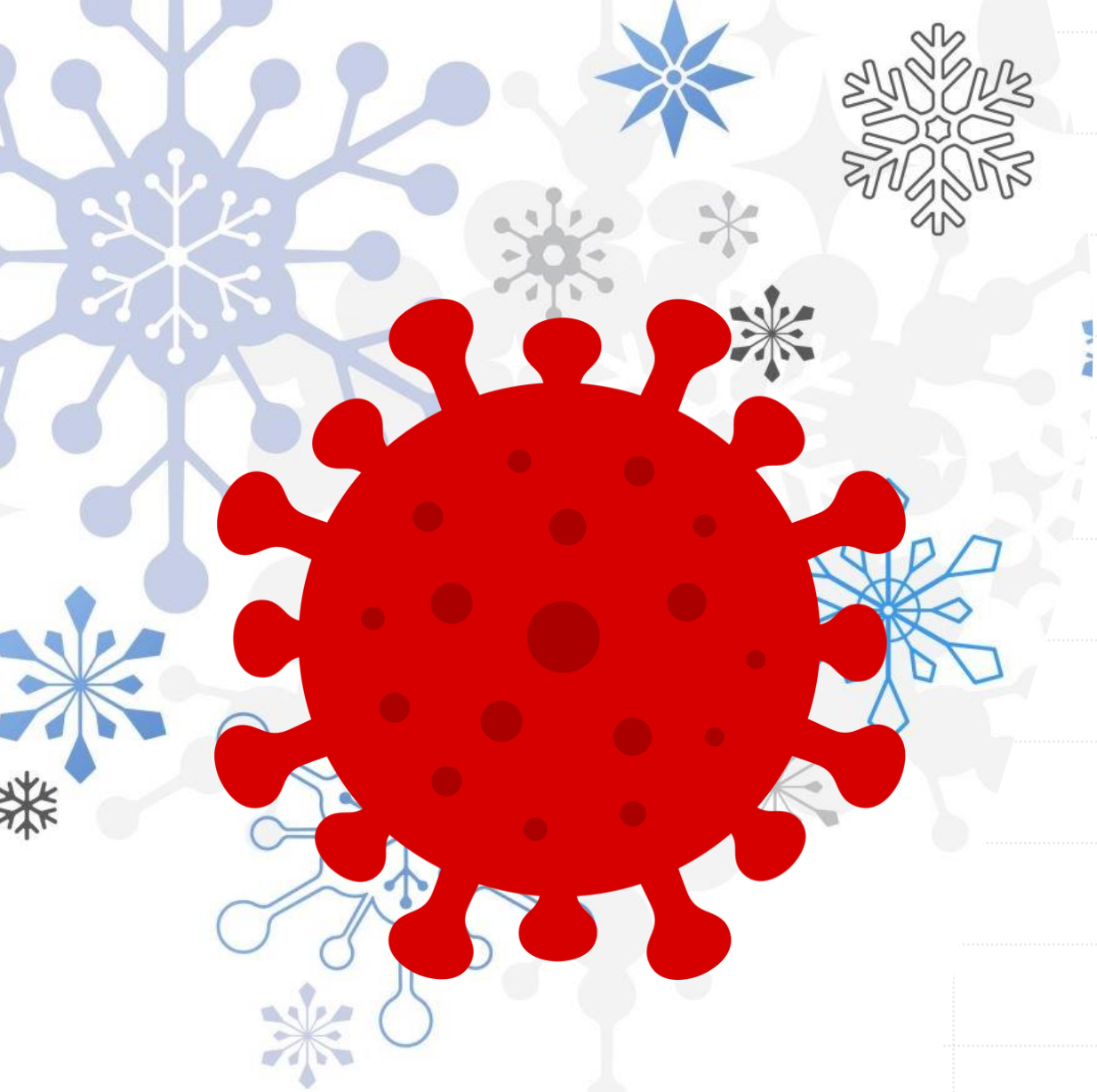

EPWG 02 2021A – Developing APEC Cities and Built Environments Strategy: Build Back Better Post Covid-19 Pandemic

"Urban Green Spaces as an Index for the Sustainable Mental-Health Policy during Pandemic Outbreak"

By:

