INSTITUT MASA DEPAN MALAYSIA
MASA POLICY DEVELOPMENT PROGRAMME

POLICY BRIEF
23

Urban Green Spaces as an Index for the Sustainable Mental Health Policy

MOHD RAMZI MOHD HUSSAIN
SYARIAH BACHOK
MAZLINA MANSOR
IZAWATI TUKIMAN
PUTRI HARYATI IBRAHIAM
JASASIKIN AB SANI

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Mohd Ramzi Mohd Hussain
Syariah Bachok
Mazlina Mansor
Izawati Tukiman
Putri Haryati Ibrahiam
Jasasikin AB Sani

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Institut Masa Depan Malaysia (MASA)
192, Jalan Ara, Bukit Bandaraya,
59100 Kuala Lumpur.
Tel: 03-23881059 Fax: 03-23881049
E-mail: mpdp@institutmasa.com

Advisor:
Azril Mohd Amin

Editorial Team:
Marhaini Kamaruddin
Hamidah Atan
Mohamed Azmi Mohd Rasheed Khan
Mohd Noor Musa
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PREFACE

Institut Masa Depan Malaysia (MASA) is an independent think tank that brings together experts in government and academia to provide quality research, policy recommendations, and analysis on the full range of public policy issues guided by the shared prosperity values.

Since its inception, MASA has been actively involved in shaping national policies and frameworks. MASA Policy Development Programme (MPDP) was introduced as a pioneering initiative aimed at promoting policy research among researchers from public and private universities across the country, in alignment with the Shared Prosperity Vision 2030 and the Sustainable Development Goals, which are integrated with the 12th Malaysia Plan.

Through the MPDP 1.0 initiative, 30 Policy Briefs have been successfully produced, encompassing policy input and recommendations across sectors such as economics, social issues, education, and sustainable development.

MASA expresses its gratitude to Associate Professor Dr. Mohd Ramzi Mohd Hussain and his team for the production of this policy brief. The commitment of the MPDP grant recipients, along with close cooperation with relevant stakeholders, is highly appreciated and is hoped to continue making a positive impact on national policy development.

Azril Mohd Amin
Chief Executive Officer
Institut Masa Depan Malaysia

ABOUT MASA

Institut Masa Depan Malaysia (MASA) is an independent think tank that brings together experts in government and academia to provide quality research, policy recommendations, and analysis on the full range of public policy issues guided by the shared prosperity values.

MASA was established in January 2019. The formation of the organisation was inspired and mandated by the Seventh Prime Minister, YABhg. Tun Dr Mahathir Mohamad and the Eighth Prime Minister, YB Tan Sri Dato' Haji Muhyiddin Bin Haji Md Yassin. It was founded out of a passion to forward the philosophy of shared prosperity in Malaysia and this region.

MASA also was commissioned by the government of Malaysia to author and develop the Shared Prosperity Vision 2030 plan as the new socioeconomic plan for Malaysia.

Our Vision

To be a thought leader on policy ideas and analysis guided by shared prosperity values.

Our Mission

To create a world where no one is left behind by influencing policymakers to develop data-driven policies that ensure equitable wealth distribution and continuous improvement of people's well-being.

ABOUT MPDP

MASA Policy Development Programme (MPDP) is a pioneering effort in promoting policy research that has become part of MASA's flagship project, in line with the 12th Malaysia Plan which is aligned with the Shared Prosperity Vision and the Sustainable Development Goals.

The research grant, introduced for the first time in 2021, received an encouraging response public and private institutions of higher learning as well as non-governmental organizations.

MPDP researchers have produced studies across various strategic areas, including multidimensional poverty, education for the B40 group, sustainable urban planning for low-income communities, regional inclusivity in Sabah and Sarawak, social enterprise models for Micro, Small and Medium Enterprises (MSMEs), green economy potential and food security.

Other strategic areas of studies include empowerment of the ecotourism sector, climate change, health preparedness and crisis resilience, addressing learning loss, business acceleration, affordable housing and social protection.

All these are reflections of the initiatives and aspirations, inspired by the 8th Prime Minister and Chairman of MASA, Tan Sri Dato' Haji Muhyiddin bin Hj. Md. Yassin.

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BIOGRAPHY

MOHD RAMZI MOHD HUSSAIN

Mohd Ramzi Mohd Hussain is an Associate Professor at the Department of Landscape Architecture, Kulliyyah of Architecture and Environmental Design (KAED), International Islamic University Malaysia (IIUM). He formerly held the position of Director, OSHBE, Office of Executive Director, Development & Planning Division, IIUM. His research interest includes sustainable environment and environmental modelling, urban landscape design, residential and universal landscape design, cultural landscape and GIS management and landscape planning (tourism planning).

SYARIAH BACHOK

Syariah Bachok is an Associate Professor at the Department of Landscape Architecture, Kulliyyah of Architecture and Environmental Design (KAED), International Islamic University Malaysia (IIUM). She has been involved in a number of transportation studies and transportation sectoral studies in various Local/Structure and Master Planning exercises at both the university, local, state and national levels.

MAZLINA MANSOR

Mazlina Mansor is an Associate Professor at the Department of Landscape Architecture, Kulliyyah of Architecture and Environmental Design, IIUM. She has an academic background in Environmental Design (University of Tasmania, Australia), Environmental Management (University Kebangsaan Malaysia) and Landscape Architecture (University of Technology Malaysia). The areas of her research interests include urban public space, urban green infrastructure, human ecology, environment-behaviour studies and cultural landscape and heritage.

