

Visiting Preference of Urban Parks During COVID-19 Pandemic Period in Indonesia

Dadang Hartabela^{1*}, Cipta Vidiana², Bart Dewancker³, Budi Faisal⁴

¹ Program Studi Arsitektur, Fakultas Teknik, Universitas Bandar Lampung

Jalan Z.A. Pagar Alam No. 26 Labuhanratu No. 26, Bandarlampung, Lampung, Indonesia, 35142

² Program Studi Arsitektur Lanskap, Jurusan Teknologi Infrastruktur dan Kewilayahan, Institut Teknologi Sumatera

Jalan Terusan Ryacudu, Way Huwi, Kec. Jati Agung, Kabupaten Lampung Selatan, Lampung, Indonesia, 35365

³ Departemen Arsitektur, Fakultas Teknik Lingkungan, Universitas Kitakyushu

Hibikino 1-1, Wakamatsu Ward, Kitakyushu, Fukuoka, Jepang, 808-0135

⁴ Program Magister Arsitektur Lanskap, Sekolah Arsitektur Perencanaan dan Pengembangan Kebijakan, Institut Teknologi Bandung

Jalan Raya Jatinangor km 20,75 Sumedang, Indonesia, 45360

*Penulis Korespondensi: dadang.hartabela@ubl.ac.id

Abstract: *The spreading of COVID-19 not only causes medical problems for human but also impacts their emotional side. The adaptation of playing habits in urban parks during this period is affected. Some people argue that meeting and socializing with other people in urban places can increase the spread. This paper aims to carry out: 1) how the visitors' preferences for visiting urban parks during the pandemic; 2) how the visitors behave to face the virus prevention regulations (health protocols) in urban parks; and 3) how the existing facilities of urban parks influence the visitor comfort during the pandemic period. Data collection was carried out using an online questionnaire and was limited to people who live in Indonesia. Results show that: 1) people have chosen to not visit an urban park during the pandemic. Based on gender, the results of the correspondence analysis show that women tend to choose not to go to the park more than men; 2) Most visitors supported the regulation of health protocols set by the Indonesian government. Those participants consistently use masks, change clothes after activities in urban parks, avoid crowds, and avoid shaking hands; 4) Park facilities that are often not available in urban parks are hand soap.*

Keywords: *urban park; pandemic; preference; behavior; urban health*

Preferensi Berkunjung ke Taman Kota Selama Masa Pandemi COVID-19 di Indonesia

Abstrak: Penyebaran COVID-19 tidak hanya menimbulkan permasalahan kesehatan pada manusia namun juga berdampak pada sisi emosionalnya. Adaptasi kebiasaan bermain di taman kota pada periode ini terpengaruh. Beberapa berpendapat bahwa bersosialisasi dengan orang lain di perkotaan dapat meningkatkan penyebaran. Tulisan ini bertujuan untuk mengetahui: 1) bagaimana preferensi pengunjung dalam mengunjungi taman kota pada masa pandemi; 2) bagaimana perilaku pengunjung dalam menghadapi peraturan pencegahan virus (protokol kesehatan) di taman kota; dan 3) bagaimana fasilitas taman kota yang ada mempengaruhi kenyamanan pengunjung di masa pandemi. Pengumpulan data dilakukan dengan menggunakan kuesioner online dan dibatasi pada masyarakat yang berdomisili di Indonesia. Hasil penelitian menunjukkan bahwa: 1) masyarakat memilih untuk tidak mengunjungi taman kota selama pandemi. Berdasarkan gender, hasil analisis korespondensi menunjukkan bahwa perempuan cenderung lebih memilih untuk tidak pergi ke taman dibandingkan laki-laki; 2) Sebagian besar pengunjung mendukung peraturan protokol kesehatan yang ditetapkan pemerintah Indonesia. Partisipan konsisten menggunakan masker, berganti pakaian setelah beraktivitas di taman kota, menghindari kerumunan, dan menghindari berjabat tangan; 3) Fasilitas taman yang sering tidak tersedia adalah sabun cuci tangan.

Kata kunci: taman kota; pandemik; preferensi; perilaku; kesehatan kota

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1. Introduction

Development of urban parks in the world is in line with the growing population. The more the number of residents living in the city, the higher the need for public space as a place to gather, socialize, and work together. On the other hand, the reduced empty space due to the increase in the number of residences is another problem that must be faced. According to the Ministry of Land, Infrastructure, and Transport (MLIT) of Japan, the total area of urban parks in 1960 was 14,323 ha, then continued to grow to 106,370 ha in 2004 or an increase of about 2% per 5 years (MLIT, 2005). Likewise, with Indonesia, the increase in the area of urban green open space in the city of Surabaya is quite consistent from 2010 to 2016, which is 3.16% (Ulfa, 2018). Meanwhile, in 2017, there was a significant increase of 23% from the amount of green open space in the city in the previous year. Thus, urban park is an important element that will continue to grow.

Coronavirus Disease-2019 (COVID-19) was first discovered in late December 2019 in Wuhan, China, and caused a global outbreak in many cities. This virus was officially named by the World Health Organization (WHO) on February 11, 2020. Then on January 30, 2020, an international urban health emergency was issued. As per August 17th, 2022, the number of cases has reached to 596,933,753 cases (Worldometer, 2022). In Indonesia, the total cases are 6,292,231 with number of death case is 157,277 and recovered case is 6,082,732. The highest number of deaths per day is on August 2nd, 2021 with 1,789 cases. While the highest number of cases globally is in the United States (94,869,936 cases).

COVID-19 is a potential zoonotic disease with a low to moderate mortality rate (Wu, et al., 2020). Person-to-person transmission can occur through droplet or contact transmission and if strict infection control is not in place or if adequate personal protective equipment is not available. Many strict quarantine procedures and fever surveillance are underway. It is very likely that person-to-person transmission occurs through droplets and contact. The virus can enter the host through the respiratory tract or mucosal surfaces.

