The Importance of Park for Health Benefit in DKI Jakarta

S Y Andari¹, B Sulistyantara², I S Fatimah²
¹ Graduate Student of Landscape Architecture, Department of Landscape Architecture, Faculty of Agriculture, IPB University (Bogor Agricultural University), Jl. Meranti Kampus IPB Darmaga, Bogor 16680, Jawa Barat, Indonesia.
² Lecturer of Department of Landscape Architecture, Faculty of Agriculture, IPB University (Bogor Agricultural University), Jl. Meranti Kampus IPB Darmaga, Bogor 16680, Jawa Barat, Indonesia.
E-mail: sandraandari21@gmail.com; bbsulistyantara@yahoo.co.id

Abstract. DKI Jakarta is a province with the highest population density (82,632 people per km² in 2018). Jakarta can also be said to be the busiest province in Indonesia because it is the center of the Indonesian economy. High-intensity activities in the middle of the city can cause stress and other health problems. These problems can be overcome by using the park. Park can be useful for solving health problems by providing places for physical activities and other outdoor activities that can help alleviate health problems. This study aims to understand the importance of the park for people health in DKI Jakarta and the relationship with the frequency of park visits. The study area consists of 10 urban parks located in 5 cities in DKI Jakarta. The number of respondents taken was 300 people divided into 30 people in each park. This study found that the proximity of the park to residence cannot be the main reason why they visit the park. Other factors which can affect frequency of park visits was the reason of visits. The visitors who live far from parks want to visit the park because there were lots of shady trees so they thought it’s nice and comfortable to just sit and relax. Moreover, frequency of park visits can be beneficial for visitors’ health, especially increasing stamina, being more relaxed, and strengthen relationships with family or friends. Visiting and doing activities in the park at least once a week could provide greater benefits to the physical and social aspects of visitors than the psychological aspects. This meant that psychological benefits could be perceived even though not visiting the park once a week.

Keywords: frequency of visits, health benefits, reason of visits

1. Introduction

DKI Jakarta is one of the cities that has given more attention to the development of public parks. On the other hand, DKI Jakarta is a province with the highest population density [1]. Jakarta can be said to be the busiest province in Indonesia because it is the center of the Indonesian economy. High-intensity activity in the middle of the city can cause stress. This can be seen from the results of the Zipjet research related to the topic "The 2017 Global Least and Most Stressful Cities Ranking" which states that Jakarta is included in one of the most stressful city in the world [2]. Besides, social problems such as apathy towards the environment and the existence of socio-economic disparities are problems that arise among people in big cities like Jakarta. These problems can be overcome by using the park. Urban parks are open areas dominated by vegetation and air, and are intended for public users [3]. Parks offer opportunities for people to connect with nature, engage in physical activity, find places not far from the city, spend time with family and friends [4]. If seen from the opportunities, park can
be useful for solving health problems by providing places for physical activities and other outdoor activities that can help alleviate health problems.

However, the level of community interest in the park varies. This can be caused by external or internal factors so that some people like to visit the park frequently, but the others not. Environmental factors and individual factors are related to park use, but individual factors, especially attitudes towards park visits, play an important role in determining the actual use of parks [5]. Attitudes toward park visits can be seen from the frequency of park visits. Each person has a different frequency of visits to the park. The purpose of this study was to know the importance of the park for people health in DKI Jakarta and the relationship with the frequency of park visits.

2. Methods

2.1 Time and Location

The research was conducted for six months from February until July 2019. Research was held in 10 urban parks located in 5 cities in DKI Jakarta, i.e. the cities of Central Jakarta, South Jakarta, East Jakarta, West Jakarta and North Jakarta (Figure 1).

![Figure 1 Location of study sites](image)

2.2 Data types and collection methods

This research used a survey method by using questionnaires. The selection of research samples used purposive sampling technique. Respondents were selected based on the type of visitors, i.e. active visitors and passive visitors. Active visitors were visitors who do physical activities in the park such as jogging and playing basketball, while passive visitors were visitors who just relax and gather with their groups. The selection of park samples for each city was also carried out by considering several indicators, i.e. the level of manager, type of park, and function of the park. Respondents were chosen on weekends and non-working hours with 30 respondents per park. Data needed for this study was frequency of park visits, the proximity of the park to residence, and perceived health benefit (physical, psychological, and social).
2.3 Data analysis