IZAWATI TUKIMAN

Izawati Tukiman is Associate Professor from Department of Landscape Architecture, KAED, International Islamic University Malaysia (IIUM). She is actively involved with the society through professional consultancy activities, especially on universal design, and have been involved with access auditing for many buildings and parks. Other than that, she has also contributed her expertise with other organizations such as Public Work Department (JKR) by providing trainings and facilitating on water management.

PUTRI HARYATI IBRAHIAM

Putri Haryati Ibrahim is an Associate Professor in the Department of Landscape Architecture at the Kulliyyah of Architecture and Environmental Design (KAED), International Islamic University Malaysia (IIUM). She has held numerous academic and non-academic administrative positions, including as the present Head of Department for the Department of Landscape Architecture from 2021-2023, Academic Advisor for the Department of Landscape Architecture from 2019-2021 and 2008-2009, Department Representative in the Kulliyyah Website Committee since 2015, and Examination Committee since 2017.

JASASIKIN AB SANI

Jasasikin Ab Sani is an Assistant Professor in the Department of Architecture and Environmental Design (KAED), International Islamic University Malaysia (IIUM). He obtained his Ph.D. in Specialism of the Built Environment at University Teknologi MARA (UiTM). His area of specialisation on Engineering Tech, Applied Sciences And Technologies, Landscape Architecture and Planning, Landscape Planning - Landscape Planning/Design/construction/management.

Executive Summary

Urban green spaces are obligatory landscapes in an urban structure that provide a natural environment and accelerate other life events. With rapid urbanization and the increasing urban population, residents' demand for contact with nature and high-quality life is also increasing.

Spiritual enrichment, cognitive development, reflection, a sense of place and recreational experiences are among the factors that urban green spaces play an essential role in improving residents' physical and psychological health.

However, during the pandemic crises such as COVID-19, lockdown and quarantine policies have led to a general decline in residents' physical and mental health due to insufficient social interaction, which can cause potential public health risks. Ways to be widely addressed to alleviate the adverse impact of the pandemic and meet social interaction.

This policy brief became a focused discussion of an action to achieve intentional and purposeful movement. The research aims to investigate the role played by urban green spaces as an index for the sustainable mental-health policy during the pandemic outbreak.

The study employs a qualitative method to elicit the data, covering the focus group discussion (FGD). An FGD is designed based on the social ecology theory of the role and functions of the urban green spaces as the areas for the residents' physical activity that also affect their mental health and well-being.

In total, 15 participants participating in the FGD come from various backgrounds and academic qualifications. The findings indicate a positive association between green space and mental health.

The current evidence suggests the potential for environmental initiatives which aim to increase urban green spaces, address the public health issue of poor mental health in urban communities and provide lasting public health benefits.

Key Messages and Recommendations

Recommendation 1

- To revised the allocation of 10% to at least 30%. The allocation of green spaces for the community to benefit from the availability of green spaces.

Recommendation 2

- To get public perception and participation regarding the spaces they need to incorporate in their green spaces, particularly in residential areas.

Recommendation 3

- To connect the urban green spaces with other infrastructure, thus giving good accessibility to the areas.

Introduction

Urban green space is any "green space", "public open space", or "park" in an urban setting (Lee et al., 2015). Green space in cities is one of the essential aspects of environmental preservation in cities. It refers to any green patches, including hard-surface regions that are permeable and mostly made up of 'soft surfaces' like soil, grass, shrubs, and trees (Lee et al., 2015). Parks and gardens, green housing spaces, city farms, grassland, private green areas, sports fields, and agricultural regions are examples of urban green spaces.

Urban green spaces are vital for citizens' quality of life, health and well-being. Urban green spaces are critical to protecting wildlife, water catchments, grasslands, vegetation, air quality for a dense urban environment, and recreational activities (José G. et al., 2018).

According to the World Health Organization (2020), urban green space is a "green infrastructure" component. Urban green space is a significant part of promoting environmental health among urban communities in public open spaces and standard services provided by a local city authority (World Health Organization, 2020). It is essential to ensure that green spaces are easily accessible for all population groups and distributed equitably within the city.

Green spaces are the area that filled is with trees, grass, elements of water, and shrubs. The green spaces typologies are defined based on size, distance, and facilities. Urban green spaces are a significant element for making cities more sustainable, greener, and healthier places to live in a world with an expanding population and urbanization (World Health Organization 2017).

Naomi (2021) explains that the health benefits of urban green space outweigh any negative consequences, such as pollen allergies, illnesses, or injuries. The green space could help to lessen health disparities in urban populations because it helps to reduce environmental and health inequalities by providing equal chances for all population groups to interact with and benefit from natural surroundings and ecosystem services like pollution and noise buffering. Cities that construct and maintain well-connected, appealing green spaces are more likely to have healthier, happier, and more productive communities and lower health-care demands.

The earth has been experiencing the most significant wave of urban growth in history, with 55% of the world's population (4.2 billion people) currently living in urban areas, a figure set to rise to 70% by 2050 (Callaghan et al., 2020). Thus, access to green areas needs to be increased to balance the growing population. Living near, recreating, and feeling connected to the natural world are all associated with better mental health (White et al., 2021).

