PLANNING MALAYSIA:
Journal of the Malaysian Institute of Planners
VOLUME 20 ISSUE 5 (2022), Page 1 – 13

COMPARISON OF MALAYSIAN URBAN GREEN SPACES USE PRIOR AND DURING THE COVID-19 PANDEMIC AND PREFERENCES FOR POST-PANDEMIC DESIGN IMPROVEMENTS

Iskandar Al Khalifah Mohd Razali[1], Shureen Faris Abd. Shukor[2]

[1,2]*Department of Landscape Architecture,*
Faculty of Design and Architecture,
UNIVERSITI PUTRA MALAYSIA

Abstract

A survey on the comparison between Malaysians' usage of green spaces prior and during COVID-19 pandemic was conducted using an online self-administered questionnaire. Frequency and descriptive analysis were applied and a total of 415 responses from the whole Malaysia was recorded. Results showed that there was a huge increase in the number of respondents who did not visit the urban green spaces during COVID-19 pandemic. In addition, there was an increase in the use of home garden and neighbourhood park during the pandemic as compared to before the COVID-19 pandemic. The majority of the respondents involved in the survey mentioned that they diverted their visitation to the nearest green spaces available during the pandemic. The findings managed to highlight the changes in usage pattern of green spaces among Malaysians and provide proposals to relevant authorities on the future design of parks and green spaces in post-COVID-19 settings.

Keywords: During pandemic, Prior pandemic, Park usage, post-COVID-19 design

[1] Master Science Student at Universiti Putra Malaysia. Email: irhafezkhalid@gmail.com

INTRODUCTION

The society today is faced with increasing occurrences of various forms of poor health-related issues due to modern lifestyles. Contributing factors include the increase of sedentary population, levels of psychological stress related to urban living and contemporary work practices. Efforts to promote public health and well-being have become an important agenda in Malaysia (Ministry of Health Malaysia, 2021). Green settings have been identified as places accessible to everyone in the community without any formal, financial or symbolic restrictions. There are numerous studies on green and nature settings in relation to the enhancement of positive effects of green and nature on human emotions.

Ever since the first detection of COVID-19 virus in December 2019, there has been more than 6.18 million deaths caused by COVID-19 worldwide. In total, about 493 million infected cases were reported with 428 million patients recovered (World Health Organization, 2022). As of April 5th 2022, Malaysia has reported a total of 4.22 million total confirmed cases of COVID-19 and 35,127 deaths (Ministry of Health Malaysia, 2022). Given the worldwide health emergency caused by the COVID-19 pandemic, it is of great interest to explore whether citizens' behaviour and perceptions of green spaces in Malaysia have changed and if any, how.

LITERATURE REVIEW

The Use of Urban Green Space During COVID-19 Pandemic

Over the past two years, urban green space around the world has undergone dramatic changes in usage and realization. On one hand, the public are now becoming more aware and appreciative of the provided urban green space (Kim et al., 2021). While on the other hand, this realization has put a new challenge among users and green space practitioners due to the surge of urban green space that had occurred in many parts of the world following the event of COVID-19 (e.g., studies by Berdejo-Espinola et al., 2021).

The closure of workplace, indoor recreational centre, restaurants and cancellation of public event has left the public with no choice rather than to shift their social routine towards the urban green space as it is the only place that had remained open and accessible during the pandemic (Geng et al., 2021). On the bright side, those who has never stepped into urban green space before are now starting to gradually utilise it. However, this had resulted the urban green space to be overcrowded, while becoming less comfortable and are open to higher risk of COVID-19 infection. The phenomenon has then induced significant concern for withdrawal behaviour and attitude related to the visitation of urban green spaces during the COVID-19 term.

In Italy and Spain – two countries with highest rate of COVID-19 cases in 2020, studies found that nearly two-third of those who had regularly visited

urban green spaces before the pandemic simply stopped going during the pandemic (Ugolini et al., 2020). Similarly, Larson et al. (2021) also reported that 56% of urban residents, particularly those in the socially vulnerable population of North Carolina, United States of America, have stopped or reduced going to the park. Meanwhile, in order to replenish the need for outdoor greenery and open air, the Europeans are willing to go within or beyond the city in search for better urban green space (Ugolini et al., 2020). This travelling behaviour however is banned in many other nations. Thus, the public are left with little choice in utilizing any green space within their proximity. An increase in neighbourhood park and available greenery areas within 10-minute distance has been widely pronounced in many related research (e.g., Berdejo-Espinola et al., 2021; Xie et al., 2020).