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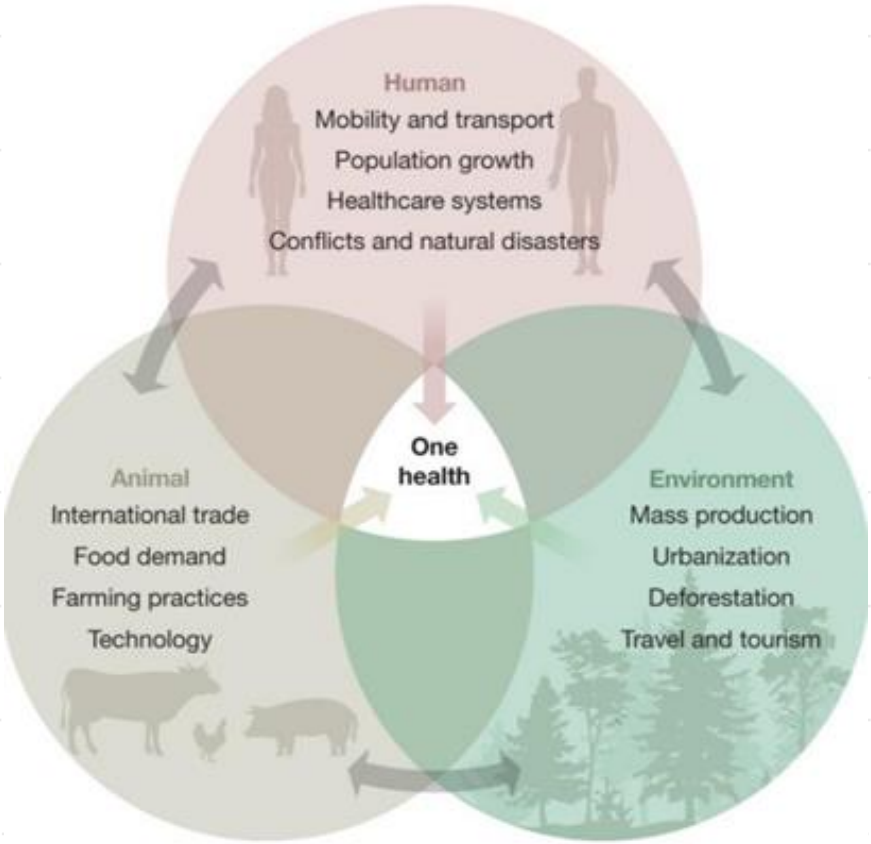
- Evolution of Pandemic
- Impact of Pandemic
- Urban Green Spaces, Mental Health, Pandemic
- Urban Green Spaces & Effect on the Mental Health
- Q & A (Discussion)

Evolution of Pandemics

The historical pandemic agents most likely started in **big groups of animals** that may maintain **transmission of the agent** within those populations (Scott et al., 2020). This infection from animals or wildlife that **act as a bridges for the emergence of human diseases** and will eventually **affect people's life** is called as **zoonotic diseases** (UNEP, 2020).



Relationship of human, animal and environment that can affect one's health. (Source: Howie Baum, 2020)

249 Pandemics from 1,200 BC up until today

60% of human illness have animal origin

75% of all novel are 'jump species' from animals to human

Definition of Pandemic

'Pan'

All

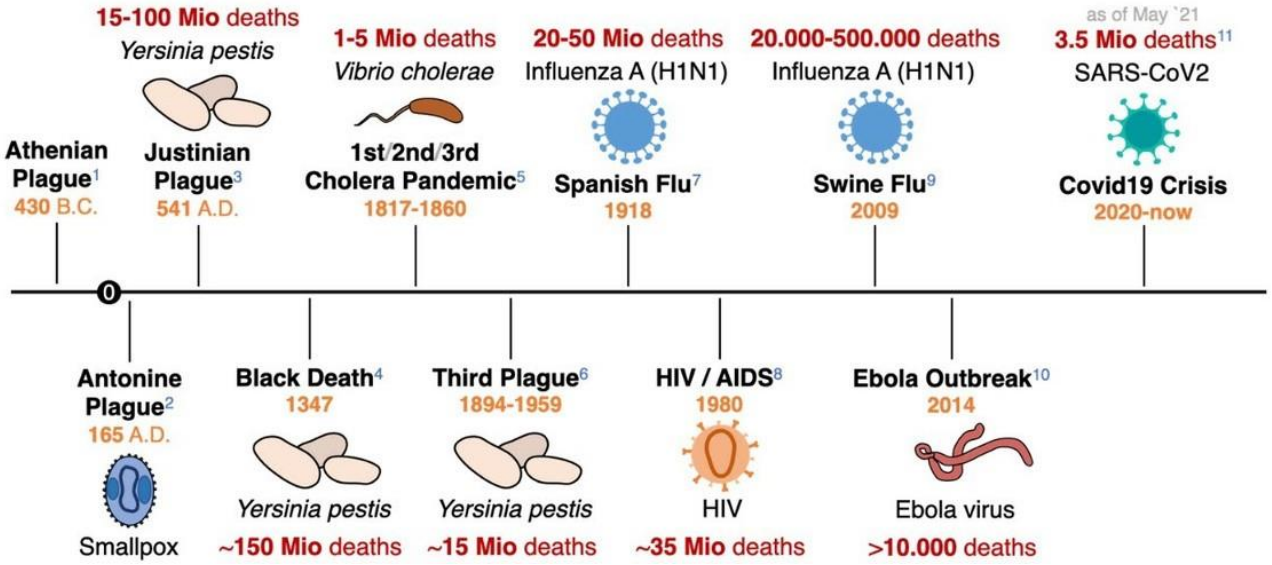
\+ =

'Demos'