A study in Harris County, Texas, United States (US) reported that park visits decreased after issuing a shelter-in-place order and increased after this order was lifted (Ding, et.al., 2022). Meanwhile, Goyang City, South Korea, identified that easy access from home is more important than the size of the park during the pandemic (Sung, et.al., 2022). A big data spatial study reports that elevation and latitude serve as the main influences of reported changes in park visits from the initial period (Rice & Pan, 2021). In New Jersey, United States, it is found that park visitation increased by 63.4% with the onset of the pandemic (Volenc, et.al., 2021). There was also a result in Philadelphia which support the view that parks continue to provide various ecosystem services despite the pandemic (Alizadehtazi, 2020). Several studies explain the role of thermals on user comfort in urban open spaces (Hartabela, et.al., 2020).

The role of urban parks is becoming increasingly important during the COVID-19 pandemic because green areas, including parks, appear as places to support quality of life, related to social life and health (Suherman & Murwadi, 2021; Hartabela, et.al., 2022). Greening has been shown to reduce the number of

confirmed cases and deaths of COVID-19 in cities with high population densities (Klompaker, et.al., 2021). Urban parks provide crucial services to society, particularly in stressful times when opportunities for recreation are limited (Volenc, et.al., 2021). It is also suggested that parks visitation during pandemic potentially benefit people's physical and mental health (Ding, et.al., 2022).

Unexpectedly, the COVID-19 pandemic came and plagued all corners of the world. This outbreak has a lot of impact on changes in human life habits, including the choice to visit the park or not. In addition, the urban's view of the safety and security of urban park as public space during a pandemic also needs to be known. Therefore, this paper aims to find out the answers of three research questions: 1) How are the visitor's preferences for visiting urban parks during the COVID-19 pandemic; 2) How is the visitor's behavior to face the virus prevention regulations (health protocols) in urban parks; and 3) How the existing facilities of urban parks influence the visitor comfort during the pandemic period.

2. Methods

The research inquiry mode is quantitative (Kumar, 2005). The objectives, design, sample, and the questions is predetermined in advance. This method is used to determine the extent of the COVID-19 phenomenon that happen in urban parks, especially in Indonesia.

2.1. Data Collection Methods

Data are collected during January 22 to February 4 of 2021 with a total research sample of 165 respondents. The sampling technique is voluntary, the respondents' data were collected by online questionnaire in Indonesia. The data collected was obtained from respondents spread across several provinces in Indonesia, the most data from the provinces of Lampung with 69 respondents, West Java with 36 respondents, and Jabotabek (Jakarta, Bogor, Tangerang, Bekasi) with 32 respondents, and the rest of data were spread from the islands of Java, Sumatra, Kalimantan, to West Nusa Tenggara (with total 28 respondents).

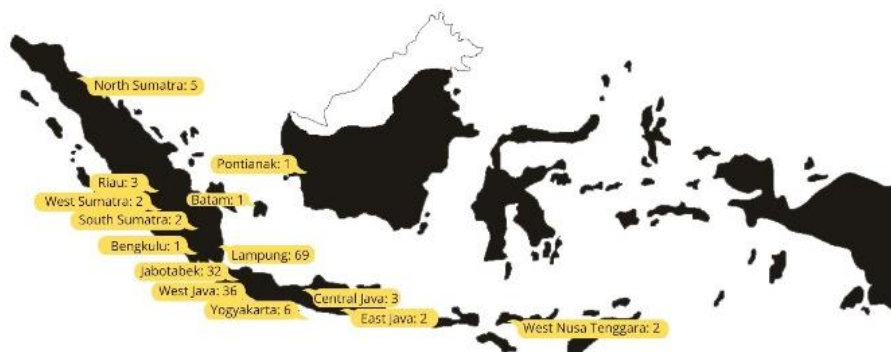


Figure 1. The distribution of urban parks location from respondents.

2.2. Data Analysis Methods

The data were analyzed by distribution, mapping, correspondence, and

descriptive analyses using statistical computer software of Microsoft Excel and JMP. The distribution analysis method was used on questions about preferences, reasons, frequencies, and opinions. One application of distribution analysis method is the reason not to visit urban park during the pandemic. While the correspondence analysis method is applied to the relationship between age and visiting preference. While the descriptive analysis method explains the findings of the distribution and correspondence analysis, based on existing scientific theories.

Table 1. Data Analysis Method.

Analysis Methods	Objection(s)
Distribution and Mapping Analysis	To determine the characteristic of participants, preferences, reasons, frequencies, and opinions.
Correspondence Analysis	To determine the closeness between factors.
Descriptive Analysis	To explain the phenomenon may occurred from which found from the analysis results.

3. Results and Discussion

3.1. The Characteristic of Participants

The total number of participants is 165 people. Based on gender, the majority of participants were women, namely 85 (51.6%). Meanwhile, there were 80 men (48.4%). Based on age category, there are 5 groups of participants they are Adolescence (11-20 years old), Early adulthood (21-30 years old), Middle adulthood (31-45 years old), Late adulthood (46-60 years old), and Early old (61-75 years old). The majority is the middle adulthood with the number of 49 (29.6%) and the early adulthood (46; 27.8%). While the lowest age category is the early old (9; 5.4%).

Table 2. The characteristic distribution of participants.

Measure	N	%	
Female	85	51.6	
Male	80	48.4	
Total	165	100	
Age group			
11-20	Adolescence	39	23.6
21-30	Early adulthood	46	27.8
31-45	Middle adulthood	49	29.6
46-60	Late adulthood	22	13.3
61-75	Early old	9	5.4
Total		165	100

Based on the correspondence analysis between age and visiting preference (Fig.2), the relationship shows that younger participant of adolescence (11-20 years old) is more confidence to visit urban parks than the older. In the opposite, the oldest participant group of early old category is closer to not visit urban parks during pandemic.