Recommendations of Design Improvements for the Current and Post-pandemic Urban Green Space

Mitigating the impact of COVID-19 on park and urban green spaces has become a raising concern among scholars and practitioners. To ensure the resilience and benefit continuity of urban green space, several modification and improvement on the current and post-pandemic urban green space design is henceforth paramount. In this study, six peer-reviewed articles by Eltarabily & Elghezanwy (2020), Honey-Roses et al., (2020), Shaori et al., (2020), Slater et al., (2020), Ugolini et al., (2020) and Yang et al., (2021) that provides some pragmatic recommendations and ideas for the betterment of urban green space experiences during the pandemic and onwards were carefully collected by the researcher. **Table 1** summarizes the key findings of design-related recommendation of improvisation on the current and post-pandemic urban green space which also served as a basis for the Section 3 of the survey questionnaire.

Table 1: Design recommendations for the improvisation of the current and post-pandemic urban green space.

Design recommendation	Authors
Connected and wider pedestrian walkway	Honey-Rosés et al. (2020), Eltarabily & Elghezanwy (2020)
Improve the condition of bicycle lane	Slater et al. (2020)
Provide longer bike route and running track	Eltarabily & Elghezanwy (2020)
Provide sanitization facilities	Eltarabily & Elghezanwy (2020)
Provide larger green space	Honey-Rosés et al. (2020), Ugolini et al. (2020), Eltarabily & Elghezanwy (2020), Yang et al. (2021)
Provide more pocket park or smaller green space	Honey-Rosés et al. (2020), Eltarabily & Elghezanwy (2020), Yang et al. (2021)

Provide facilities for different types of users	Shoari et al. (2020), Eltarabily & Elghezanwy (2020)
Enhance monitoring activity and facility	Slater et al. (2020), Shoari et al. (2020)
Create multipurpose space	Honey-Rosés et al. (2020)
Create flexible space	Honey-Rosés et al. (2020), Shoari et al. (2020)

Source: Author (2022)

RESEARCH AIM

Exposure to outdoor green spaces has been lauded as one of the approaches to improve the mental and physical health of the public. For many Malaysians, visiting parks and green spaces has been proven to support their physical and mental health especially among urban residents (Nath et al., 2018). Prior to the COVID-19 pandemic, the use of urban green space in Malaysia was driven by the need for restoration, social, fitness, and education (Aziz et al., 2018; Malek & Nashar, 2018). The use of green spaces becomes more frequent when it is accessible within the household's proximity and has short travelling distance (Aziz et al., 2018).

Meanwhile, the utilization of green spaces such as urban parks and recreational area are expected to increase following the relaxation of the Standard Operating Procedure (SOP) in the coming months. However, restrictions on the use of public space and strict social distancing guidelines have provided obstacles for people to enjoy the green spaces. The purpose of this study is therefore, to explore the impact of COVID-19 on the use of urban green spaces which may have changed due to the restrictions imposed during the pandemic as compared to the utilization of green spaces before the pandemic. Additionally, the study also attempts to gauge the respondents' preferences and attain several recommendations on the improvements of urban green space that can be made during and post-pandemic.

RESEARCH METHODOLOGY

The Instrument

A self-administered online questionnaire was developed via Google Form and distributed to the general public. The survey was designed using a combination of open-ended and closed-ended questions. In the link provided, information on the researchers, the type of data that would be collected, how the data would be stored, analysed, reported, as well as respondents' rights on the data provided was included. Participation was voluntary. The questions consisted of dichotomous scale, categorical scale, and a positive 10-point Likert scale format (response from 1- strongly disagree, 5- neutral and 10- strongly agree). The survey consists of three parts; (1) the demographic profile, (2) the use of green spaces prior and

during the pandemic and (3) the respondents' preferences in the improvements of the designs of green spaces post Covid-19. The questions were all derived to cover the parameters of this study.