Descriptive statistical analysis was used to interpret the characteristics of respondents, the frequency of park visits, the proximity of the park to residence, perceived health benefit (physical, psychological, and social). The data obtained was then processed and interpreted in the form of graphs or tables. The assessment of park benefits used a Likert scale, then the average obtained was categorized into 4 categories as in Table 1.

| Scale          | Category      |
|----------------|---------------|
| 1 – 1.75       | Very low      |
| 1.76 – 2.50    | Low           |
| 2.51 – 3.25    | Moderate      |
| 3.26 – 4.00    | High          |

Chi-square test was used to see the relation between perceived health benefits and frequency of park visits. To find out how much the effect between variables can be directly seen from $p$ value which was used to see if the independent variable affects the dependent variable significantly or not. If $p$ value < 0.05, it means the independent variable affects the dependent variable significantly, vice versa. Dependent variable used in this analysis was perceived physical and psychological health benefits, while independent variable was frequency of park visits.

Correlation analysis was conducted to see the correlation between the frequency of visits to the park and the proximity of the park to residence. To find out how much the effect between variables can be directly seen from $p$ value which was used to see if both variables correlate significantly or not. If $p$ value < 0.05, it means both variables correlate significantly, vice versa. Correlation values range from 0 to 1, where if 0 indicates no correlation between variables, whereas if 1 indicates that the correlation between variables is perfect.

3. Results and Discussion

3.1 The Characteristic of Parks’ Visitors

| Table 2 Overall socio-demographic characteristics |
|-----------------------------------------------|
| Characteristics | DKI Jakarta | Characteristics | DKI Jakarta |
| Number (person) | Percentage (%) | Gender          | Number (person) | Percentage (%)  |
| Age              |              |                 |               |                |
| Children         | 1            | 0,33            | Female        | 160           | 53.33       |
| Adolescent       | 138          | 46,00           | Male          | 140           | 46.67       |
| Adult            | 131          | 43,67           | Occupation    |               |             |
| Elderly          | 30           | 10,00           | BUMN employee | 2             | 0,44        |
| Education        |              |                 | Contract workers | 1       | 0,22        |
| Elementary School| 27           | 6,00            | Entrepreneurship | 53      | 11,78       |
| Junior High School| 43         | 9,56            | Government employees | 18     | 4,00        |
| Senior High School| 237         | 52,67           | Household assistant | 4      | 0,89        |
| Diploma          | 35           | 7,78            | Housewife     | 60           | 13,33       |
| Bachelor         | 97           | 21,56           | Job seekers   | 1            | 0,22        |
| Master           | 8            | 1,78            | Labor         | 4            | 0,89        |
| Doctoral         | 1            | 0,22            | Private employees | 186    | 41,33       |
Total Respondents of this study were 300 people. Number of respondents in this study were female (53.33%; n = 160) and male (46.67%; n = 140) with the greatest number of respondents were adolescent (46.00%; n = 138), followed by adult (43.67%; n = 131), and the least number of respondents were children (9.33%; n = 1). Most respondents have a senior high school education background (52.67%; n = 237), then followed by a Bachelor's educational background (21.56%; n = 97) and a junior high school education background (9.56%; n = 43). About 41.33% (n = 186) of respondents were private employee, and 25.56% (n = 115) were student.

3.2 Frequency of Park Visits
The frequency of park visits showed how often people visit parks in Jakarta. The frequency of visits to the park was categorized into 6 categories, i.e every day, more than 1 time every week, 1 time every week, 1-3 times every month, more than 1 time every year, and the first time. This study found that 30% of total respondents visited the park once a week. This finding is in line with other study which state that most respondents visited green open spaces at least once a week for physical and social activities. Visiting the park regularly at least once a week can provide health benefits for visitors [6]. The chance of achieving the recommended amount of physical activity is more than four times greater for people visiting green open spaces once a week compared to never going [7]. Achieving the recommended amount of physical activity will give many positive impact on health.

Figure 2 Frequency of Park Visits in DKI Jakarta

3.3 Perceived Health Benefits
Health according to the World Health Organization is a prosperous state of physical, psychological, and social, so that people are not only free from disease or disability [8]. If seen from the definition of health, the benefits of parks for public health can be divided into physical, psychological, and social benefits. Health benefits in this study were classified into 13 benefits which consists of 5 physical benefits, 5 psychological benefits, and 3 social benefits. Figure 3 showed that all benefits belong to the medium category, except ideal body weight and meeting new friends which were classified as low category. There was no benefits classified as high category (strongly perceived by visitors). It showed that the perceived benefits were not maximal yet.

