

# Neighborhood Park Visit Impacted Psychological Health in Reducing Stress

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## Abstract

This study examines the relationship between residents' stress levels with their participation at the neighborhood park in Petaling Jaya. The information on stress level and neighborhood park usage pattern proceed by distributing a questionnaire survey set. The outcome of this study identifies the connection of stress result with the usage pattern at the neighborhood park. Future research is recommended to have more than one case study with different demographic pattern backgrounds to enhance the residents' mental wellbeing by better planning neighborhood parks as a stress reliever.

Keywords: Neighbourhood park; stress; preliminary study

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## 1.0 Introduction

People experience mental health problems, especially stress, which is increasing daily with other mental issues such as depression, anxiety, and tension. Some of these problems are interrelated to each other; for instance, a continuously unpleasant emotional from anxiety will lead to depression. Perhaps, the development of depression itself can be more severe if a person experiencing uncontrolled stress. According to the Institute of Public Health (2020), the number of depression among adults in Malaysia is 2.3%, estimated at half a million people has reported in National Health and Morbidity Survey 2019. They have mainly come from the B40 background with 2.7%, M40 with 1.7%, and T20 only 0.7%. Certain symptoms specified to the stress, including depressed mood, lack of interest and enjoyment feelings, lack concentration, low self-esteem, having thoughts to self-harm or suicide, insomnia, and loss of appetite. A report from The Healthy Mind Service program in 2014 has indicated 11.2% out of 243,025 participants were identified as facing the signs of stress. As the pandemic affects worldwide, individuals can be impacted by stress and affect the quality of life.

By participating in physical activities and direct connection with the green environment, stress levels can be improvised. Stress among laborers, children (Louv, 2005), and even the elderly can be overcome through green space available in our ecosystem (Sister et al., 2010). Conversely, Blanco et al. (2009) explained that people's living condition is at an unsatisfactory level. The surrounding is gradually congested and polluted, and the importance of having a green area has been vastly ignored. Not every individual can afford to live in a decent environment, especially in residential areas that provide appropriate green space for leisure.

The stress can worsen as we are most committed to unhealthy lifestyles such as uncontrolled food intake and likely to spend more time indoors. There is evidence of spending time in the natural environment area at the neighborhood that provides benefits to the users in physical, mental, and improved social interaction (Mansor et al., 2010). According to Ishak et al. (2018), the stress level can be lowered by having interaction at neighborhood parks based on how the users perceived it. To overcome unhealthy lifestyles, ample time spent at natural space such as parks need to be provided within the neighborhood area's radius. Users' preferences and reactions towards neighborhood parks can vary depending on the park itself to reduce the stress.

Therefore, this study aims to identify the connection of stress result with the usage pattern at Taman Aman Park located in Petaling Jaya, Selangor. The objectives are to describe the related demographic data with the usage pattern in reducing stress level at the case study.

## 2.0 Literature Review

Neighborhood park is one of the expansions of green space for recreational space. According to the Malaysian Department of Town and Country Planning, the neighborhood park's placement is contained by the residential area. The park can engage 3,000 up to

12,000 users by providing recreational activities such as a playground, outdoor gym, toilet facilities, badminton/basketball court, picnic area, and walking path. Even though the utilization of parks can be differ based on demographic factors, usually, neighborhood parks can accommodate the recreation needs of various ages in the community/residential area for physical activities (Cohen et al., 2018). However, consideration of users' preference for recreational demands needs to identify or maximize neighborhood parks (Anuar & Muhamadan, 2018). For example, a quality neighborhood park can be recognized by the park's location with the users' house. The shorter the distance, the more the neighborhood park (Malek et al., 2012). A study done by Dunton et al. (2014) identified that park distance in the radius of 500 meters from the house indicated a constructive response on prolonged park visits among children. The other features, including passive and active facilities, have to be in excellent condition to provide users' satisfaction to visit (Anuar & Muhamadan, 2018). The neighborhood parks give spaces for physical activities and bring therapeutic effects to the users. Having a lower number of green spaces in neighborhood areas can advocates mental and physical problems. Thus, unhealthy lifestyles can arise among the residents (Thompson et al., 2012). Research done by Ishak et al. (2018) recommended criteria such as planning at the early stage, suitable location, the accessibility to the park, safety for children and women, and landscape elements that need to look into to have a quality neighborhood park for relieving the stress.