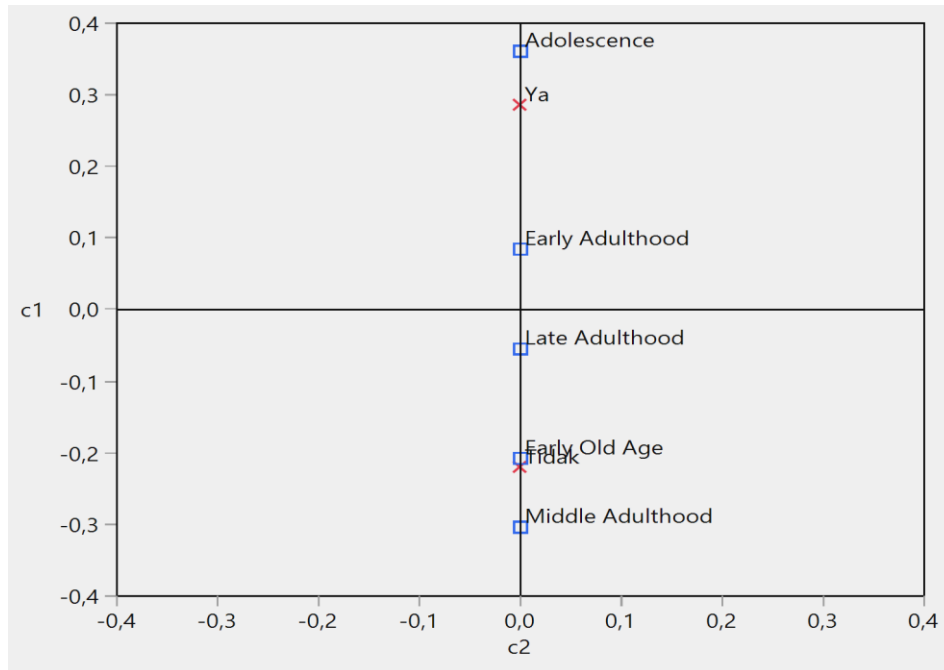


Figure 2. Coincidence between age and visiting preference.

3.2. The visitor's preference for visiting urban parks during COVID-19 pandemic

3.2.1. Tendency of visiting and not visiting based on gender and age category

Results show that people tend to not visit an urban park during the pandemic (56.3%). Based on gender, the results of the correspondence analysis show that women tend to choose not to go to the park and men vice versa. Meanwhile, based on the age group category, adolescents (ages 11-20 years) tend to choose to go to the park. The age group that tends to choose not to go to the park during a pandemic is the early old age (aged 61-75 years).

Most of the reasons for not visiting are to protect the family from possible exposure to the virus (34.4%). In the second place the most are protecting themselves from being exposed to the virus (22.6%), while in the third and fourth places, there is no desire to leave the house because they prefer to "stay at home" during the pandemic (19.3%) and the location of the park is far and difficult to reach. from the place of residence (8.6%). Other reasons varied, such as the park being temporarily closed or being renovated, avoiding crowds, busy with work, no need to go to the park, or as a form of obedience to government advice to do activities indoors (15.1%).

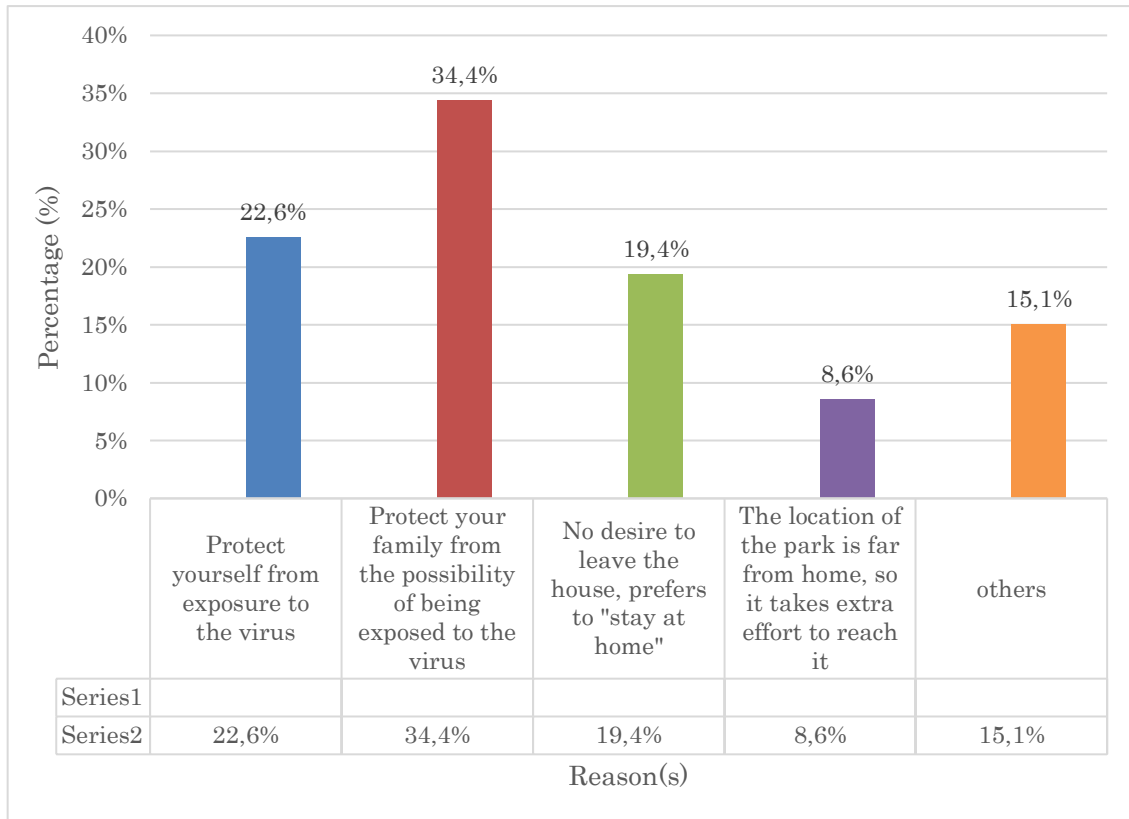


Figure 3. Reason not to visit urban park during pandemic.

The pandemic condition greatly influences respondent`s decisions to visit urban parks, as has been explained that the COVID-19 virus is easily transmitted through physical interaction between humans, so the top three reasons relate to preventive measures to prevent virus transmission.

3.2.2. *Opinion of visiting urban park*

Opinions about comfort in urban parks during the pandemic are divided into visitor opinions (respondents who visited urban parks before and during the pandemic) and non-visitors (respondents who visited urban parks only before the pandemic). Most park visitors feel neutral (55.6%) about the safety of going to urban parks during the pandemic, while the majority of non-visitors feel disagree (52.7%) about the safety of going to urban parks during the pandemic.