Sampling Size and Method

Based on the convenient sampling method utilized in this research, the sample size of this study is 415 respondents. The sample size is considered sufficient for a very large population size (> 2, 500, 000), assuming the 95% confidence level, 0.5 standard deviation, and a margin of error (confidence interval) of +/- 5% (Gill et al., 2010). The data collection began in May 2021 and ended in July 2021. Distribution of the online questionnaire started through the authors' network of professional and personal contacts, as well as through social media. Participants were asked to fill in the questionnaire and further distribute to their personal contacts. The distribution proceeded according to a snowball effect, and did not allow for personal information of individual respondents to be identified.

Analysis

The datasets were analysed using frequency and descriptive analysis. Both analyses employed IBM SPSS Statistic V26 to extrapolate the demographic result, public usage patterns and public preferences for post-pandemic green spaces' design improvement using percentage and mean tabulation.

RESULTS AND FINDINGS

A total of 415 respondents participated in the study. The majority of the respondents were between the age of 20-29 (50.1%), woman (62.4%), resides in Central Malaysia (48.0%), and Malay (61.9%). Other demographic profile is as shown in **Table 2**.

Table 2: Demographic characteristic of respondents (N = 415)

Characteristic		**Frequency (n)**	**Percentage (%)**
Gender	Male	156	37.6
	Female	259	62.4
Age	Below 19	45	10.8
	20-29	208	50.1
	30-39	54	13.0
	40-49	62	14.9
	50-59	32	7.7
	Above 60	14	3.4
Ethnicity	Malay	257	61.9
	Chinese	103	24.8
	Indian	27	6.5

	Other	28	6.7
Region	Central	199	48.0
	Northern	84	20.2
	Southern	79	19.0
	Eastern	20	4.8
	Sabah/Sarawak	33	8.0

Source: Author (2022)

Comparative Analysis for the Respondents' Usage on Urban Green Space Prior and During COVID-19 Pandemic

The respondents' frequency of weekly visits has dropped drastically during COVID-19 pandemic and approximately 59.3% of the respondents stated they had stopped visiting urban green spaces in that period (**Figure 1**). Nevertheless, 40.7% of the respondents did continue using the urban green space amidst the COVID-19 breakout in Malaysia.

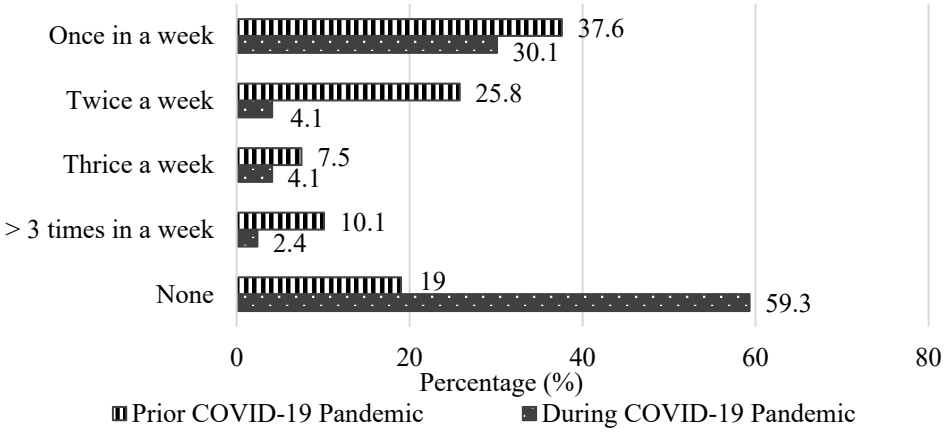

Figure 1: Frequency of weekly visits to green spaces prior and during the COVID-19 pandemic
Source: Author (2022)

Figure 2 illustrates a comparison between the distance of visited urban green space by our respondents prior and during COVID-19 pandemic. The results indicate that approximately 30.8% respondents have diverted their visitation of urban green spaces to the nearest green space available. Additionally, there is also significant increase of 23.0% in the number of respondents who did not travel or visit the urban green spaces during pandemic. This may imply that the travel restriction enforced by Malaysia during pandemic period has limited

the accessibility of respondents who lives far away from urban green spaces from accessing the urban green space during pandemic.