Residents that live away from an urban area have less income, and especially women facing obstacles on accessibility to the park (Wendel et al., 2012). A suggestion from Healthy Spaces and Places (2009) stated where the green area should be linked to the center of a neighborhood that involved retails building, community-related spaces, and housing areas with fewer residents for better safety. The natural elements, including fresh air and green surroundings, can create a calm feeling directed to ease the mind from stressful events (Moulay & Ujang, 2016; Ujang et al., 2015). Thompson et al. (2012) identified the neighborhood associated with perceiving the stress among residents has a higher quantity of green areas. The elements of water and natural sound from birds and insects provide the effects to ease the stress in the elderly. Green space planning and design have to meet the residents' preference to bring their interest in visiting the neighborhood parks (Othman & Fadzil, 2015).

According to a review by Buckley & Brough (2017), studies on the link of parks and mental health or psychological wellbeing have included various cognitive, emotional, and behavioral outcomes such as changes in attention, attitudes, stress, anxiety, depression, a ruse of antidepressants, stress recovery, sleep, and life satisfaction. Based on this research, compelling evidence has supported parks' positive link towards an individual's mental health. Different pathways for this association have been proposed, particularly those with different socio-demographic backgrounds (Zhou et al., 2020). Of note, a qualitative study by Swierad et al. (2018) has identified that parks fulfill the basic need of human connectedness towards the (1) family, loved ones, and friends, (2) community and neighborhood, (3) self and (4) nature. Notably, the presence of social connection is associated with lower stress which in turn improves overall mental. On the contrary, social

isolation is associated with increase depressive symptoms and mortality (Martino et al., 2017). This shows that while neighborhood parks may be perceived by the public primarily for physical activities, they may also fulfill certain human psychological needs.

Both psychological and physiological studies have supported the association between parks and mental health or psychological wellbeing. Various studies have done in previous and more current years shown the evidence of physiological effects on mental health in treating stress (Hedblom et al., 2019; Hystad & Cusack, 2019). The prove of neighborhood park's influence on psychological effects can be referred from the acknowledged theories from Kaplan & Kaplan (1989) on attention restoration theory (ART) and Ulrich et al. (1991) with the stress reduction theory (SRT). The peaceful and mesmerizing feelings create the spontaneous attention that makes an individual less concentrate on other matters resulted from the visit to a setting like neighborhood parks as claimed by ART. In comparison, SRT implies natural environments, for instance, neighborhood parks that encourage advanced feedback and supply mental calming effects by cuts the negative emotions. Both theories were grounded by the Biophilia hypothesis (Kellert and Wilson, 1993) that highlights the evolutionary perspective that human beings are predisposed to be attracted and adapt to natural environments.

### 3.0 Methodology

To achieve this study's aim, a suitable neighborhood park for the case study needs to run through an essential identification and justification phase. Taman Aman Park (3° 6' 10.2564" N, 101° 37' 31.9872" E) is selected as a case study located in Petaling Jaya district at Selangor by referring to neighborhood park criteria. Taman Aman Park is advantageous for the residents as it is centralized with few housing areas, schools, and commercial areas. This park's size between 2 to 7.9 hectares and has regular maintenance under Petaling Jaya City Council. Landscape features in Taman Aman Park involve the hardscape and the softscape.

The elements provided various physical activities from 1.3 kilometers walking trails, children's playground, spacious toilets at the entrance, parkour, and few multipurpose courts. The natural setting, such as the abundance of big trees, a large lake, and plenty of benches and fresh air, attracts the residents to participate in the cardio activities. Moreover, Taman Aman Park's significance is by introducing braille tiles and tactile, ramp for wheelchair or mother with prams users, and an integrated playground as barrier-free facilities by Landscape Department from Petaling Jaya City Council. After the case study observation, questionnaire surveys gathered the residents' information as the respondents to this study. The questionnaire survey was aiming to identify the stress level and existing condition of Taman Aman Park. Figure 1 shows the setting of Taman Aman Park.