The coronavirus disease 2019 (COVID-19) pandemic brought unprecedented socially isolating measures to mitigate the spread of the disease, heightening the importance of public outdoor urban green spaces (Wortzel et al., 2021).

In the past half-century, humans have suffered from the H1N1 virus, Cholera, Ebola virus disease, SARS, MERS and other large-scale epidemics (Xie et al., 2020).

Each pandemic has had a tremendous negative impact on human society. COVID-19 is a respiratory disease that emerged in Wuhan City on 31 December 2019 and posed a global public health concern.

The World Health Organisation (WHO) declared COVID-19 as an international public health emergency on 30th January 2020. The prevalence of COVID-19 and urban quarantine strategies have drastically altered residents' everyday lives, and that caused a variety of adverse effects.

A recent review of the literature on the psychological effects of quarantine during past epidemics and pandemics (e.g., SARS, H1N1, Ebola, MERS, equine influenza) highlighted that when comparing the psychological outcomes of quarantined versus non-quarantined persons, the former is more likely to show psychological distress (Mazza et al., 2020).

Regarding mental health, strict quarantine measures are believed to cause panic and fear among urban residents (Xie et al., 2020). For example, people in quarantine are more prone to developing various symptoms of psychological disorders, such as stress, depression, emotional fatigue and insomnia (Xie et al., 2020; Geng et al., 2020; Mazza et al., 2020; Wang et al., 2019). Mazza et al. (2020), from their study in Italy, reported that more than half of the respondents reported different degrees of depression, anxiety, and stress during the urban quarantine period.

Specifically, the continuous spread of the pandemic over a long period will undoubtedly cause more widespread fear and bring about negative emotions such as fear and anxiety. During the lockdown and restrictions placed on public activities and gatherings, green spaces such as urban parks become one of the only sources of resilience amidst the pandemic crises, in part because of their positive effects on psychological, physical and social cohesion and spiritual wellness.

Aim and Objectives

The research aim is to investigate the role played by urban green spaces as an index for the sustainable mental-health policy during the pandemic outbreak.

There are two objectives of the research:

- To define the role of urban green spaces in serving the needs of urban residents during a pandemic.
- To propose urban green spaces as a mental health policy about pandemic crises.

Critique of Current Policy Option

Natural environments and accessible green spaces, directly and indirectly, affect health and well-being. It can mitigate climate change impacts, lower the risks of disasters, and support active recreation; provide a place to relax and leave daily stress behind for a while. It has been recognized as a green infrastructure that provides and delivers environmental, social, psychological and health functions and ecological services for residents (Kothencz & Blaschke, 2017; Larson, Jennings and Cloutier, 2016; Geng et al., 2020).

Urban green spaces have been linked to reducing several highly prevalent diseases in many cities and are often the targets of costly, large-scale prevention programmes (Amano, Butt and Peh, 2018). More than half of the world's people now live in urban areas, and the proportion will rise to two-thirds by 2050. The urban population will reach 6.4 billion by 2050, driven by high urbanization and population growth (Amano, Butt and Peh, 2018).

Thus, understanding how health is affected by urban environments is of the utmost importance. Apart from recreation, urban green spaces provide multiple opportunities for people/public health, community cohesion and city sustainability. Geng et al. (2020) add that urban green spaces benefit human mental and physical health and social well-being under a health crisis and global pandemic. For example, urban parks are a valuable feature that supports indicators of ecological health such as air and water quality sustainability-oriented policies and practices (Larson, Jennings and Cloutier, 2016).

A recent review of the literature on the psychological effects of quarantine during past epidemics and pandemics (e.g., SARS, H1N1, Ebola, MERS, equine influenza) highlighted that when comparing the psychological outcomes of quarantined versus non-quarantined persons, the former is more likely to show psychological distress (Mazza et al., 2020). Regarding mental health, strict quarantine measures are believed to cause panic and fear among urban residents (Xie et al., 2020).

For example, people in quarantine are more prone to developing various symptoms of psychological disorders, such as stress, depression, emotional fatigue and insomnia (Xie et al., 2020; Geng et al., 2020; Mazza et al., 2020; Wang et al., 2019).

Mazza et al. (2020), from their study in Italy, reported that more than half of the respondents reported different degrees of depression, anxiety and stress during the urban quarantine period. It should be noted that the adverse effects of the pandemic on people's mental health may be long-term, such as post-traumatic stress disorder and increased risk of suicide (Xie et al., 2020).

A study by Brooks et al. (2020) has indicated that the longer the quarantine period, the greater the impact on mental health, showing higher levels of avoidance and anger.

Social connecting/interaction is an essential daily behaviour of urban residents and is to be positively correlated with better health, well-being, and quality of life (Xie et al., 2020).

However, due to the current pandemic crisis, the quarantine policy has significantly limited residents' social behaviour because they are restricted from entering public places and must keep a certain distance and avoid physical contact. This situation creates social isolation and loneliness and leads to a negative impact.

Although online communication helps to reduce face-to-face contact, face-to-face communication and activities are more important for people who do not use social networks. Urban parks impact the psychological health of urban residents.

For example, individuals living in greener urban areas display more positive mental health indicators than those living in less green settings, including fewer symptoms of depression and lower levels of self-reported and biologically measured stress (Larson, Jennings and Cloutier, 2016).