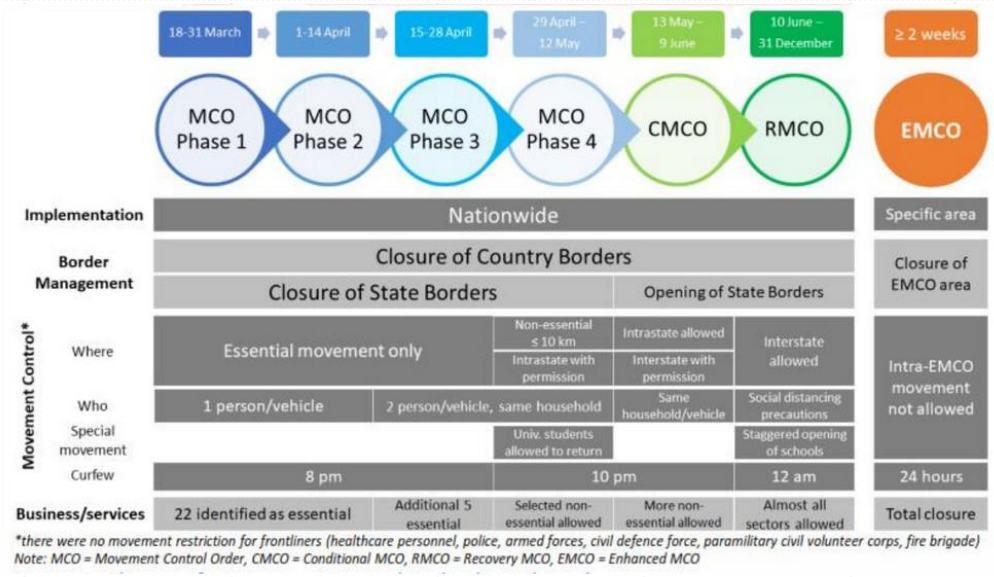
People

A new and **highly pathogenic viral subtype** establishes a **foothold in the human population,** to which **little to no one** in the human population has **immunological resistance** and which is **easily transmissible** between humans, at which point it **rapidly spreads worldwide** (WHO, 2011).

Pandemics



Source: Henrik, 2021



Source: Chicago Tribune, 2020

Source: Awani, 2021

Impact of Pandemic

Starting Year	Pandemic/Epidemic Event	Geographic Context	Estimated Direct Morbidity and/or Mortality	Aut
430-26	Athenian Plague	Egypt and Greece	Killed over 25 percent of the populations	
165-180	Antonine Plague	Asia Minor, Egypt, Greece, Italy	Killed almost 1/3 of the populations (Approx. 5 million)	
541-542	Justinian Plague	Egypt, Central Asia	Approx. 40 percent population of Byzantine Empire died, ov 50 percent population in Constantinople died	
1347	Bubonic plague (Black Death) pandemic	Eurasia	30–50 percent mortality of the European population, within 0 years, Black Death killed approx. 200 million	DeV
1500s	Smallpox	Americas	More than 50 percent mortality in some communities	Jone
1881	Fifth cholera pandemic	Global	More than 1.5 million deaths (9.7 per 10,000 persons)	Chis
1918	Spanish Flu influenza pandemic	Global	20 million–100 million deaths (111–555 deaths per 10,000 persons)	Johr
1957	Asian flu influenza pandemic	Global	0.7 million–1.5 million deaths (2.4–5.1 deaths per 10,000 persons)	Vibo
1968	Hong Kong flu influenza pandemic	Global	1 million deaths (2.8 deaths per 10,000 persons)	Mat
1981	HIV/AIDS	Global	More than 70 million infections, 36.7 million deaths	WH Obs
2003	SARS pandemic	4 continents, 37 countries	8,098 possible cases, 744 deaths	War
2009	Swine flu (H1N1) influenza pandemic	Global	151,700–575,500 deaths (0.2–0.8 per 10,000 persons)	Daw
2012	MERS epidemic	22 countries	1,879 symptomatic cases, 659 deaths	Aral
2013	West Africa Ebola virus disease epidemic	10 countries	28,646 cases, 11,323 deaths	WH
2014	Ebola pandemic	Global	28,000 cases, 11,000 total deaths	
2015	Zika Virus pandemic	76 countries	2,656 reported cases of microcephaly or central nervous sys m malformation	WH
2019	COVID-19	Global	Affected 331 million worldwide, with 5.55 million deaths (as f January 2022)	WH