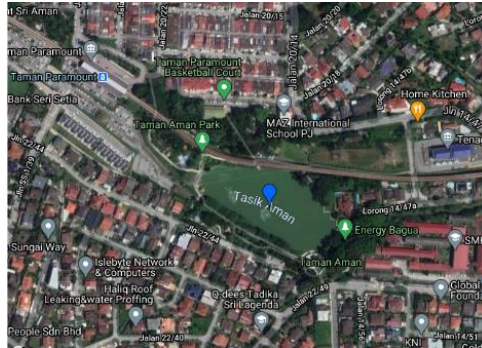


Figure 1: Taman Aman Park site context  
(Source: Google Image 2021)

## 4.0 Results

### 4.1 Demographic background

A number of n=30 questionnaires have returned from the survey held at Taman Aman Park. This process is to identify the association of stress result with the elements at the neighborhood park. The questionnaire's construction included demographic questions and use patterns based on the literature review, discussions, and meeting with supervisors and professionals. Besides that, layman's words in the questionnaire convey good communication for the park users to understand more. The questionnaires are derived from adapting and adopting methods from pre-existing questionnaires, for instance, the usage of the Perceived Stress Scale (PSS) as a part of the questions to surge the validity. The set of the questionnaire consists of four sections. The first section is related to respondents' demographic background—the data resulting in preparing a neighborhood park based on the needs. Table 1 shows the reviews in detail on the demographic background of Taman Aman Park users.

Table 1: Taman Aman Park respondents' demographic data

Characteristic		Frequency (n)	Percentage (%)
Gender	Male	18	60
	Female	12	40
Age	Below 12	3	9.9
	13 – 18	10	33.3
	19-40	9	29.7
	41-59	4	13.2
	above 60	4	13.2

Religion	Islam	8	26.4
	Buddhism	10	33.3
	Christian	7	23.1
	Hinduism	4	13.2
	Others	1	3.3
Race	Malay	8	26.4
	Chinese	16	53.3
	Indian	5	16.5
	Others	1	3.3
Employment status	Employed	6	19.8
	Unemployed	1	3.3
	Student	19	63.3
	Housewife	2	6.6
	Retired	2	6.6
Health status	Diabetes	2	6.6
	Hypertension	0	0
	Heart disease	1	3.3
	Asthma	1	3.3
	No	26	86.7
Disability	Yes	1	3.3
	No	29	96.7

(Source: Authors)

Males have dominated more than half on the participation of neighborhood parks more than women with 60%. This finding is supported by Derose et al. (2018), whereby women visitors were nearly 0.3 times fewer than men and spent time in the parks 11 minutes less than men per visit. Cohen et al. (2007) explained that more males used the parks than females, where males were twice more active than females at the parks. The women's visit frequency can be related to parks as places for them to share specific cultural activities with their children, family members, and friends. They are portrayed as the saviors of ethnic traditions (Ho et al., 2005).

People aged from 19 until above 60 years old were the most likely to visit the parks and the age 13 until 18 years old with 33.3% is the highest visitor. While the least use parks were children younger than 12 years old with only 9.9%. The result was supported by Kaczynski et al. (2012), where more adults visit the parks compared to children or youth as many middle-school children tended to make little use of parks (Loukaitou-Sideris & Sideris, 2009).

Also, the low interest in existing park activities lay in some key factors such as time, family members unable to accompany, and safety issues. More active recreation facilities and an organized variety of sports curriculum should be provided to gain their interest. Moreover, the specifics on natural landscapes such as attractive, well-maintained, and clean areas are the most important factors to draw middle-school children's attention to the parks.

The Chinese ethnicity dominated park visits with 53.3%, followed by the other ethnic minority in Malaysia, namely the Malay (26.4%), Indians (16.5%), and others (3.3%).