Visiting urban parks and green spaces can improve mental health (Xie et al., 2020). Urban parks provide space and opportunities for outdoor activities and encourage different population factions of different ages, ethnic groups, and socio-economic groups to engage in sports and recreation activities. Children and adolescents also prefer to play and socialize with friends in the park, which is very important for children’s growth. It is believed that greener areas are associated with cognitive development and learning outcomes.

Larson, Jennings and Coutier (2016) suggested that cities with higher concentrations of parks and other green spaces provide more significant opportunities for happiness than their park-barren counterparts.

Recreational activity has substantial health benefits (Venter et al., 2020). They add that walking has been shown to reduce cardiovascular disease risk by around 30% and all-cause mortality by 20%. Thus, considering urban health promotion, there is a growing need to understand the complex relationship between urban green space and human health and well-being at the city level. The Centers for Disease Control and Prevention have identified parks as a critical community feature influencing health promotion (Larson, Jennings and Coutier, 2016).

Overall, the literature supports the view that urban parks significantly impact many aspects of people's lives, causing considerable psychological strain and triggering various psychological problems. Urban parks also are an essential mechanism for the environmental health index to achieve the sustainable development goals (SDG) 3 and 11 (good health and well-being; and sustainable and resilient cities).

Furthermore, exploring the urban parks as an environmental health index of the public space is essential given that the COVID-19 pandemic is expected to bring about substantial changes to future design, use and perceptions of public spaces for urban resilience, equitable availability, and accessibility.

Therefore, the research investigates the role played by urban green spaces as an index for sustainable mental health policy during pandemic crises for public health.

Methodology

The research employs a qualitative method to elicit the data, covering the focus group discussion (FGD). It enables an in-depth exploration of the research topic and the outcome of the group's interaction and joint construction of the subject matter (Said et al., 2011).

The objectives of the FGD were explicitly designed to identify the responsibilities and strengths of respondents' agencies involved in planning and designing the type of urban green spaces. There were also inputs given and shared by medical doctors who looked at their opinions and responded.

FGD allowed group interaction and participants to build on others' answers. Share new ideas and gain a better understanding of the subject discussed. The FGD was conducted on 21st June 2022 and invited professionals bodies and agencies from Jabatan Landskap Negara (JLN), Kementrian Kesihatan Malaysia (KKM), Institute of Landscape Architects Malaysia (ILAM), Putrajaya Corporation (PJC), Malaysia Institute of Planners (MIP), Pertubuhan Arkitek Malaysia (PAM), Dewan Bandaraya Kuala Lumpur (DBKL), and Lecturers from Universiti Teknologi Malaysia (UTM) Kuala Lumpur Campus.

The participants were divided into two groups in which. Each group was accompanied by two (2) Moderators and one (1) rapporteur.

Three main themes were deliberated to gauge participant's responses:

- the understanding of urban green spaces
- the importance of urban green spaces for mental health issues
- the role of urban green spaces towards mental health reduction during the pandemic outbreak

These themes look at the current action and guide how urban green spaces become a role in mental health reduction/improvement for public health and wellbeing.

The content analysis is used to analyse data from the FGD. The steps involved in coding were eliminating, combining or subdividing the keywords based on the objectives of conducting the FGD discussed above.

The steps enable systematic data coding by organising the information based on recorded tapes and the transcripts prepared by the rapporteurs. All the views, comments and suggestions were documented by transcribing into verbatim transcription to identify the main findings in the engaging narrative for each of the three themes, including the quotations to produce the main findings, outcome and conclusion, respectively.

Policy Implication

The policy plays a vital role in a population's general wellness and safety. Based on the given needs of a community, this policy establishes clear goals and solutions for mental health issues.

This public health policy becomes the laws, regulations, actions, and decisions that will be implemented within society to promote wellness and ensure that the community's specific health is concerned.

There are four significant aspects that the policy will be used/beneficial:

- Public health safety for the urban community
- Social inclusion of the urban communities
- Local authority way forward for green spaces planning and development
- Professional in the built environment

Result and Discussion

This section presents the results of the FGD conducted with various professionals and agencies. In total, 15 participants were involved in the FGD and grouped to their roles in the planning and designing the urban green spaces and how it affects public health.

Table 1
Lists of participants for the FGD

Professional Body / Agency	Number of Participants	Coding
Jabatan Landskap Negara	1	JLN1
Kementerian Kesihatan Malaysia	1	KKM1
Institute of Landscape Architects Malaysia	2	ILAM1, ILAM2
Putrajaya Corporation	3	PJC1, PJC2, PJC3
Malaysia Institute of Planners	2	MIP1, MIP2
Pertubuhan Arkitek Malaysia	2	PAM1, PAM2
Dewan Bandaraya Kuala Lumpur	2	DBKL1, DBKL2
Universiti Teknologu Malaysia KL Campus	2	LEC1, LEC2

Three main themes were deliberated to gauge participant's responses:

- understanding of urban green spaces;
- importance of urban green spaces for mental health issues; and
- relation between urban green spaces and mental health reduction during the pandemic outbreak.