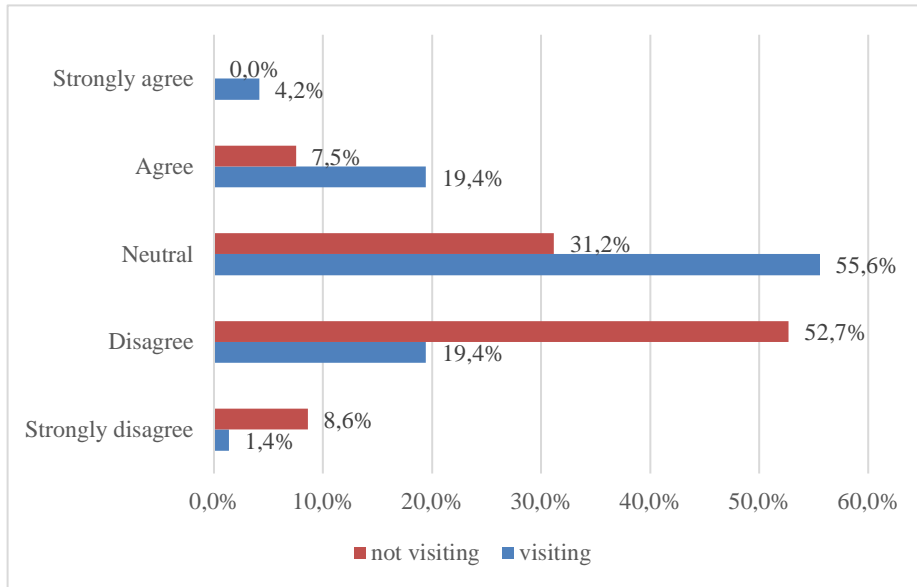


Figure 4. The opinion for “I feel safe going to urban parks during the pandemic”.

The majority of visitors agree (38.9%) to go to urban parks that are not crowded during the pandemic, as well as non-visitors (35.5%) to choose urban parks that are not crowded because they are less likely to interact with other people. This result may be related to fears of contracting the virus when in public spaces, especially those that are crowded and do not have clear health protocols. This may also be because according to experts that the Covid-19 virus can be transmitted through the air, although other studies have shown that airborne transmission is generally in an indoor environment [10].

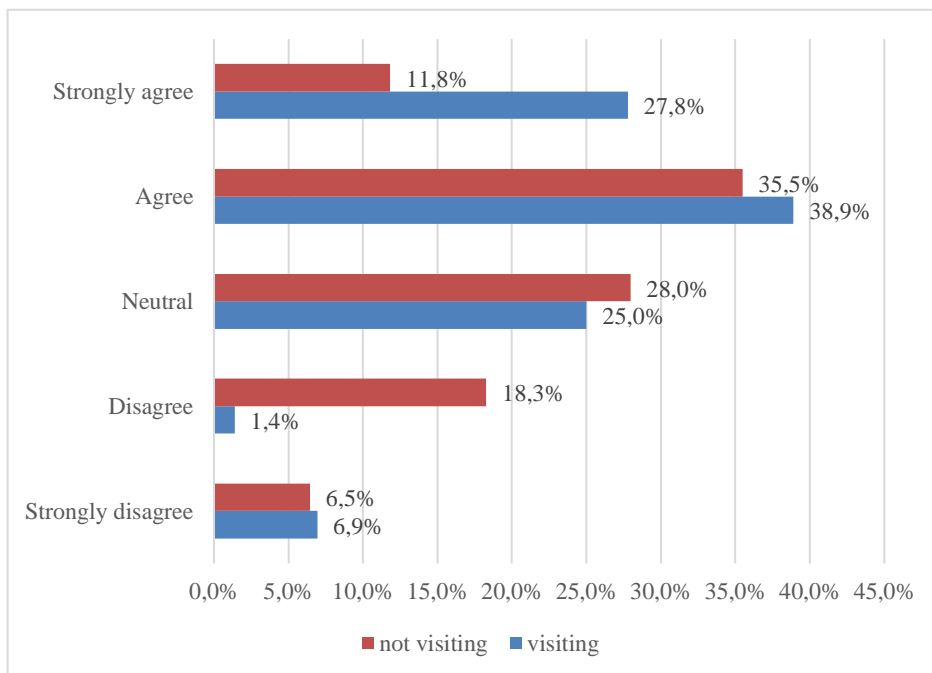


Figure 5. The opinion for “I choose to go to a less crowded urban park”.

Most visitors agree to choose to go to the urban park because it is an open space with good air circulation (37.5%), as well as the opinion of non-visitors (35.5%). The COVID-19 virus is known to be transmitted through the air, especially in closed rooms with poor circulation, so open spaces with good circulation will minimize the possibility of virus transmission.

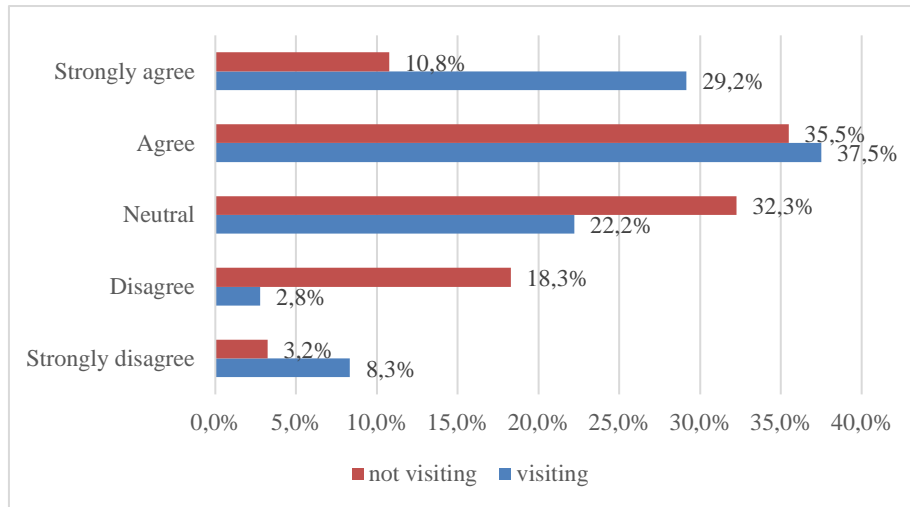


Figure 6. The opinion for “I chose to go to the urban park because it is an open space with good air circulation”.