Hence, it is related to the percentage of Buddhist users with 33.3%. This shows a significant relationship between park visitation and the location of populations where fewer visit rates depended on the geographical factor. For example, strong relations on a particular area, park locations, unbalanced population, and the absence of geography were observed (Weber & Sultana, 2013). Derose et al. (2015) agreed on the dissimilarities between park usage and physical activity levels among race-ethnic groups that correlate to park visits' consistency.

Students dominate most park users with a 63.3% rate of visits for the employment status. Respondents show an excellent health record, and only one individual is disabled during the survey taken. However, the result showed many residents free from health problems (86.7%) and disabilities (96.7%), the needs from the minor percentage of residents to received attention. Plenty of studies have been done on inclusive outdoor recreation, yet studies have been scarce on recreation services and facilities accessible to disabled people. According to Smith et al. (2001), people with a poor health condition, injury, or disability are always repeatedly cited as a constraint for them to participate in outdoor activities. The leisure connection is a critical aspect of the human experience to create an inclusive recreation prospect for people with a disability.

#### **4.2 Stress level**

For this section, the adoption of the Perceived Stress Scale (PSS) was used broadly as a psychological self-reported instrument to measure the perception of stress. Besides that, each item is constructed to identify respondents' assessment of their lives, whether unpredictable, uncontrollable, and overloaded. Individual scores on the PSS can range from 0 to 40, with higher scores indicating higher perceived stress. Indication scores from 0 to 13 are considered as low stress. Scores ranging from 14 to 26 are regarded as moderate stress. Lastly, scores ranging from 27 to 40 are considered as high perceived stress.

As stated by Cohen et al. (1983), the validity on the higher perceived stress in PSS scores proven by the individual that afflicted by lack of motivation in quitting smoking, a diabetic patient with uncontrolled blood sugar levels, acquaintance with overwhelmed stressful life that related to depression and frequently caught a cold. The majority of the respondents experienced a moderate level of stress, with a percentage of 93.3%, followed by 6.7% with low stress, and none of the participants shows with high perceived stress level.

#### **4.3 Usage pattern score**

The questionnaire's third section evaluates the residents' usage pattern at Taman Aman Park. In the descriptive analysis, the authors measured the scale and analyzed the statements relating to the residents' satisfaction variables. As a part of the study, the data gathered were analyzed using the SPSS statistical package program. The respondents went to the park to hang out with friends from the table with a percentage of 60%. The majority of respondents (46.2%) visited the park three to five times a month, and the most

frequent visiting time was in the evening with 56.1%. Most of the respondents agreed that visiting the park can reduce their stress level with a percentage of 75.9%. Regarding duration, 75.9% of respondents visited the park between 30 minutes to one hour, and 72.6% were accompanied either by their parents, guardians or require assistance to the park.

Table 2: Residents' usage pattern score

Questions	Description	Frequency (n)	Percentage (%)
What is the main reason you visit the park?	Exercise	6	19.8
	Hang out with friends	18	60
	To relax the mind	3	9.9
	Others	3	9.9
How frequently you visit the park in a month?	Less than 3 times	11	36.3
	3 to 5 times	14	46.2
	More than 5 times	5	16.5
What time of the day do you visit the park?	Morning	12	39.6
	Evening	17	56.1
	Afternoon	1	3.3
Do you think going to the park can release your stress?	Yes	23	75.9
	No	7	23.1
How long do you stay per visit?	Less than 30 mins	7	23.1
	30 mins to 1 hour	23	75.9
Are you accompanied by someone (parents/guardians/assistance) to the park?	Yes	22	72.6
	No	8	26.4

(Source: Authors)

#### 4.4 Park score

The final section identifies the residents' preferred park elements at Taman Aman Park to justify their park usage. The elements installed at the neighborhood park can be related to the way how the residents perceived it. The statements for the residents' park score shows the users being satisfied to extremely satisfied with the directional road signs in the park (46.7%); access to toilet facilities (33.3%); well-designed and maintained walking trails (36.7%); car parks and bicycle racks (50%); shaded area structure (43.3%); enjoy nature in this park (53.3%); water feature in the park (40%); and trees as a shelter at the park (46.7%). The residents reported 36.7% of their satisfaction with lighting in the park during the night. As Taman Aman Park was known as the disabled-friendly park, it shows 43.3% of satisfied level with the features that installed at the park. The highlighted percentage shown in Table 3 indicates the highest score on each park element at Taman Aman Park.