Meanwhile, **Figure 3** presents the frequency analysis of multiple response questions on respondents' types of visited green space prior and during COVID-19 pandemic. As shown in **Figure 3**, the most prominent changes occurred during pandemic were the increase in the use of home garden by 14.1% and neighbourhood park by 2.4%. While the remaining types of green space, including urban park showed major drop in usage. In addition, the figure also showed that 15.9% of the respondents did not visit any green space during pandemic.

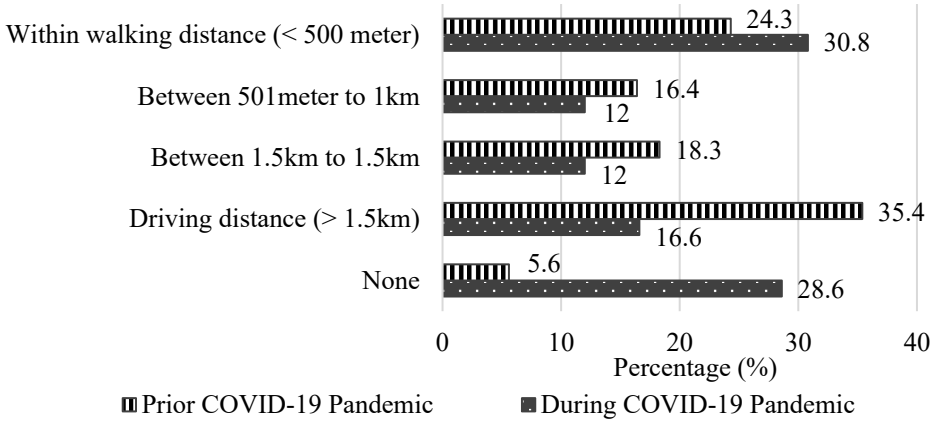

Figure 2: The distance of visited urban green spaces prior and during COVID-19 pandemic
Source: Author (2022)

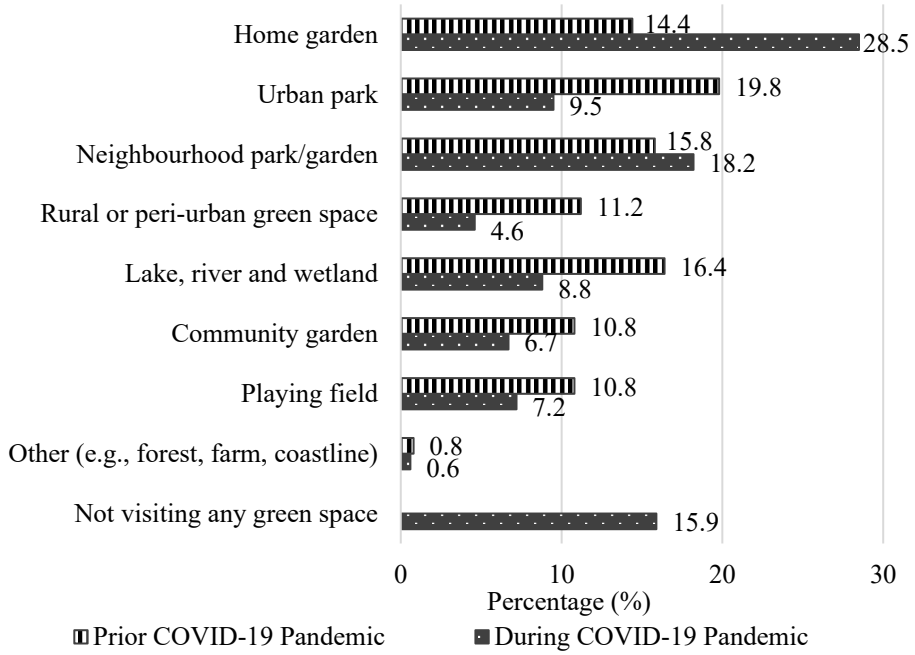

Figure 3: The type of green spaces visited prior and during the COVID-19 pandemic
Source: Author (2022)

Respondents' Preferences in the Design Improvements for Urban Green Spaces Post-COVID-19

Table 2 presents the mean of 10 items (α = .96) related to the design preferences on the improvisations to be made to the current and post-COVID-19 urban green space using a 10-point Likert scale format (1= strongly disagree; 10 = strongly agree). Out of the 10 items presented, the mean score of nine items were greater than 5 (neutral), which indicate positive responses. The five most preferred design improvements were: sanitization facilities (M = 6.83), larger green spaces (M = 6.63), multipurpose and flexible spaces (M = 6.53-6.56) as well as facilities for different types of users (M = 6.53). Meanwhile, the least preferred item was more pocket park or smaller green space (M = 3.70). This highlighted the need for a bigger, flexible and multipurpose spaces that comes along with sanitizing and universal-designed facilities that are more fitting to the current situation of COVID-19.

