to global solutions and continue to be a valuable social gathering place that lifts the community.

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