Table 3: Taman Aman Park respondents' park score

		Likert-scale						
		0	1	2	3	4		
		Very not satisfied	Not satisfied	No experience	Satisfied	Extremely satisfied		
No	Park elements	0	1	2	3	4	Mean	Std. Deviation
		Percentage %						
1	Useful directional road signs in the park	6.7	10.0	16.7	46.7	20.0	2.63	1.129
2	Access to toilet facilities	13.3	16.7	16.7	33.3	20.0	2.30	1.343
3	Well designed & maintained walking trails	10.0	10.0	10.0	36.7	33.3	2.73	1.311
4	Provided car parks and bicycle racks	6.7	3.3	10.0	50.0	30.0	3.03	1.129
5	Provided shade area structure	3.3	6.7	16.7	43.3	30.0	2.90	1.029
6	Able to enjoy nature	0	0	13.3	33.3	53.3	3.40	.724
7	Water feature	10.0	10.0	10.0	30.0	40.0	2.80	1.349
8	Trees as a shelter	3.3	3.3	26.7	20.0	46.7	3.03	1.098
9	Good lighting	3.3	6.7	20.0	36.7	33.3	2.90	1.062
10	Accessible features for people with disabilities, children, and seniors	0	16.7	16.7	43.3	23.3	2.83	1.085

(Source: Authors)

## 5.0 Discussion

Spearman's Rho correlation analysis showed a significant correlation between gender and usage patterns of the neighborhood parks ( $r = -.103, p < .05$ ). Gender was the only variable that had a substantial relationship with the park's perception that consisted of the reasons for visiting, frequency of park visits, time of visiting, visiting parks to release stress, visiting duration, and accompanied visiting. It happened due to particular preferences among gender concerning how and why they used the park (Ho et al., 2005; Cohen et al., 2007; Thompson et al., 2012; Derose et al., 2018).

Age, religion, and health status displayed a significant relationship with stress levels. The correlations between age and stress showed a significant relationship ( $r = -.135, p < .05$ ). Therefore, age factors contributed to the level of stress (Loukaitou-Sideris & Sideris, 2009; Cohen et al., 2010; Kaczynski et al., 2012; Stanetić & Tešanović, 2013). Besides that, religion also showed a significant relationship with stress level ( $r = .132, p < .05$ ). There was a relationship between these two variables ( $r = .168, p < .05$ ). Variables of gender, race, health status and disability showed no significance with stress with an insufficient correlation strength. Even though many participants agreed that park visits could release stress, there was no significant relationship between the usage pattern and stress level in the selected neighborhood parks in Petaling Jaya. Still, the number of participants in a

moderate level of stress that need to overcome stress needs to have a better way of life by reducing their stress level, increasing the quality of life with a neighborhood park.

Nevertheless, neighborhood parks in Petaling Jaya do not achieve the quality expected by the locals. Certain criteria to establish the local Malaysian neighborhood parks according to design attributes, human needs, satisfaction criteria, preferences, needs, use patterns, gender, socio-economic status, and cultural background are needed. (Malek et al., 2012). Low neighborhood park satisfaction can directly impact the usage pattern. Therefore, the planning and design, safety, and park features have to be improved. Table 3 shows the correlation table to examine a significant correlation between the demographic variables with respondents' use patterns towards the park and the stress level.