Most visitors (40.3%) and non-visitors (38.7%) feel neutral with their opinion of choosing to go to a public park which because of it can avoid having close conversations with other people (close conversation). Meaning that they are in the middle position of being agree or disagree with that opinion. If it seen into the detail of the visitor status, the response difference for “disagree” between visitor and non-visitor is high. In the opposite, the response difference for “agree” answer is small. It means that, even though people do not like to visit urban park during the pandemic period, but they also agree that urban park can avoid the close conversation (close physical contact) with others. This may happen because of the urban park area is usually large so it is possible to do physical distancing (see fig.7).

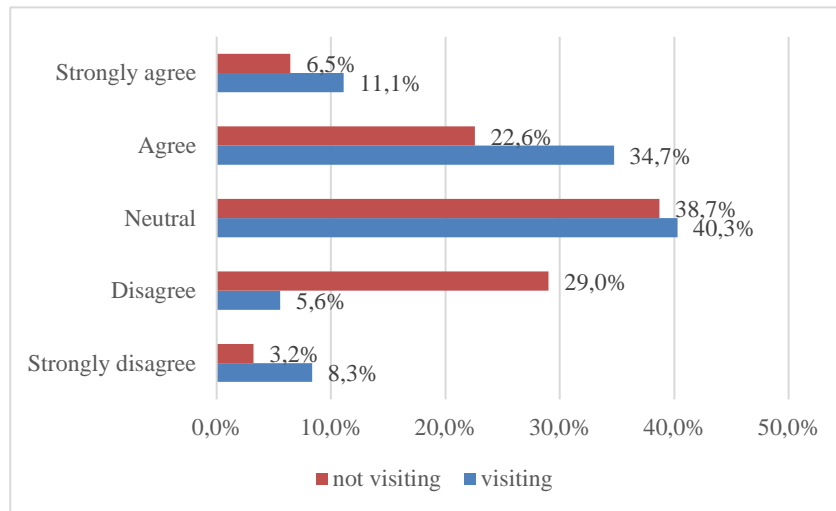


Figure 7. The opinion for “I choose to go to an urban park because it can avoid chatting with other people (close conversation)”.

Overall, the most neutral opinion for the visitor about their preference for visiting urban parks (see fig.16) is “I feel safe going to public parks during the pandemic” (more than 55%). It means that although they visit the urban park, they were not really confident to agree that going to public parks during pandemic is a good thing. This may happen because of the massive socialization and/or information to only stay at home during the pandemic, not only from the national government, but also from the social media as global. Meanwhile, the most positive opinions relate to two things, namely “good air circulation” and “less crowd” (more than 60%). This most two reason may popular because of the image of public parks is wide and have a natural environment which are good for health. On the other hand, for the non-visitors, majority felt unsafe going to public parks during the pandemic (more than 60%) which reinforces the reason why they do not want to visit the park.

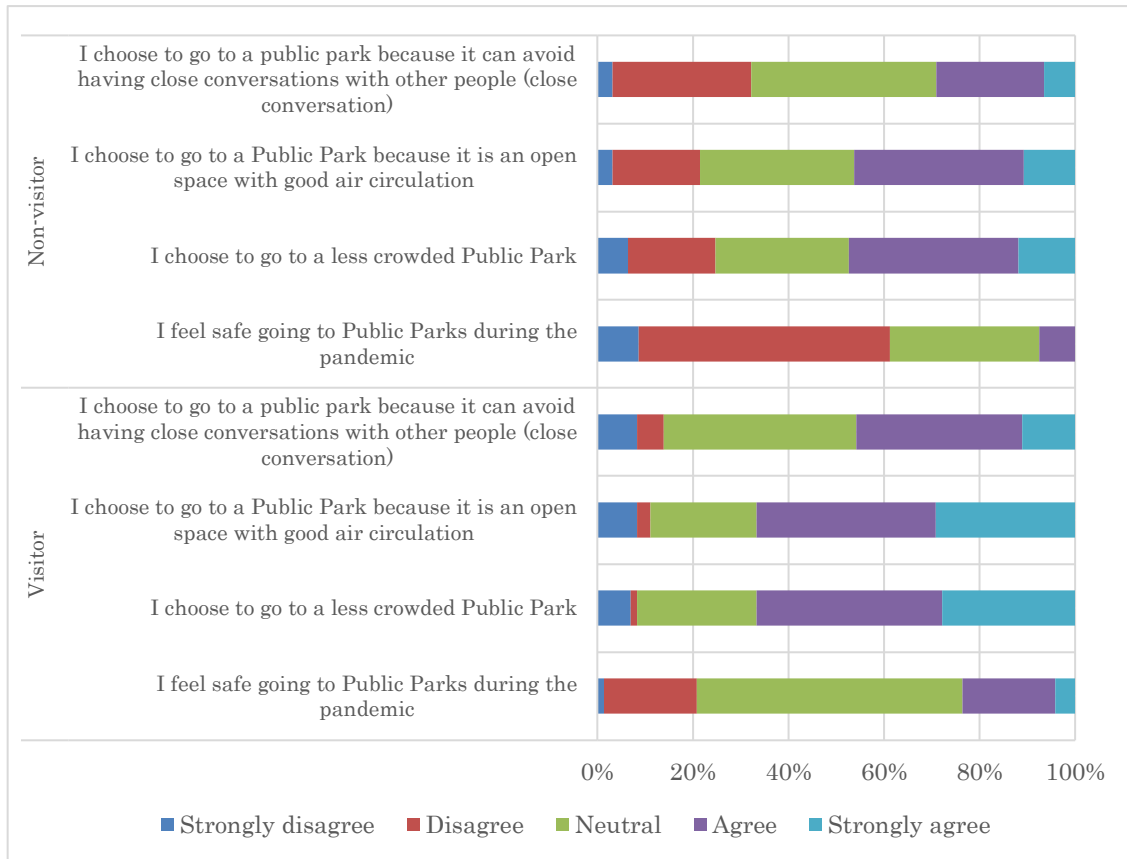


Figure 8. The opinion from both visitor and non-visitor for park visitation preference.