Estimated Direct Morbidity and/or Mortality
Killed over 25 percent of the populations
Killed almost 1/3 of the populations (Approx. 5 million)
Approx. 40 percent population of Byzantine Empire died, over 50 percent population in Constantinople died
30–50 percent mortality of the European population, within 50 years, Black Death killed approx. 200 million
More than 50 percent mortality in some communities
More than 1.5 million deaths (9.7 per 10,000 persons)
20 million–100 million deaths (111–555 deaths per 10,000 persons)
0.7 million–1.5 million deaths (2.4–5.1 deaths per 10,000 persons)
1 million deaths (2.8 deaths per 10,000 persons)
More than 70 million infections, 36.7 million deaths
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2,656 reported cases of microcephaly or central nervous system malformation
Affected 331 million worldwide, with 5.55 million deaths (as of January 2022)

H1N1 in 2009 causes **mortality** as well as affect the **health-care systems**, **animal health**, **agriculture, education, transportation, tourism**, and the **financial sector** (Nabarro et al., 2016)

Ebola and other pandemics have **reduced quality of life, disrupted essential services**, and weakened West African **economies** and isolated populations, with consequences beyond Africa (Nabarro et al., 2016).

The HIV, H1N1, H5N1, and SARS pandemics readily **traverse borders**, **threatening economic** and **regional stability** (Verikios et al., 2015).

Zoonotic bubonic plague **killed millions of people** in Eurasia and North Africa, **wiping out one-third of Europe's population** (UNEP, 2020)

General Overview, problems and issues

NEW STRAITS TIMES | Search news or type a keywords

WHO: Covid has taken severe mental health toll

By AFP - March 2, 2022 @ 11:12pm

People wearing face masks as a preventive measure against the Covid-19 walk on a street in Hong Kong. - AFP PIC

GENEVA: The Covid-19 pandemic has taken a dire toll on mental health, the World Health Organisation said, indicating that cases of anxiety and depression had swelled by over 25 per cent globally.

NST online: 2nd March 2022

BH ONLINE

Ruang hijau bandar 'terapi' kesihatan mental ketika pandemik

Oleh Prof Madya Dr Mohd Ramzi Mohd Hussain - November 6, 2021 @ 10:30am

Taman bandar mampu meningkatkan kualiti hidup dan status kesihatan komuniti.

Ruang hijau bandar adalah landskap wajib dalam struktur bandar yang menyediakan persekitaran semula jadi, serta mempercepatkan peristiwa kehidupan lain.

Berita Harian online: 6th Nov. 2022

Several news and articles of NST online proof that mental of of Malaysian since the pendemic outbreak. For instance, Nst online reported between March 25, 2020, and May 20, 2021, **85.5 percent of the 145,173** calls received by government-operated helplines were from **people suffering from mental problems** and in need of emotional assistance and therapy (2nd July 2021, Nst online).

Evidences of the Qur'an and Hadith regarding general health

History

Stems from the Quran's depiction of **Paradise, the perfect garden**.

Born of a practical necessity to **organize** the **surrounding area**, **control nature**, and **increase soil yield** in order to provide a **healthy green environment**

Created to **beautify the human-made environment**, to **beautify the landscape**, and to **represent cultural and religious ideals** and ambitions

Parks, garden and landscape design have long been essential expressions of ethical ideals about **stewardship, ecology, and beauty** in Muslim civilizations.

Qur'anic/Hadith statement	Concept
"Everything good that happens to you (O Man) is from God, everything bad that happens to you is from your own actions". (Qur‟an 4:79).	**Illness and dsease**
"Let there among you be a group that summon to all that is beneficial commands what is proper and forbids what is improper; they are the ones who will prosper". (Qur‟an 3:104)	**Promotion**
"Truly, Allah loves those who turn to Him constantly and He loves those who keep themselves pure and clean‟. (Qur‟an 2:222), Cleanliness is half of faith. (Hadith narrated by Muslim)	**Hygiene**
When you hear about a break of plague in any area, do not enter there and when it has broken in a land where you are, then do not run way from it [and spread elsewhere]. (Hadith narrated by Muslim), There should be neither harming nor reciprocating harm (Hadith narrated by Ibnu Majah)	**Prevention and control**

Urban Green Spaces

1. A **unique source of community resilience** throughout protracted periods of pandemic lockdown and quarantine (Grima et al., 2020; Samuelsson et al., 2020; Slater et al., 2020)

2. **Provide some relief** from the risk of outbreak **transmission** and the **social isolation** of city life (Johnson et al, 2021).