Table 2: Respondents' preferences for improvements in urban green spaces post COVID-19

Item	*N*	*Minimum*	*Maximum*	*Mean*	*SD*
Make connected and wider pedestrian walkway	415	1	10	6.30	2.79
Improve bicycle lane condition	415	1	10	5.68	2.75
Provide longer bike route and running track	415	1	10	5.60	2.76
Provide sanitization facilities	415	1	10	6.83	2.89
Provide larger green space	415	1	10	6.63	2.84
Create more pocket park or smaller green space	415	1	10	3.70	2.70
Provide facilities for different types of users	415	1	10	6.53	2.81
Enhance monitoring activity and facility	415	1	10	6.47	2.83
Create multipurpose space	415	1	10	6.56	2.83
Create flexible space	415	1	10	6.53	2.83
Valid N (likewise)	415				

Source: Author (2022)

DISCUSSION AND CONCLUSION

This study was inspired by similar researches conducted in other countries on the use of urban green spaces and the social isolation that was imposed during the COVID-19. To date, studies on the comparison between the use of urban green spaces in Malaysia before and during the COVID-19 pandemic as well as studies on improvisations that is preferred by the public during and post-pandemic are both found to be scarce.

As shown in the results of this study, the use of urban green space has dropped significantly where 59.3% of the respondents stated they simply stopped using urban green space during the pandemic. From a global perspectives, the result mirrors the patterns reported in Chengdu, China (Xie et al., 2020), North Carolina, United States of America (Larson et al., 2021), as well as Spain and Italy (Ugolini et al., 2020). While this can easily be attributed to the government stringency on COVID-19 containment regulations, several other factors may also render the changes itself. It is believed that the reduction in the use of green space in Malaysia was attributed by number of vaccinated populations during the year 2020 and 2021. As of July 4th 2021, only eight percent of the Malaysian population (roughly 2,618,316 people) has completed two doses of the COVID-19 vaccine shots (*Dr Adham: 8pc of Malaysian Population Fully Vaccinated against Covid-19*, 2021). Although there was a major reopening of public and recreational space from early January of 2021 (Conditional Movement Control

Order, 2021), the low level of vaccinated population may hinder the Malaysian to visit and use the green space during pandemic.

Moreover, the level of knowledge, attitude and reduce risk-taking or risk avoidance behaviour among population toward the COVID-19 may also influence the reduction in the use of green space among Malaysians. According to Azlan et al. (2020), Malaysians have strong knowledge and attitude towards the COVID-19 virus, hence the majority of the population has been persistent in avoiding crowded places since the beginning of the pandemic. Here, it can be deduced that the increase in one's knowledge, attitude and practices on the COVID-19 may result in their withdrawal from the use of urban green space during the pandemic. The rising fear of the COVID-19 virus along with the increment of positive cases and death caused by the virus since April 2021 (Ministry of Health Malaysia, 2022) can be said to be one of the contributing factors for positive response towards movement control order. Consequently, persistent advice from the government to avoid outdoor activities and travelling also contributed greatly to the decreasing utilization of green spaces.

As a result, significant increase in the use of home garden and neighbourhood park during the pandemic was observed. The same pattern were also recorded in Brisbane, Australia where Berdejo-Espinola et al. (2021) signified an increase in the use of backyard garden and available green space within residence proximity which was appropriate to the active discouragement by Australian government on social interaction and travelling behaviour. While the findings proved that the need for outdoor greenery during the pandemic did not change, it is also imperative for us to note that not everyone was privileged with the access of a personal home garden, balcony, backyard, or lives in a well-planned neighbourhood. Therefore, sufficient provision of green space in local neighbourhoods and within households proximity, especially in densely populated area is necessary for maintaining the wellbeing of the population (Berdejo-Espinola et al., 2021).