(A) The Understanding of Urban Green Spaces

The understanding of the urban green space is a critical component of its role in reducing mental health issues. The findings show that all participants agreed that urban green space is any space that is open and accessible to the public, which allows for much activity to happen, for example:

"…a space is accessible by the public." (MIP1)

"…to me, urban green space is a person of any age of any capability of any income groups could spend a little bit of time…most people wanting to go there." (MIP2)

"…open spaces accessible to the public which provide greenery and its function to certain parts and aspects…." (DBKL2)

In terms of the category of urban green spaces, DBKL2 and MIP2 highlighted that as a park connector, urban green spaces include:

"…urban linear plaza, urban community park, treated banks area, forest trails, riverfront, and Taman Permainan Kanak-Kanak (children playground)." (DBKL2)

"…river corridors, linear parks, Jalan Raya…where people can cycle, walk and jog...like Jalan Tuanku Abdul Rahman." (MIP2)

(B) The Benefits of Urban Green Spaces

All participants agreed that urban green spaces help to give and support the communities with mental health issues. Notably, urban green spaces will become a therapy spot/area in an urban environment, such as:

"…green space also community garden for therapeutic…mental health." (MIP1)

"…urban green spaces can give some sort of relaxation therapy." (DBKL1)

"…bila kita bawa yang ada mental issues ni to open spaces, this gives them relaxation and open mind for them." (DBKL1)

"I researched the benefits of urban parks and mental health awareness and physical activities, and they want fresh air." (ILAM1)

(C) The Functions of Urban Green Spaces

In terms of the functions of urban green spaces, the participants shared that:

"…to do physical activities for mental health. Besides, they want to reduce stress and worry because they are being trapped for so long." (ILAM1)

"…isolation is the keyword to mental health because banyak orang dia tak boleh bercerita so if they can go to the park, they can release their isolation." (MIP1)

"We went (to the urban green spaces) for naturally refreshing ourselves and recreation activities." (PAM2)

"After we open to the public, people are looking for more relaxation and activities. They are looking for a picnic." (PJC1)

(D) The Challenges/Problems of Urban Green Spaces

When participants were asked about the challenges/problems faced by them regarding urban green spaces, they shared:

"I think selecting plants (for urban green spaces) is also important with sufficient shading." (*PAM1*)

"…I think that accessibility (for all users/communities) is also important." (*MIP1*)

"…besides having more green spaces within the neighbourhood…they have to be well-maintained…to be safe and secure when they (communities) use the park." (*ILAM1*)

"Another thing that needs to be added in green space is safety." (*DBKL1*)

"Of course, certain facilities are provided…need to check…do maintenance." (*PAM1*)

"…the urban spaces…where is the integration (park connections) …at least the green connected to go to another park and so on." (*LEC1*)

"Kita tengok rumah kos rendah/flat. That 10% (allocated for green spaces) tu pergi mana? Those spaces like 1m tanam pokok then pokok tu tak besar pun because the spaces you gave to the pokok will not allow them to grow to their need…communities terpaksa ambil Kawasan lapang yang terbiar…" (*LEC1*)

"…pergi la metropolitan park on weekends, dah la nak parking susah and terpaksa angkat barang kalau kita ada anak dah la disable tak friendly." (LEC1)

"…we have to that restorative environment perlu because kita sendiri pun pressure, so other people yang memang ditakdirkan mungkin tak mampu untuk buy that landscape so at least in their community they will have that (green spaces)." (LEC1)

"…we need to be more accessible in terms of linkages and location… and then afterwards to the maintenance area as well." (JLN1)

…carrying capacity of the park…the more people come, the more damage to the park." (PJC2)

"The moment they come for a picnic, they bring food…and if it is left over and the monkey comes and collects the left-over food…that is our problem…pergi taman nak reduce stress, nampak monyet lagi stress." (PJC1)

"If you have been to PPR houses…the green spaces are compromised in the lower income housing areas…because people who buy, the higher value have spaces in front (depan), belakang apa semua…but what about all these people (lower income housing areas) …" (MIP2)

"…connectivity. So, movement between spaces…cycle and pedestrian friendly…between green spaces." (PAM2)

"We believe the 10% of green spaces or open spaces is insufficient and very insufficient…." (*PJC3*)

"…the minimum of green spaces or open spaces…for people to living… at least minimum of 30%...good for wellbeing…" (*PJC3*)

"…the youngsters…the vibrant thing…Instagrammable (lifestyle)..." (DBKL2)

"…make sure these spaces (urban green spaces) are disabled friendly and seamless." (*MIP2*)

"Do not create open spaces sahaja but also create an activity for the community." (*PAM2*)

"The challenges that we have is facing certain people that have their own needs (OKU/PwDs)." (*DBKL2*)

"Not disabled friendly or inclusive." (*MIP2*)

"…one is safety issues; another is connectivity and accessibility." (*DBKL2*)

"I think other factors should be a maintenance, memang issues…" (*JLN2*)

(E) The Importance of Urban Green Spaces towards Mental Health Issues

This section presents the results of the second theme of the FGD discussions with all participants. It is divided into four (4) sub-section.

(1) Mental Health and its Components

The section describes the importance of mental health, its components, and how it relates to the function of urban green spaces. It is started with the description of what mental health is by the medical doctor from KKM. He shared that:

"…mental health…also related to physical health. So, maksudnya bila you stress, depress, disorder, and related to mental health, you have a high risk of getting a non-communicable disease like diabetes hypertension stroke…and once you dapat physical punya problem, you dapat mental punya juga." (KKM1)

"…masa pandemic ni la nampak mental health ni. Previously we don't talk…don't know about mental health…mental health setiap individu berbeza, depends on family…semua keseluruhan." (KKM1)

He further defines the stigma of mental health in urban green spaces.