3.2.3. Frequency of visits

The frequency of visits to urban parks has changed from before and during the pandemic, before the pandemic the frequency of visits to urban parks was usually once a week (37.5%), then changed to once a month during a pandemic (37.5%). Before the pandemic, some respondents visited the park every day, while during the pandemic there were none at all. This is in line with the data that 56.3% of respondents chose not to visit urban parks during a pandemic, apparently this also affects the frequency of visits to parks becoming less frequent. The option of visiting every day, twice a week and one a week decreased, while the increase was in the options of visiting once a month (up 1.4%) and 1-2 times per year (increasing 19.5%).

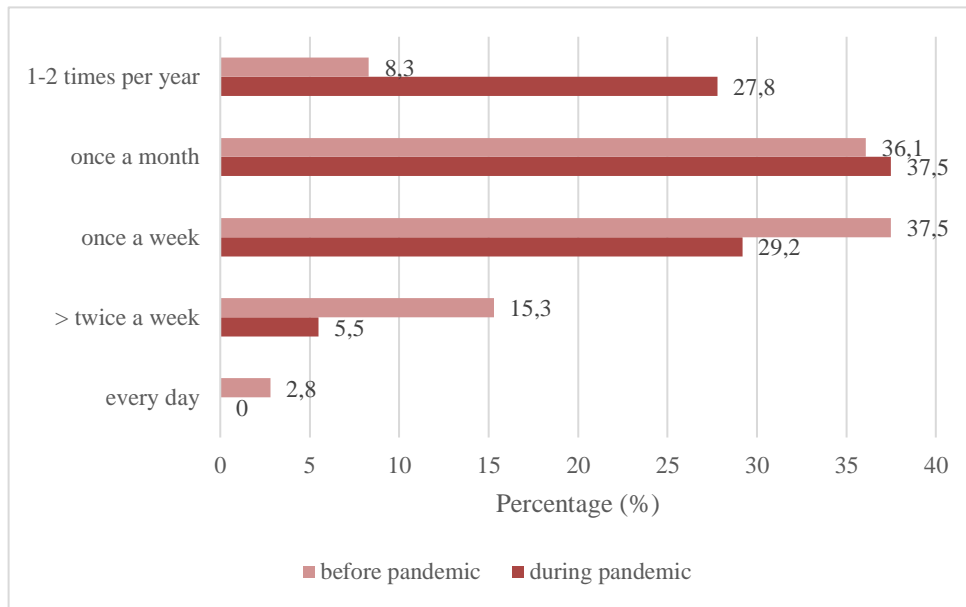


Figure 9. Visiting frequency before and during pandemic.

3.2.4. Duration of visit

The duration of visiting urban parks before the pandemic was the most people spent one hour per visit (55.5%), while during the pandemic they only spent less than thirty minutes per visit (40.2%). The pandemic condition also affected the duration of visits to the park, where previously each visit was dominated by more than one hour in the park (down 30.5%), during the pandemic it was about one hour (up 4.3%) to less than 30 minutes (up 26.2%).

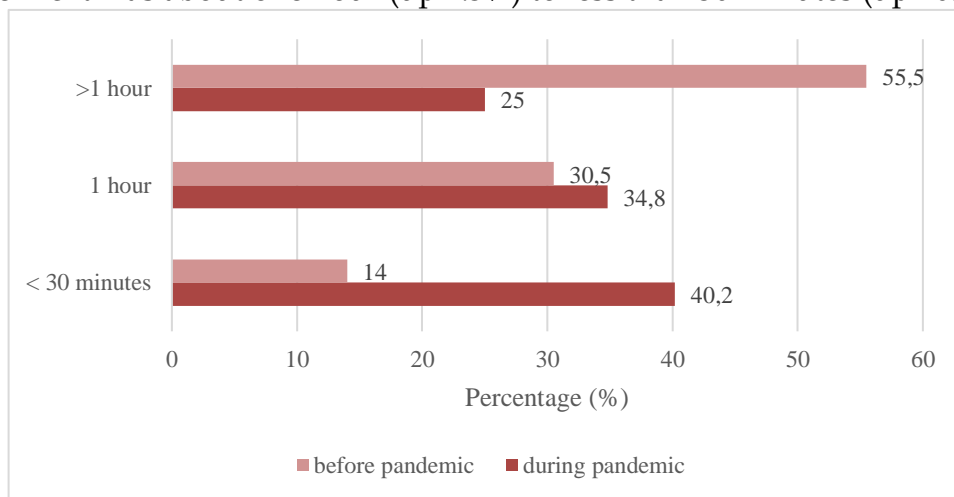


Figure 10. Visiting duration before and during pandemic.

3.2.5. Friends visiting

Visiting the park is usually done with other people, visiting with family remains the most preferred choice both before the pandemic (34.7%) and during the pandemic (33.3%). However, there was an increase in visits made alone during the pandemic (23.6%) compared to before the pandemic (19.4%). A group visit with family and friends to an urban park before the pandemic was the top

choice as a social, recreational activity. However, during a pandemic, gathering activities were limited so that the percentage of choices of visiting with family and friends decreased, on the contrary, visiting with a partner rose 4.1%, and visiting alone rose 4.2%.

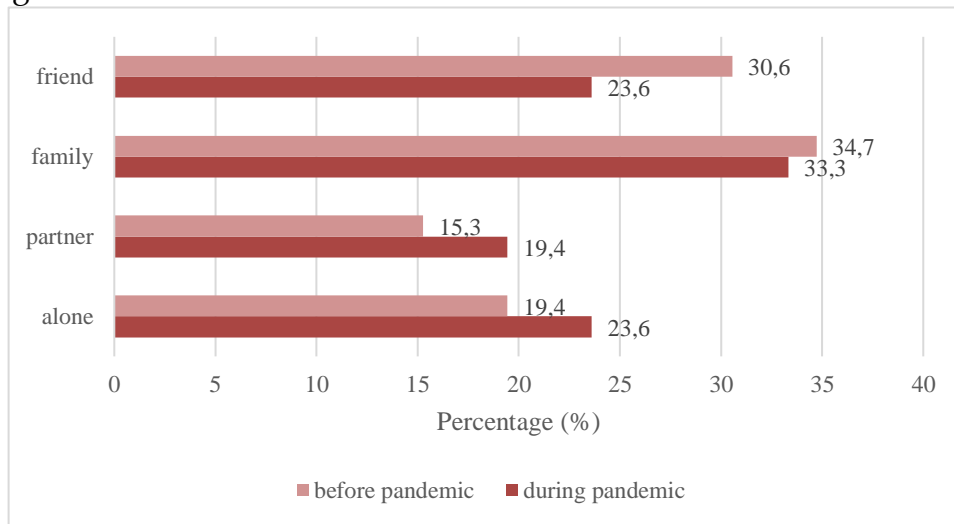


Figure 11. Partner of visiting before and during pandemic.