UGS Examples

Urban Green Spaces

benefits and its relations to mental health

1. It is important to recreate green environment such as green spaces in urban fabric for the **important of mental health** benefits and for recreational uses concomitant with the **SDG 3 and 11 goals.** (Venter et. al., 2020)

2. During the pandemic, **spending more time in greenspace** may have affected **emotional wellness**, since a growing body of pre-pandemic evidence suggests that living close and spending time in greenspace is **linked to improved mental health.** (Wortzel et. al., 2021)

Urban Green Spaces
relations to
Sustainable Development Goals (SDG)

Good health is essential to sustainable development and the 2030 Agenda reflects the complexity and interconnectedness of the two. It takes into account **widening economic and social inequalities, rapid urbanization,** threats to the climate and the environment, the continuing burden of HIV and other **infectious diseases,** and emerging **challenges** such as **noncommunicable diseases.**

Making **cities sustainable** means creating career and business opportunities, safe and affordable housing, and building **resilient societies** and economies. It involves investment in public transport, **creating green public spaces,** and **improving urban planning** and management in participatory and inclusive ways.

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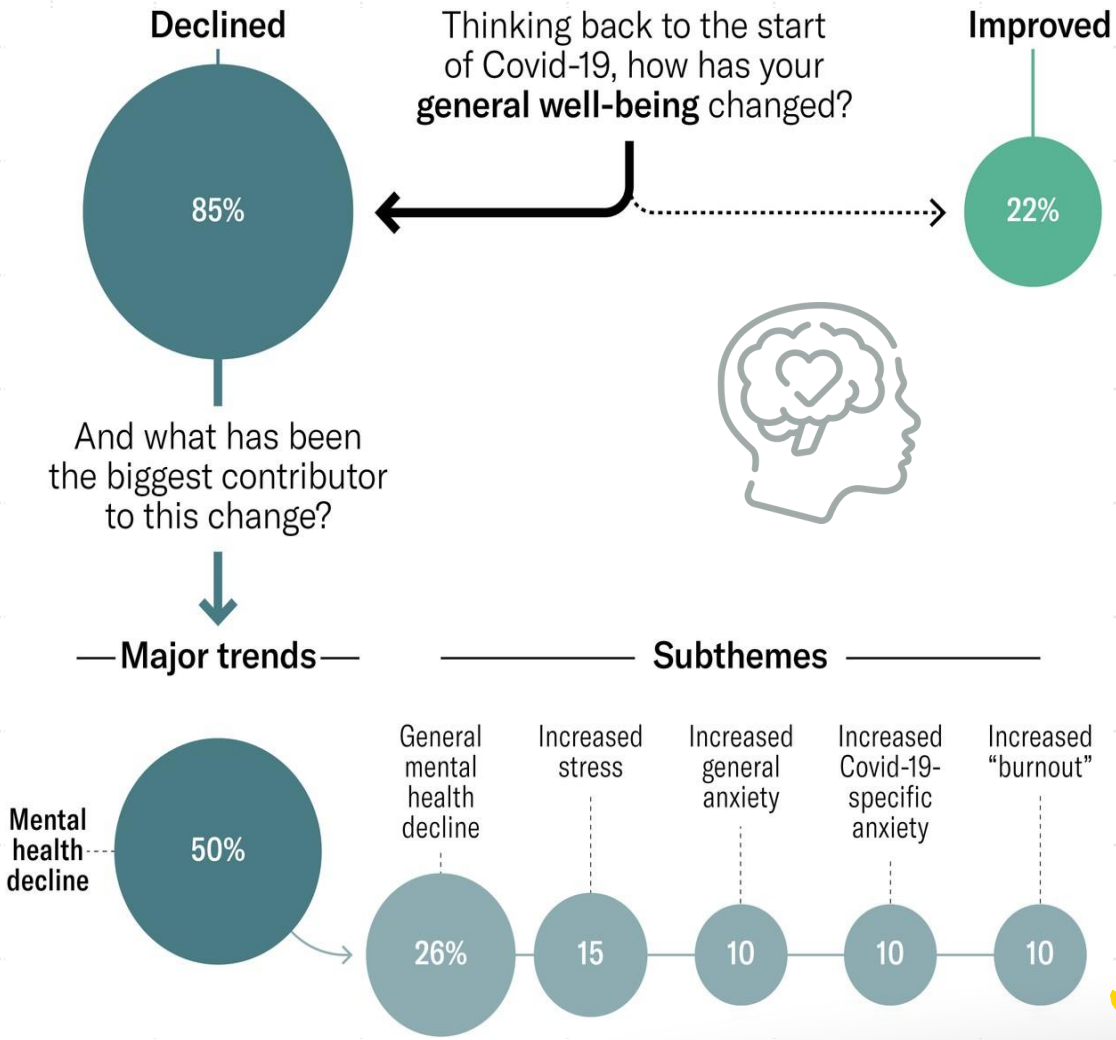
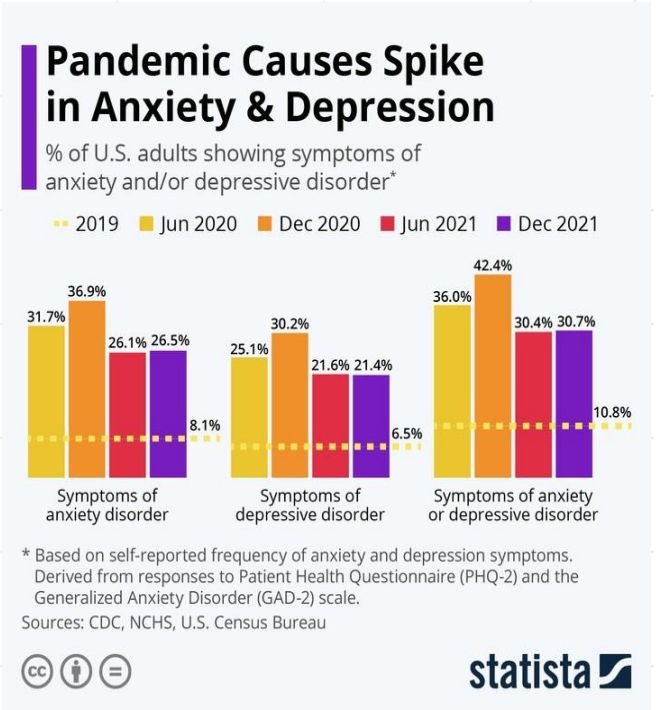
Effect on Mental Health