"…mental health is a state of wellbeing in which the individual realizes his or her own ability to cope with the normal stress of life, work productively and be able to contribute to the community." (KKM1)

"Kalau nak cakap pasal depression, major depression, schizophrenia adalah psychiatric punya illness. Memang totally berbeza. Tapi kalau mental health punya issues ia lebih kepada anxiety, stress. Dan kitab oleh cuba to cope, tapi kalau tak prevent ni daripada awal, stress prolong ataupun sama ada sudden trauma yang sangat besar." (KKM1)

In terms of spaces inside the house that trigger stress among the public through overcrowding, KKM1 mentioned that:

"…overcrowding…dekat dalam rumah ya, we talked about environment…about an individual, family, society and keseluruhan… overcrowding more than two persons per room memang ada risks dapat non-communicable disease." (KKM1)

In terms of age group, KKM1 says that:

"…age group. Children, adults, orang tua, warga emas pun berbeza." (KKM1)

(2) How Urban Green Spaces/Parks can Reduce Stress?

When asked the question of how urban green spaces/parks can help to reduce stress, these are the answers:

"…we call connective behaviour…involves some sort of relaxation therapy, one of the treatments for the diseases (stress)." (DBKL1)

"So, we believe that having good enough open spaces, with green is a good effort to do." (PJC3)

Further, KKM1 shared that seeing green is a therapy for stress reduction:

"…memang dah ada kajian dah, seeing the green memang dah relieves (the stress) kan. Tapi…another component is space juga…if you are confined to one space, you feel claustrophobic. So, it would help if you saw the space juga…The thing is a multifactorial thing…green is also part of health…Maksudnya ia access kepada semua orang la, tak kira umur, jantina." (KKM1)

(3) The Impact of Pandemic COVID-19 for the Mental Health

This section presents the importance of UGS for mental health. Some feedbacks are:

"…after we already enforced the SOP, it is something new…before this, we do not have to sanitize our hands, do not have to skip the queue, do not have social distancing (physical distancing), but now we must do. It contributes to positive mental health as well. So, they are more caring and more concerned about their health and colleagues. It is the positive thing we learnt, yet to be improved SOP and guidelines…." (PJC1)

According to a medical doctor from DBKL (DBKL1), there were differences between the pre-pandemic and post-pandemic regarding the communities' perceptions. She says:

"…there was a difference between pre-pandemic and post-pandemic because nowadays they (the communities) are more aware of mental health. So, when patients come to me at the clinic, for example, they can even spell out their anxiety or depression because they are unaware of this kind of mental health before this. So, this pandemic makes people awake and understand what is essential to mental health." (DBKL1)

She further elaborates that urban green spaces become one factor contributing to reducing the mental health issues/problems in the community. She says:

"So, I think urban green spaces are one of the perfect ideas since people are aware of the importance of mental health. They seek where to look for the outcome for the problems." (DBKL1)

In addition, those who are affected by their jobs due to the pandemic are experiencing anxiety, depression, and stress. There are cases of people trying to commit suicide. PJC2 says:

"They are affected by the pandemic (during the lockdown period). Some people felt anxiety, depression, stress, and suicide option because of the pandemic. People cannot expect what will happen in a few years (to come), but when the parks open, people find that park/ urban green spaces first (for stress reduction). I think urban green spaces are needed for this type of people (community)…." (PJC2)

DBKL1 add that:

"So, bila kita bawa yang ada mental issues ni to open spaces, this gives them relaxation and open mind for them." (DBKL1)

Next, ILAM2 mentioned that the importance of urban green spaces such as parks is undeniable due to the need for recreation in the community. She says:

"When there is a time when the government says lockdown…unlock sekejap…the park is full of people like crazy…any park…full of people… Especially at Klang Valley, peoples start cycling, jogging…Go back to urban green spaces that we have." (ILAM2)

When asked about the clusters of people affected by the COVID-19 pandemic, fewer numbers people have been at the green spaces and parks affected by the virus. MIP2 argued that:

"…did we have any clusters from green spaces/open spaces? Tak ada kan. Most of the clusters come from enclosed spaces, and shopping centers…tak ada mana-mana in the world from open spaces clusters. Cluster taman bandar, tak ada. So, we know that when we are out in the open, that little virus (COVID-19) does not work (does not affect the community). It is only when you are in an enclosed area." (MIP2)

The perfection of urban green spaces must have an impact on its residents. As described by a medical doctor from the KKM:

"Cerita pasal healthy memang womb to the mom…and then…we talk about the environment, memang memberi kesan kepada health." (KKM1)

DBKL2 adds that:

"I would like to share research findings…among those working within a build of a wall; with a picture of a green area; and one with a view of actual green spaces… (this situation) beats those others (the first two situations) …so, it reduces stress and even the sensory." (DBKL2)

Regarding the sizes of the green spaces, PJC3 mentioned that the authority should allocate a proper size of the green areas to meet the community's needs. He says:

"We believe that we need bigger spaces for our good health… especially for mental health…our activities, socializing, and recreational…for all ages." (PJC3)

(4) Environmental Therapy and Sensory Needs for Mental Health

This section describes the type of mental health problems that can be solved through environmental sensory and therapy. The participants responded that the green spaces help to give sensory and therapeutic impacts to mental health problems. According to JLN1:

"…the natural spaces, where we can stimulate…as therapeutic environments ambience…is not only open space, but it must also be a biophilic thing…flora…fauna. The combination of these elements that creates the natural environment that is one of the answers to reduce stress…when we go to green spaces, the stress level is down." (JLN1)

"…so, if they can go to the park, they can release their isolation…that can manifest to the suicide (commit)." (MIP1)

Further, a community garden is built inside the private hospital to provide a space for nature interaction among their patients.