Subsequently, the SOP applied during the COVID-19 pandemic has definitely influenced how future parks and urban green spaces are to be designed in order to curb the spread of the disease. Given the transformation we are witnessing in the ensuing months, it is critical to highlight the current public preferences and demand in urban green space to inform future urban planning and design. For the next upcoming years, the inclusion of new elements in the green space environment is expected, for example; temporary hand washing stations and sanitization facilities are the foremost desired improvement awaited by the public. A study by Eltarabily and Elghezanwy (2020) suggested similar facilities to be made available in green spaces in order to increase comfort and usage among green space users.

The high rate of preferences toward larger green space with abundant greenery in the findings of this study also confirmed the suggestions made by Honey-Rosés et al. (2020), Yang et al. (2021) and Ugolini et al. (2020) that highlights the need for new park and urban green space expansion to cater to the utilization and demands of future population. The restriction imposed for small space occupancy during pandemic also left many of the respondents to become less interested in having more small green space. However, small green space, like pocket park and neighbourhood garden has a value in providing public easy access, quick enjoyment and rapid healing process (Balai Kerishnan & Maruthaveeran, 2021). This is on par with findings of this study where an increment in the use of such places were observed. In this context, urban planning and design should consider a diverse mix including large parks, together with smaller pocket parks, neighbourhood gardens as part of urban fabric enhancement (Fatiah et al., 2021; Ugolini et al., 2020).

Last but not least, as highlighted in the findings of this study, having multipurpose, flexible spaces and area to cater to different type of users are among other improvements preferred by the respondents. The idea is that such spaces can alleviate social isolation and positively impact physical and mental wellbeing (Geng et al., 2021) without neglecting the socially vulnerable population. This is expected to help in accommodating the needs of populations, providing equal resources to public during future pandemics as well as in generating green spaces to meet the outdoor activity demanded by the populations (Honey-Rosés et al., 2020).

ACKNOWLEDGEMENTS

This research has been made possible with funding from the Institute of Landscape Architects Malaysia (ILAM) grant ID- ILAMGRANT-2021-02.

REFERENCES

Aziz, N. A. A., van den Bosch, K., & Nillson, K. (2018). Recreational use of urban green space in Malaysian cities. *International Journal of Business and Society*, *19*(S1), 1–16.

Azlan, A. A., Hamzah, M. R., Sern, T. J., Ayub, S. H., & Mohamad, E. (2020). Public knowledge, attitudes and practices towards COVID-19: A cross-sectional study in Malaysia. In *PLoS ONE* (Vol. 15, Issue 5).

Balai Kerishnan, P., & Maruthaveeran, S. (2021). Factors contributing to the usage of pocket parks—A review of the evidence. *Urban Forestry and Urban Greening*, *58*(January), 126985.

Berdejo-Espinola, V., Suárez-Castro, A. F., Amano, T., Fielding, K. S., Oh, R. R. Y., & Fuller, R. A. (2021). Urban green space use during a time of stress: A case study during the COVID-19 pandemic in Brisbane, Australia. *People and Nature*, *3*(3), 597–609.

Dr Adham: 8pc of Malaysian population fully vaccinated against Covid-19. (2021, July 5). Malay Mail. https://www.malaymail.com/news/malaysia/2021/07/05/dr-adham-8pc-of-malaysian-population-fully-vaccinated-against-covid-19/1987303

Eltarabily, S., & Elghezanwy, D. (2020). Post-Pandemic Cities - The Impact of COVID-19 on Cities and Urban Design. *Architecture Research*, *10*(3), 75–84.

Fatiah, A. A., Ponrahono, Z., & Zakariya, K. (2021). QUALITY OF DESIGNS AND FEATURES OF SMALL URBAN GREEN SPACES IN PETALING JAYA TOWN, MALAYSIA. *Journal of the Malaysian Institute of Planners*, *19*(1), 138–149.

Geng, D. (Christina), Innes, J., Wu, W., & Wang, G. (2021). Impacts of COVID-19 pandemic on urban park visitation: a global analysis. *Journal of Forestry Research*, *32*(2), 553–567.