9 in 10
young people
(88%) have said that loneliness has made their **mental health worse** during the pandemic.



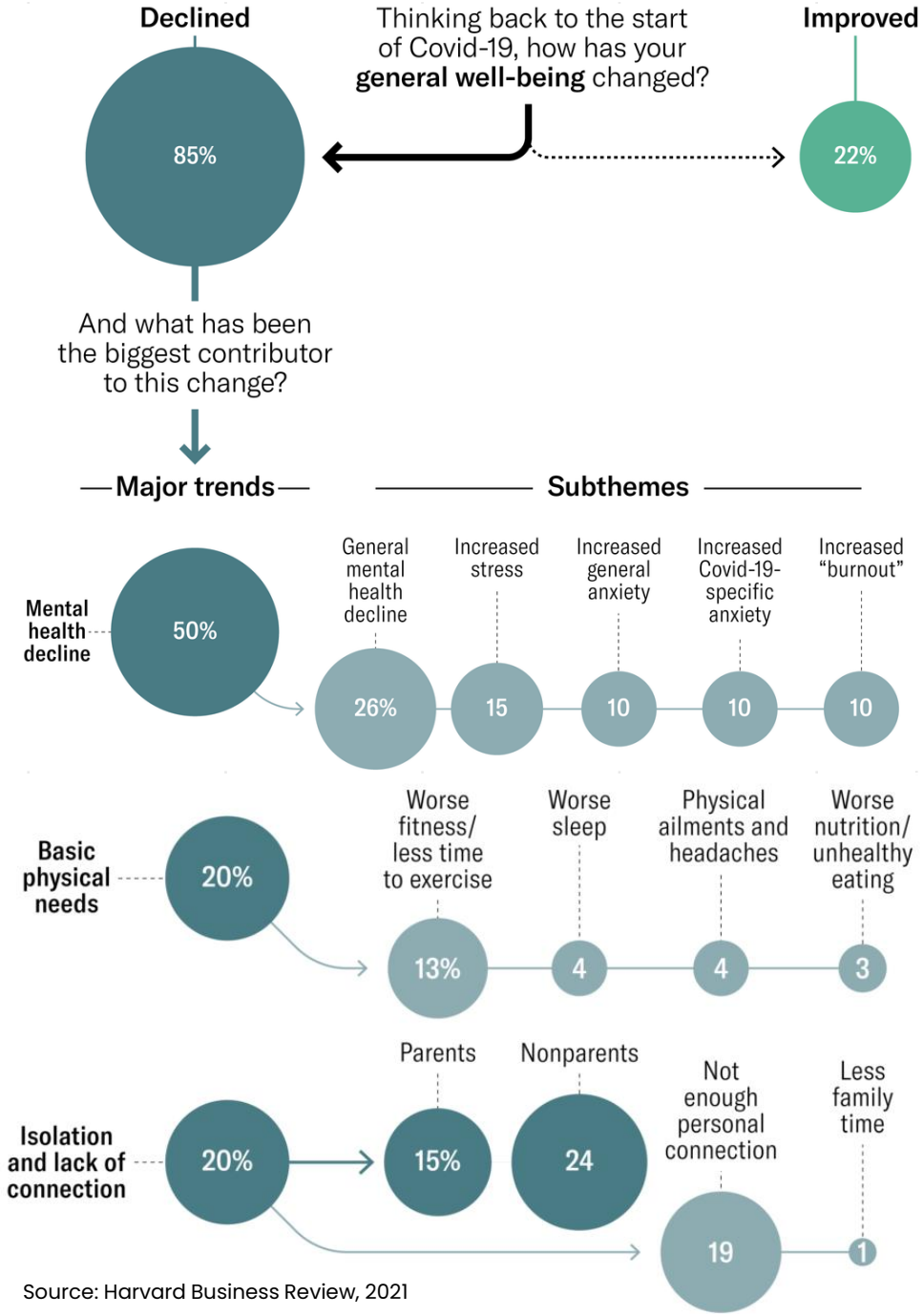
Source: Harvard Business Review, 2021

Source: Chicago Tribune, 2020

Source: Awani, 2021

INCREASED	DECREASED
Falling	Physical condition
Depression Symptoms	Life quality
Feeling Lonely	Combating Chronic and Acute pain
Social Injustice And Social Inequality	Physical Activity Level
Tele-Health Applications	Access to Physiotherapy
Body Pains	Access to Safe Food
Sleep Problems	Life Satisfaction
Coronaphobia	Vitamin D Production
Secondary Disease Risk	Healthy Lifestyle

Source: ClinMed International Library, 2021



Source: Harvard Business Review, 2021

Evolution of UGS/ urban park

17th century

Set aside areas near the towns for the common use of their citizens to be utilized as **grazing land**

19th century

Parks evolved as a **place to strains of chaotic industrial cities,** in order to **improve the quality of urban environments**

20th century

Demand for urban parks **rose** as the cities **developed and urban populations grew** dramatically

Definition of urban park

"A naturalized passive retreat"

-Frederick Law Olmsted (as cited by Rutledge et al., 1971)

Westeners

- "a **pleasure garden** where masses **unable to flee overcrowding, disease and foul air**, could find near their home a bucolic agrarian environment" (Eplan, 1988, p.132).
- "**landscape features** that serve many functions as providers of **passive and active recreation, environmental benefits** and **wildlife habitats**" (Solecki et al., 1994, p.23).

Asian