"I have seen the hospital swasta they built a community garden." (PAM1)

Regarding the answer above, PJC2 agreed with the statement by PAM1:

"Contoh yang tepat, they (patients) can smell the aromatic scent (of flowers), it stimulates the sensory." (PJC2)

Regarding the elements of green spaces, urban farming activities have become the famous answer among the participants. Some participants shared their views:

"…look very natural…can attract wildlife…sound of nature (bunyi angin) …dari tumbuhan seperti pokok buloh…kind of therapeutic sound that makes us feel so relaxing…more natural ambience." (JLN1)

"So now they have introduced the vertical (green) or wall (green) or rooftop level and also urban farming…a good feeling…do your farming within your compound." (PAM2)

"…many people do urban farming at home for relaxation and therapy because they cannot go out…They can look at the plants (vegetables) as part of therapy." (ILAM1)

"…dia tanam bendi (lady fingers) and then bendi dia besar, semua orang can harvest…they do those things (vegetable farming) due to confined (spaces) at PPR area…just like within the parking lots." (LEC2)

"…urban farming and even they (the community) competing with each other…it is actually in a way it does reduce stress (among the community members)." (DBKL2)

(F) The Relation between Urban Green Spaces and Mental Health Reduction during the Pandemic Outbreak

This section describes the relationship between urban green spaces and mental health reduction during the pandemic. Some feedback from the participants:

"…to use the vacant spaces and convert them into an urban park/public park, so that we can cater more green spaces in the city… it can be used during the pandemic. Urban green spaces also function as an emergency for health purposes and vaccination centre/area, because it is ventilated area (naturally ventilated), safer (places) compared to go to inside the building." (ILAM1)

"…bigger parks, better connections (accessibility), and more interactions." (MIP1)

"…in terms of releasing the stress…providing the shades because our weather is hot and humid." (PAM1)

"…to have sufficient green spaces (urban green spaces)." (ILAM1)

"You talked about urban areas, and it is about accessibility." (KKM1)

"It is also good that every block (of the PPR) has its own (green spaces) …so it will resolve a problem." (PAM1)

In terms of managing and maintaining the urban green spaces in the housing areas, JLN1 suggested that the community who lived there can be taught to help to take care of their own green spaces/parks with monitoring by the authorities.

"What we need is how to manage and get this community (to) go along and make sure it is nice and well maintained." (JLN1)

The hospitals, for example, can have their own green spaces to create more therapeutic gardens that can help to cure their patients naturally. ILAM1 suggested that:

"…hospitals can create therapeutic or meditations gardening for the patients…do some activities…to release stress and depression and other sickness and illness." (ILAM1)

A suggestion by a medical doctor from DBKL (DBKL1) displays signage related to mental health problems and how urban green spaces/parks can help to cure the problems in the parks. It will provide opportunities to all park users/visitors to read and understand the proper way to have activities and recreation in the parks/green spaces.

"…boleh letak signage related to mental health as well…macam if you walk 100m, you can reduce your stress level (20%, for example) …to create awareness." (DBKL1)

The awareness is also not among the communities. However, the local authorities should play the most significant role in ensuring their green spaces are fully maintained and benefit of the end users (the community).

"…awareness not only for the community but also the local authorities." (MIP1)

Regarding elementary design in urban green spaces, the biophilia concept of parks should become the basis of the design aspects. Biophilia concerns more with creating a space with a natural ambience so that it becomes more natural with flora and fauna.

"…kind of biophilia design…as part of the submission requirement.". (JLN1)

There is a suggestion from PJC1 to have collaboration from all parties to provide suitable urban green spaces for the community to utilise.

"…the collaboration from all parties is paramount…to produce the best acceptable to all levels (of the community), addressing the stress level." (PJC1)

Education is also essential in reducing stress, which will directly affect the community's mental health. Proper education from the lower to the higher level can become a critical component of teaching the community about mental health issues.

"…education and awareness are more than important of all levels of implementation..." (PAM1)

There must also be a hierarchy of the spaces in the urban areas. PAM2 suggested that:

"…the hierarchy of the spaces, the large taman bandar and the community green spaces…be connected…otherwise you live in concrete jungle…stressed..." (PAM2)

PJC3 suggested that the government of Malaysia increase the allocation of open spaces/green spaces from 10% to at least 30%. It will benefit the community in the long term.

"…10% is insufficient (the allocation of the open/green spaces for the new development) …be at least a minimum of 30%...sufficient space is good for the wellbeing of people living within the area…hardscape and softscape." (PJC3)

PAM2 supported the idea of having more open/green spaces, but it should also create some activities for the community.

"Do not create open green spaces sahaja, but also create an activity for the community…sometimes have festival engagements with people…allow them to play games." (PAM2)

In terms of safety issues, MIP2 suggested having "community policing" in all urban green spaces (parks/mini parks/urban parks) to monitor lousy behaviour among park users (vandalism).