Gill, J., Johnson, P., & Clark, M. (2010). *Research Methods for Managers* (4th ed.). SAGE Publications, Ltd.

Honey-Rosés, J., Anguelovski, I., Chireh, V. K., Daher, C., Konijnendijk van den Bosch, C., Litt, J. S., Mawani, V., McCall, M. K., Orellana, A., Oscilowicz, E., Sánchez, U., Senbel, M., Tan, X., Villagomez, E., Zapata, O., & Nieuwenhuijsen, M. J. (2020). The impact of COVID-19 on public space: an early review of the emerging questions – design, perceptions and inequities. *Cities & Health*, 1–17.

Kim, J., Kim, W., Ko, Y., Kim, G., Lee, J., Eyman, O. T. G., Chowdury, S., Adiwal, J., Won, H., Son, Y., & Lee, W. (2021). *Using Urban Green Spaces in the Pandemic: Example from the Republic of Korea*.

Larson, L. R., Zhang, Z., Oh, J. I., Beam, W., Ogletree, S. S., Bocarro, J. N., Lee, K. J. J., Casper, J., Stevenson, K. T., Hipp, J. A., Mullenbach, L. E., Carusona, M., & Wells, M. (2021). Urban Park Use During the COVID-19 Pandemic: Are Socially Vulnerable Communities Disproportionately Impacted? *Frontiers in Sustainable Cities*, *3*(September), 1–15.

Lu, Y., Zhao, J., Wu, X., & Lo, S. M. (2021). Escaping to nature during a pandemic: A natural experiment in Asian cities during the COVID-19 pandemic with big social media data. *Science of the Total Environment*, *777*.

Conditional Movement Control Order, Majlis Keselamatan Negara 1 (2021). https://www.mkn.gov.my/

Malek, N. A., & Nashar, A. (2018). USE PATTERN AND ACTIVITIES: THE EVALUATIONS OF MALAYSIAN GREEN OPEN SPACE DESIGN. *Journal of the Malaysian Institute of Planners*, *16*(3), 121–131.

Ministry of Health Malaysia. (2021, November 23). *Agenda Nasional Malaysia Sihat*. https://www.moh.gov.my/index.php/pages/view/2933

Ministry of Health Malaysia. (2022, April 5). *COVIDNOW in Malaysia - COVIDNOW*. https://covidnow.moh.gov.my/

Nath, T. K., Zhe Han, S. S., & Lechner, A. M. (2018). Urban green space and well-being in Kuala Lumpur, Malaysia. *Urban Forestry and Urban Greening*, *36*(February), 34–41.

Shoari, N., Ezzati, M., Baumgartner, J., Malacarne, D., & Fecht, D. (2020). Accessibility and allocation of public parks and gardens in England and Wales: A COVID-19 social distancing perspective. *PLoS ONE*, *15*(10 October 2020), 1–10.

Slater, S. J., Christiana, R. W., & Gustat, J. (2020). Recommendations for keeping parks

and green space accessible for mental and physical health during COVID-19 and other pandemics. *Preventing Chronic Disease*, *17*(17).

Ugolini, F., Massetti, L., Calaza-Martínez, P., Cariñanos, P., Dobbs, C., Ostoic, S. K., Marin, A. M., Pearlmutter, D., Saaroni, H., Šaulienė, I., Simoneti, M., Verlič, A., Vuletić, D., & Sanesi, G. (2020). Effects of the COVID-19 pandemic on the use and perceptions of urban green space: An international exploratory study. *Urban Forestry and Urban Greening*, *56*(June).

World Health Organization. (2022, April 5). *WHO Coronavirus (COVID-19) Dashboard | WHO Coronavirus (COVID-19) Dashboard With Vaccination Data*. https://covid19.who.int/

Xie, J., Luo, S., Furuya, K., & Sun, D. (2020). Urban parks as green buffers during the COVID-19 pandemic. In *Sustainability (Switzerland)* (Vol. 12, Issue 17).

Yang, Y., Lu, Y., Yang, L., Gou, Z., & Liu, Y. (2021). Urban greenery cushions the decrease in leisure-time physical activity during the COVID-19 pandemic: A natural experimental study. *Urban Forestry and Urban Greening*, *62*(November 2020).

Received: 28th September 2022. Accepted: 1st December 2022