Table 3: Spearman Rho's rank correlation table

		Gender	Age	Religion	Race	Employment Status	Health status	Disability
<b>Usage pattern</b>	Correlation Coefficient	-.103*	.010	-.054	-.047	-.063	.025	-.011
	Sig. (2-tailed)	.041	.845	.284	.350	.209	.615	.823
<b>Stress level</b>	Correlation Coefficient	.073	-.135**	.132**	.092	-.168**	-.035	.003
	Sig. (2-tailed)	.149	.008	.009	.068	.001	.485	.951

(Source: Authors)

Based on the descriptive analysis data, the respondents showed all ten items they were satisfied with. The top one was the ability to enjoy nature in the park, and the least satisfied is accessibility to the toilet at the neighborhood parks. Overall, the respondents' score on neighborhood parks ( $m=2.41$ ;  $s.d. =0.893$ ). From the result, we can summarize the usage pattern can be determined by the availability of park elements that reach the respondents' satisfaction. Tan (2016) shows a residential area that provides environmental features and quality green areas greatly impacts the neighborhood's satisfaction compared to economic or social characteristics. The nonparametric correlation using Spearman Rho's has shown the park visit accompanied by parents, friends, or caretaker has a significant relationship with park score ( $r = .415$ ,  $p <.05$ ). This result indicates the respondents rely on companionship to visit the park. The sense of safety must be one reason for them to score higher on the park elements.

A study done by Booth et al. (2012) has identified the distress can be increasing due to a lack of safety as the thought of respondents during the neighborhood visit influence their psychological effects. The limitation was applied to this study before analyzing the result. Using a self-report methodology can result in overestimating the park usage, park score, and time spent by the respondents. Following this, there is a possibility of essential data such as health status scores to be diluted. Also, the number of samples in this study was not enough to cover Petaling Jaya's population, as only one neighborhood park was considered.

## **6.0 Conclusion**

Male teenage students for social purposes dominated the usage of Taman Aman Park. The perceived stress scale score showed that the majority of respondents experienced a moderate level of stress. This stress level was affected by age, religion, and employment status. These variables need to look into for improvising the rating visit among female residents and working adults as their numbers are low. The attraction to the neighborhood park to the low percentage group of residents can be increasing by creating a more persistent evaluation every year, despite can identify the problems that occur at the park. The ignorance of the benefits provided by the green environment towards human life and the deficiency of a good design made Malaysians lose their interaction with the outdoor environment. Thus, quality neighborhood parks that match the resident needs through the usage pattern associated with reducing stress levels can increase the awareness and interaction between the resident and the outdoor environment, especially in Malaysia. These include an appropriate park setting with physical activities, better safety, and practical and sophisticated park features that can accommodate all residents' ages by considering the demographics. A good quality neighborhood park is defined as the availability of open and green spaces and visual amenities to boost the relations that benefit mental health and offer psychological advantages (Tan, 2016). Furthermore, satisfaction is based on the park's quality and not on the amount or number of parks. This shows the association between stress and mental factors that interrelates to overall health's physical activity levels (Thompson et al., 2012).

Future studies can consider discussing professionals, local authority, and government's actions in applying the universal design theory. It can ensure that barrier-free and universal type neighborhood parks can be accessible to all that give an equal opportunity to persons with disabilities. It helps to create a better resident-friendly neighborhood park in Malaysia to reduce stress levels. For the study's improvement, there is a need to compare two or more case studies regarding the geographic and demographic factors and a thorough selection of the variables. Besides that, the number of respondents needs to increase to have a more precise result. The Perceived Stress Scale (PSS) needs to develop the clinical method to test the stress level using the salivary cortisol method to avoid bias in reporting health status.

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## **Article Contribution to Related Field of Study**

This study considers whether residents' usage pattern at Taman Aman Park positively impacts stress reliever. These days, the current pandemic has worsened mental health problems worldwide. In reducing the effect, there are alternatives to fixing the harmful daily

life and having a better lifestyle. For general contribution, this study can help the residents live in a healthy environment and endorse the importance of stress control. Using neighborhood parks as the alternative medium for relieving stress among the community also increases healthier lifestyles. On top of that, this study provides the government direction, especially local authority in collaborating with other built environment professionals to create better neighborhood parks in coping with the stress problems.

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