"This is what we call community policing…CCTV can be very expensive" (MIP2)

Public participation in developing urban green spaces is an important aspect. MIP2 suggested that to include public opinions before developing green spaces.

"…you ask people first what they want for their environment…we talk in their language" (MIP2)

The statement is concurred by PJC3. He adds that:

"Design should be for all…, especially for elderly, wheelchair users (PwDs), pregnant women and autism." (PJC3)

Policy Recommendations

Based on the findings of the above results, two main factors that become the critical findings of the urban green spaces as an index for the sustainable mental health policy during the pandemic outbreak. The recommended policy is based on three main factors, which are:

(A) The Characteristics of Urban Green Spaces

(1) Availability and accessibility of urban green spaces to their surrounding communities.

- The location, distances, quantity, and quality of the urban green spaces.
- The safety and security of the urban green spaces to the community.
- The government to revise the allocation of 10% to at least 30%. The allocation of green spaces for the community to benefit from the availability of green spaces.
- To bring the needs and requirement design of PwDs into the urban green spaces.

(2) Aesthetic (the ambience of nature to create a more natural setting of the spaces)

- The landscape design of the hard and soft landscape of the green spaces, i.e. the suitable tree species that provide more shade to the users.
- The material quality used for the free and easy maintenance of the areas.
- To get public perception and participation regarding the spaces they need to incorporate in their green spaces, particularly in residential areas.

(3) Facilities and amenities of urban green spaces

- To connect the urban green spaces with other infrastructure, thus giving good accessibility to the areas.
- To provide more recreational equipment, which can create more activities in the community.
- The equipment provided is long-lasting and easily maintained.
- To frequently do the maintenance and teach the public/community to do the maintenance as well.

(4) Management of urban green spaces

- The frequency of maintenance during the pandemic to avoid the equipment getting old and useless.
- To frequently do pesticides to avoid pests.
- Watering/irrigation for the soft landscape to avoid dying, thus create good foliage of trees and a natural setting.

(B) The Functions of Urban Green Spaces during the Pandemic

(1) Accessibility and Quality of Urban Green Spaces

- Park features such as accessibility, safety, attractiveness, amenities, upkeep and maintenance, and proximity to the house are crucial for encouraging the community's physical activity.
- Access to visually appealing and huge urban green spaces/parks correlates with walking distance levels.
- The quality of urban green spaces, as described above in the results, using the features such as accessibility, maintenance, absence of trash and safety, was positively related to overall health.

- Access to urban green spaces and availability of a considerable size of greenery were connected to walking frequency and improved health outcomes.
- Urban green space's aesthetic value has been attributed to excellent recreational facilities.
- Urban green space's features facilitating relaxation and enjoyment have been identified as essential variables in increasing psychological well-being.
- Greener residential areas with activities such as urban farming was found to lower depression, stress, and anxiety in the community.
- People who live in greener communities are more likely to be exposed to visually pleasant natural environments and urban destinations.

(2) Size of Urban Green Spaces

- Green spaces with proper sizes, the aesthetics of an area and the activity opportunities that the area offers become more vital to improve health among the visitors/communities.
- When planning and building green spaces to stimulate physical activity, it should be preferable to have one large area in the community.
- The facilities and services of urban green spaces are influenced by their design and management, size, form, topography and configuration regarding broader facilities and the range of various land uses in the urban area.

(3) Availability of Facilities in Urban Green Spaces

- Park facilities such as picnic areas, garden facilities, parking areas and playgrounds seem more vital for physical activities.
- The level of physical activity, such as walking, jogging, and cycling becomes the primary physical activity to reduce stress.
- The soft landscape features such as trees and greenery to utilize the outdoor environment and the necessity of sitting and amenities that are user-friendly to all types of users, including PwDs, elderly and others.

(4) Greenery and Health Impact

- A higher proportion of tree closures increase the community's impression of a bit surrounding greenery that is significantly associated with mental health impact.
- Higher tree density covers reduced stress, depression, and anxiety among the community.
- Tree canopies can boost social interaction, and it will affect social behaviour as well.
- The presence of surrounding trees and green spaces visible from the residential areas has been demonstrated to reduce psychological weariness among the community compared to those who live indoors, seeing a barren environment.
- The absence of green features near dwellings has a detrimental effect on managing essential life concerns.

Conclusion

Fruitful input from the FGD conducted on urban green spaces and mental health has become the critical component of drafting the public health policy about the usage of public spaces. Through the above suggestions and recommendations, the path of the impact of green spaces on urban communities' mental health is thoroughly discussed and analysed.

Furthermore, from the perspective of direct contact, environmental factors are considered the primary mediator, which includes improving air quality, absorbing noise, and visual stimulation, and improving the mental health of the urban community.

Urban green spaces provide venues for the community to engage in outdoor activities and communication, making them mentally healthier, particularly during the pandemic. A greener urban environment can improve communities' sense of social satisfaction and happiness. These findings should make an essential contribution to the urban community and demand-oriented urban green space planning and management.

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INSTITUT MASA
DEPAN MALAYSIA

Institut Masa Depan Malaysia
192, Jalan Ara, Bukit Bandaraya,
59100 Wilayah Persekutuan Kuala Lumpur

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