- "A philosophy of social reform to **improve the physical and moral welfare** of the working class, a **utilitarian** belief in the value of open spaces, and **recreation** for labor productivity and **the dampening of social unrest**, a romantic desire to **bring back nature** into the cities, a **sense of civic pride** and a psychology of **social hygiene**" (Yuen, 1995, p.955).

Casual model of the impact of UGS on health and well-being

Urban park characteristics

Availability & accessibility
Location, distance, size, quantity, quality, security

Aesthetic
Landscape, quality, perception

Facilities / Amenities
Infrastructure, services, equipment

Management
Frequency, pesticides, watering

+/-

Urban park impacts

Use and function
- Active mobility
- Food production
- Gardening
- Physical activity
- Relaxation and leisure
- Social exchange

Setting features
- Impact on land price and rent levels
- Modification of living environment and residential quality

Environmental regulation service
- Biodiversity support
- Carbon storage
- Pollution regulation
- Soil protection
- Temperature regulation
- Water regulation

+/-

Pathway to health

Individual status
- Healthy lifestyle
- Immune system function
- Mental state
- Physical fitness

Physical environment
- Air quality
- Climate change adaptation
- Diverse natural microorganism and antigens
- Neighborhood quality
- Noise
- Temperature
- Traffic emissions
- Water quality

Social-environment
- Living expenses
- Safety issues
- Social cohesion, interaction and participation

+/-

Health status and well-being

Physical health
- Vector-borne disease
- Cardiovascular effects
- Injuries
- Mortality rates
- Obesity