3.2.6. Transportation

Several alternative modes of transportation to urban parks are urban transportation, private transportation, and walking. Private transportation was the most preferred choice for respondents both before the pandemic (76.4%) and increasing during the pandemic (81.9%). Meanwhile, the choice of using urban transportation and walking decreased during the pandemic. Before the pandemic, the Indonesian people preferred to use private transportation because they felt it was more comfortable and safer than using urban transportation, with the pandemic the desire to use urban transportation has decreased because it is considered unsafe (difficult to keep distance from other people, poor air circulation), enlarge possibility of contracting the virus. Some urban transportation is even banned or restricted in their operations.

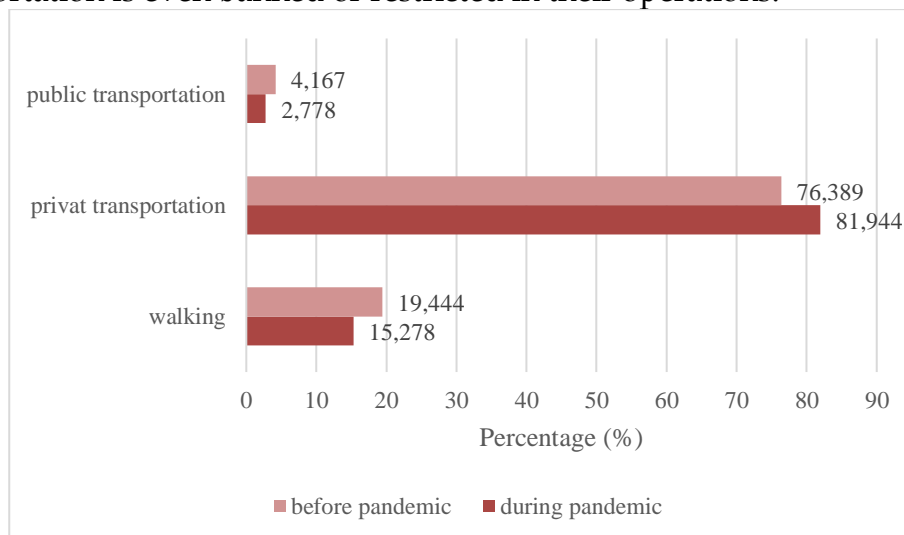


Figure 12. Transportation preference before and during pandemic.

3.2.7. Type of activities in urban parks

Activities that can be done in urban parks include exercising, playing, eating/drinking, studying, and just breathing fresh air. Get fresh air was the activity that most park visitors did before the pandemic (32.5%), and is increasingly popular during the pandemic (45.8%). Other activities, such as exercising, playing, eating and drinking, and studying have decreased during the pandemic. This activity may be influenced by the situation during the pandemic that forces people to stay at home, there must be a sense of boredom and there is a desire to leave the house just to breathe fresh air in a place that is considered relatively safe with good air circulation, such as in urban park.

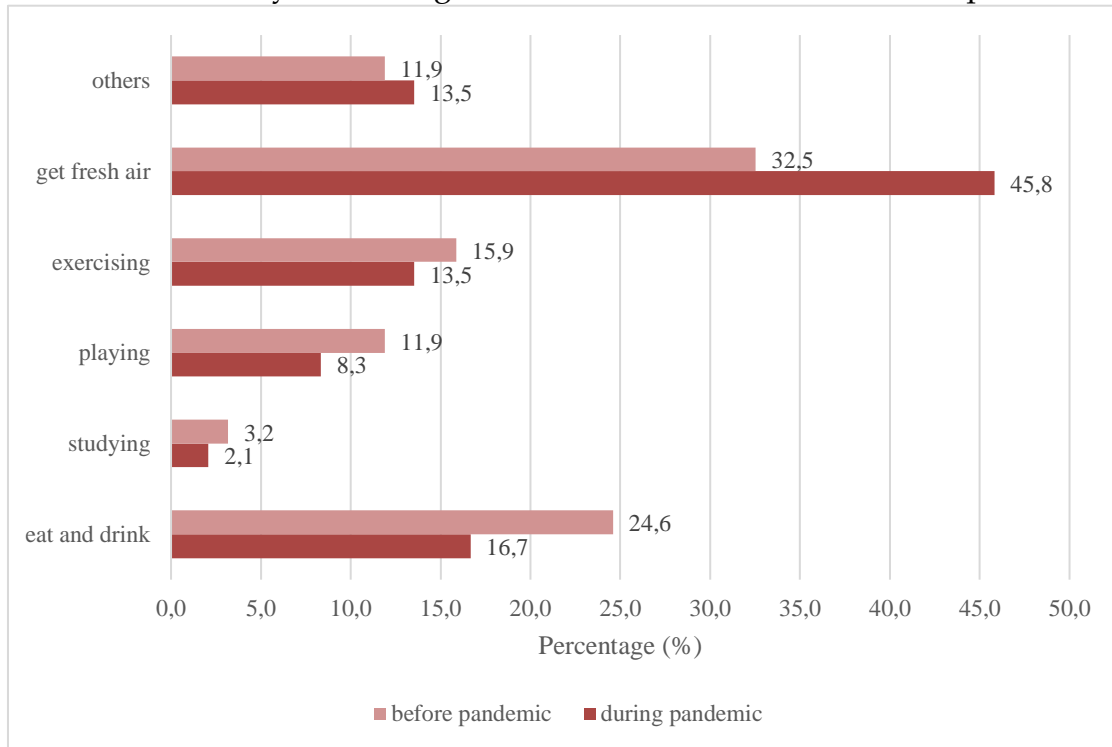


Figure 13. Type of activities in urban park before and during pandemic.