This study found that parks in DKI Jakarta can provide greater benefits to the psychological health of visitors, i.e feeling happier, more relaxed, alleviate stress, increasing self-confidence, and improving sleep quality. From all those perceived benefits, more relaxed was more perceived by visitors than other psychological benefits. This result is in line with
previous study which stated that residents consider parks to provide mental benefits where they like to enjoy the natural scenery in the park and consider the park as a good place for relaxation [9]. Other study also states that physical activity in the natural environment is associated with improved mental health than physical activity in other environments. Park visits gave positive response on mental health, such as improving self-confidence and mood recovery [10]. Previous study states that physical activity and interactions with nature in the park are significantly correlated with several mental health benefits [11].

This study also found that the perceived physical benefits were controlled blood pressure, better breathing, better motor movement, and increasing stamina. From all those perceived benefits, increasing stamina was more perceived by visitors. Moreover, the perceived social benefits were strengthen relationships with family or friends and meet the community. From both benefits, strengthen relationships with family or friends was more perceived by visitors. Previous study states that parks provide opportunities for social interaction where people can interact with people of the same age and status and develop social connections that have the potential to foster social support. Interaction in groups also helps older people spend leisure time happily. This can help improve psychological well-being as an important aspect of perceived health [12].

![Health benefits diagram](image)

**Figure 3** Benefits of Park in DKI Jakarta

### 3.4 Frequency of Park Visits and The Characteristic of Parks’ Visitors in DKI Jakarta

The frequency of visits could be related to the socio-demographic of visitors (age, gender, and parks’ proximity). Based on Table 3, adult visitors more often visit the park once a week than children, adolescents, and elderly visitors. Male visitors also visit the park more often than women, especially those who visit the park once a week (49 people). This result is in line with previous study which states that older visitors tend to visit the park more often than the younger ones [13].

This study found that the highest number of visitors was those who lived more than 1000 m from the park and visited the park once a week (58 people). Correlation coefficient value between the frequency of visits and the proximity of the park to residence obtained by 0.282 which means the two variables have a weak and unidirectional relationship. This shows that the farther the park is, the higher the frequency of visits. This finding showed that park’s proximity is not the main reason for people to visit the park.
This result is in line with previous study which found that the frequency of park visits was not related to the quantity of community parks that were measured objectively. The study counted the number of parks with a distance of ≤ 300 m, 300-1000 m, and ≥ 1000 m and found that the frequency of visits is not related to the quantity of green space at a certain distance, but is related to the visitor's perception of the quality of green space. About 80% of adolescents in the Netherlands live 1000 m from the nearest park, but they can ride bikes more than 1000 m to visit the park [6]. But, This result is inversely proportional to previous studies which stated that the respondents who lived near the park more often visited the park [14].

**Table 3** Visitor Characteristic Based on Frequency of Park Visits

| Characteristics | Frequency of Park Visits | Chi-square (sig.) |
|-----------------|-------------------------|-------------------|
|                 | The first time | More than once per year | 1 - 3 times per month | Once a week | More than once per week | Daily |
| Age             | | | | | | |
| Children        | 0 | 0 | 0 | 1 | 0 | 0,001 |
| Adolescent      | 18 | 40 | 28 | 35 | 25 | 6 |
| Adult           | 10 | 22 | 25 | 42* | 15 | 5 |
| Elderly         | 1 | 3 | 7 | 9 | 1 | 7 |
| Gender          | | | | | | |
| Female          | 17 | 46 | 34 | 37 | 19 | 7 | 0,011 |
| Male            | 12 | 19 | 26 | 49* | 23 | 11 |
| Park's Proximity| | | | | | |
| 0 - 250 m       | 2 | 1 | 0 | 7 | 7 | 5 |
| 250 - 500 m     | 0 | 7 | 3 | 9 | 4 | 1 | 0,000 |
| 500 - 1000 m    | 3 | 2 | 12 | 12 | 11 | 4 |
| More than 1000 m| 24 | 55 | 45 | 58* | 20 | 8 |

Note: * The highest number

This study also found that there were other factors that can affect park visits even though the park was quite far away, i.e the reason of visits. Visitors who lived close to the park visit the park because it was close to the park, but visitors who lived far from the park still want to visit the park because there were lots of shady trees so they thought it's nice and comfortable to just sit and relax. Other than that, most respondents who lived far from park (more than 1000 m) still visit the parks also because lots of sport facilities and beautiful scenery (Figure 4). The proximity of the park to residence was also found to have significant correlation with the reason of visit (sig. < 0,01).
3.5 Frequency of Park Visits and Perceived Health Benefits