Psychological health
- Cognitive functions
- Depression
- Mental well-being
- Stress

Social well-being
- Isolation
- Life satisfaction
- Quality of life
- Sense of community
- Social inclusion/networking

Environment
- Air quality
- Road traffic
- Pollutions
- Heat-absorbing

Importance of UGS during pandemic

Accessibility and Quality Perceptions of Urban Parks	Author
Park features such as **accessibility, safety, attractiveness, amenities, upkeep and maintenance,** and **proximity to the house** are **crucial for encouraging physical activity** outside.	McCormack's et al. (2010)
Access to visually appealing and **huge parks** was correlated with **increased levels of walking**.	Giles-Corti et al. (2005)
The **quality,** as evaluated using features such as **accessibility, maintenance and upkeep, absence of trash, and safety,** was found to be **positively related to overall health**.	Van Dillen et al. (2012)
Access to urban parks and **availability to a huge sized greenery within 1.6km** of a one's residence were connected with **walking frequency** and **improve health outcomes.**	Sugiyama et al. (2013)
Urban park's aesthetic value has been attributed to **greater recreational walking**	Sugiyama et al. (2013)
Experience of visiting parks and **perception of its accessibility** appear to signify as much as independently evaluated geographic features in predicting the **utilisation of urban parks**.	Wang et al. (2015)
Urban park's features in terms of **facilitating relaxation and enjoyment** have been identified as essential variables in **increasing psychological well-being**	Pope et al. (2015)
Greener residential areas and **closeness** to woodlands were found to be related with a d**ecreased probability of being overweight or obese.**	Dadvand et al. (2014)
Diversity in greenness had a **preventative impact** against coronary **heart disease or stroke**	Pereira et al. (2012)
People who live in **greener communities** are more likely to be exposed to both **visually pleasant natural environment** and **urban destinations**, both of which **encourage walking**.	Pereira et al. (2012)

Importance of UGS during pandemic

Size of Urban Parks	Author
Parks with a **size range of around 110 hectares** with the **aesthetics** of an area and the **activity opportunities** that the area offers would be more vital to **improve health**	Sugiyama et al. (2010)
When planning and building green space to **stimulate physical activity**, it may be **preferable** to have **one large park** in the community **rather than several smaller parks**.	Sugiyama et al. (2010)
Significant increase in **anticipated spending time** performing moderate to vigorous intensity for kids that live close to **large parks.**	Epstein et al. (2006)
What green space affords in **facilities and services** will indeed be influenced not just by its **design and management**, as well as by its **size, form, topography, and/or configuration** in regards to broader facilities and the **range of various land uses** in the urban area.	Robertson et al. (2012)

Availability of Facilities in Urban Parks	Author
Park facilities such as **paved trails, water areas, and playgrounds** seem to be **more vital for physical activity** than garden facilities such as drinking fountains, picnic areas, and toilets.	Kaczynski et al. (2008)
The **level of physical activity** in the neighbouring city's park is **favourably associated to elements** such as **walking or cycling paths, woodland areas, water features, lighting, and appealing vistas**.	Schipperijn et al. (2013)
Playground usage increased levels of physical activity among teenagers aged 11-14 years	Oreskovic et al. (2015)
Lack of outside resting areas drastically **inhibits participants' desire or confidence to be active**.	Chastin et al. (2014)
Relevance of **trees and greenery** to utilise the outdoor environment and the **necessity of sitting and amenities** such as bathrooms for allowing the elderly to **access and enjoy public green areas**	Aspinall et al. (2010)

Importance of UGS during pandemic

Greenery and Health Impact	Author
Higher proportion of tree closures increase the population's impression of a bit of surrounding greenery that being **significantly associated with health**	Xu et al. (2013)
Higher tree density levels were related with **lower self-reported stress levels.**	Jiang et al. (2014)
Intermediate tree density covers reduced stress in males more than high/low levels, by evaluating participants' physiological stress reactions using salivary and skin cortisol conductivity; while women did not.	Jiang et al. (2014)
Tree canopies have the **ability to boost social capital**	Holtan et al. (2015)
The **presence of surrounding trees and grass** visible from the apartment building has been demonstrated to **reduce levels of hostility and psychological weariness** among inhabitants when compared to those who live indoors seeing a barren environment.	Kuo et al. (2001)
The **absence of green features** near dwellings has a **detrimental influence** on the management of important life concerns	Kuo et al. (2001)

Acknowledgement

We would like to acknowledge the Malaysia Ministry of Higher Education (MHE) through Research Management Center of the International Islamic University Malaysia for their research grant FRGS/1/2021/SKK06/UIAM/02/7

Q&A session & Discussion