3.3. The visitor’s behavior to face the virus prevention regulations in urban parks during COVID-19 periods

There are several health protocols set by the Indonesian government for the protection of individual health as an effort to break the chain of transmission of COVID-19. Of these regulations, participants/respondents always use masks (82.4%), change clothes after activities in urban parks (62.4%), avoid crowds (58.2%), and avoid shaking hands (58.2%). Activities that have never been done are washing hands (3%) and bathing when arriving home (3%). So, based on this result, majority the visitor was supported the regulation for health protocols set by the Indonesian government.

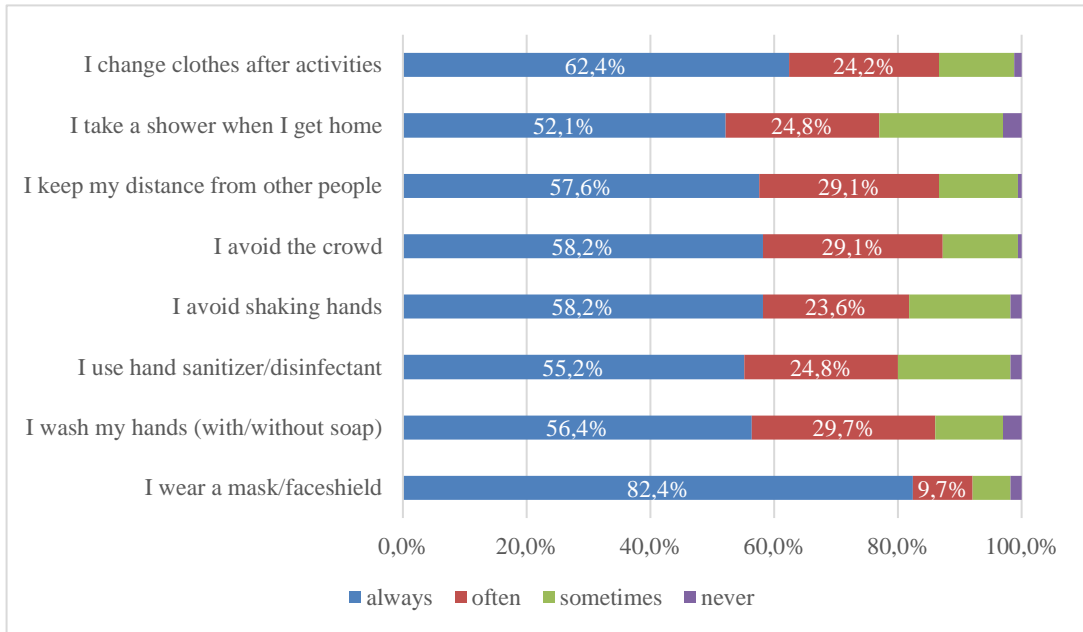


Figure 14. People behavior for urban park on COVID-19 prevention.

3.4. The role of existing facilities of urban parks for the visitor comfort during pandemic

The condition of each urban park varies greatly in terms of its supporting facilities, this affects the comfort of visitors when they come to the park, the facilities surveyed include seats, urban toilets, water/sinks, hand soap, urban buildings, and trees (vegetation). The most existing facilities in urban parks are seating areas (94%), urban buildings (73%), and urban toilets (65%). Facilities that are often not available in urban parks are hand soap (36%), even though this is important in the protocol for preventing virus transmission. The unavailability of hand soap might be influenced the number of visitations during the pandemic period which has been shown in the beginning part of this research that people chosen to not visit an urban park during the pandemic.

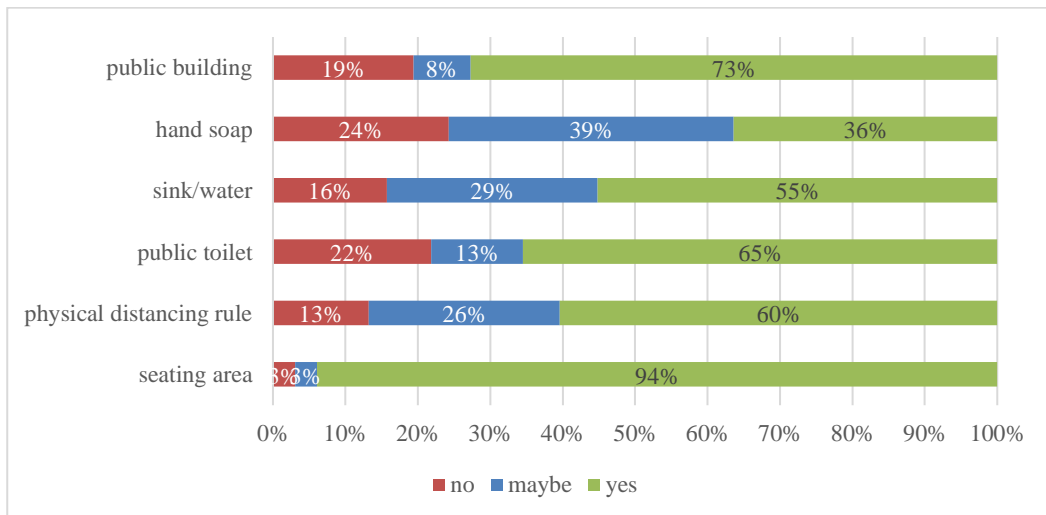


Figure 15. Existence of facilities in urban park during pandemic.

4. Conclusion

The study summarizes urban parks visitation during COVID-19 pandemic period in Indonesia through online questionnaire survey. Therefore, there are three key findings:

1) The visitor's preferences for visiting urban parks during the COVID-19 pandemic. Results show that people chosen to not visit an urban park during the pandemic (56.3%). Based on gender, the results of the correspondence analysis show that women tend to choose not to go to the park than men. Meanwhile, based on the age group category, adolescent (ages 11-20 years) tends to go to urban park, and vice versa, the early old age (aged 61-75 years) tends to not to go to urban park during a pandemic.

2) Majority the visitor was supported the regulation of health protocols set by the Indonesian government. Participants always use masks (82.4%), change clothes after activities in urban parks (62.4%), avoid crowds (58.2%), and avoid shaking hands (58.2%). Activities that have rarely been done are washing hands (3%) and bathing when arriving home (3%).

3) Facilities that are often not available in urban parks are hand soap (36%), even though this is important in the protocol for preventing virus transmission. The unavailability of hand soap might be influenced the number of visitations during the pandemic period which has been shown in the beginning part of this research that people chosen to not visit an urban park during the pandemic.

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