The benefits of parks were found to have a correlation with the frequency of park visits. This study found that the highest number of active visitors with the frequency of visits once a week and the highest average value of physical benefits was taken place in Menteng Park. The frequency of park visits has a significant relationship (sig. <0.01) with physical benefits for visitors, i.e. getting ideal body weight, smoother breathing, increasing stamina, controlling blood pressure, and smooth motor motion. This is in line with the results of other studies which states that the amount of physical activity that is good for health can be achieved by visiting the park once every week [7].

The relationship between physical benefits and the percentage of active visitor was also supported by a correlation coefficient of 0.660, which means the relationship between variables is strong and unidirectional with a significance value of 0.000 (sig. <0.01). This showed that the more active a person does activities/sports in the park, the greater the benefits that can be perceived for physical health. This result is in line with the results of previous studies which stated that respondents who did more physical activity had better physical health and became less sick, both physically and psychologically [15].

This study also found that there was a significant relationship (sig. <0.01) between the frequency of park visits with psychological benefits, i.e increasing self-confidence, happier, and improving sleep quality. The frequency of park visits also has a significant relationship (sig. <0.05) with psychological benefits, i.e more relaxed and alleviate stress. However, the relationship between frequency of park visits and psychological benefits (0.298) was weaker than physical (0.375) and social benefits (0.355). This can be seen from Table 4 where the highest average psychological benefit was taken place in Wijaya Kusuma Park, while the frequency of visits and the percentage of active visitors at that park was quite low. This was because psychological benefits were more influenced by visitor perceptions than by frequency of park visits, so that the frequency of park visits cannot be used as a determining factor for psychological benefits. Moreover, the highest perceived social benefits were also taken place in Menteng Park. Based on the results of statistical analysis, frequency of park visits also has a significant relationship (sig. <0.01) with the perceived social benefits, i.e to strengthen relationships with family or friends, meet various communities, and make new friends.
Table 4 Health Benefits of Parks and Other Affecting Factors

| Parks             | F (%)  | A (%) | Physical benefit | Psychological benefit | Social benefit |
|-------------------|--------|-------|------------------|-----------------------|---------------|
| Menteng Park      | 20.00* | 20.93*| 3.05*            | 3.05                  | 3.29*         |
| Jogging Park      | 6.67   | 13.95 | 3.04             | 3.01                  | 2.59          |
| Wijaya Kusuma Park| 7.78   | 12.79 | 2.76             | 3.45*                 | 3.25          |
| Waduk Pluit Park  | 10.00  | 10.47 | 2.73             | 3.07                  | 3.06          |
| Tebet Park        | 5.56   | 9.30  | 2.70             | 3.08                  | 2.84          |
| Suropati Park     | 6.67   | 4.65  | 2.69             | 3.09                  | 3.12          |
| Ria Rio Park      | 15.56  | 3.49  | 2.65             | 3.25                  | 2.79          |
| Cattleya Park     | 5.56   | 8.14  | 2.54             | 3.08                  | 2.69          |
| Langsat Park      | 12.22  | 9.30  | 2.54             | 3.10                  | 2.74          |
| Bambu Park        | 10.00  | 6.98  | 2.51             | 2.99                  | 2.89          |

Note: * the ; F = Once a week frequency; A = percentage of active visitor

4 Conclusion

Based on this study, it was found that most visitors come to the park once a week. This result showed that adult visitors visited the park once a week more often than children, adolescents, and elderly visitors. Male visitors also visited the park more often than women, especially those who visit the park once a week. The findings from this study was a bit different from most previous study which stated that the closer the park, then the higher frequency of park visits. This study found that the closeness of the park to residence cannot be the main reason why they visit the park. Other factors which can affect frequency of park visits was the reason of visits. This study found that visitors who lived far from parks want to visit the park because there were lots of shady trees so they thought it’s nice and comfortable to just sit and relax. The findings about the benefits of parks from this study were frequency of park visits were beneficial for visitors’ health, especially increasing stamina, being more relaxed, and strengthen relationships with family or friends. Visiting and doing activities in the park at least once a week could provide greater benefits to the physical and social aspects of visitors than the psychological aspects. This meant that psychological benefits could be perceived even though not visiting the park once a week.

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