



Does Spending Time in a Neighbourhood Park Reduce Stress? A preliminary psychological study

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Abstract

This study aims to investigate users' thoughts and experiences concerning the stress in a neighbourhood park in Petaling Jaya. A questionnaire survey is distributed to the park users' to identify their stress level and response to the neighbourhood park's current condition. The findings involved the relationship between a neighbourhood park and stress survey and stress score with park features. As a recommendation, a comparison between two different case studies in terms of geographic and demographic factors may lead to more findings in future studies in assisting the development of the neighbourhood park and promoting healthy lifestyles in reducing stress.

Keywords: Neighbourhood park; stress; preliminary study

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1.0 Introduction

These days, the mental-related problem fluctuated in alarming numbers year by year, especially stress that involves physical or emotional tension. The development of uneasy feelings and anxiety may contribute to a depressive episode over the negative pressure. An excessive amount of stress, especially chronic stress, may impact certain people to develop major depression. The latest National Health and Morbidity Survey 2019 reported that the prevalence of depression among adults aged 18 and above is 2.3%, while the prevalence of mental health problems among those aged 5 to 15 years is 7.9% (Institute of Public Health, 2020). Notably, The Malaysian Healthcare Performance Unit reported it in 2014 through a program: The Healthy Mind Service; from 243,025 individuals screened, 27,316 were diagnosed with stress symptoms. Besides that, it predicted that Malaysians would face more depression problems by 2020. Plenty of factors can be the causes of the stress in daily life with or without our caution, including a crisis on work, family, finances, health, and relationship. When the tension continues lingering strenuously, it may root to another health problem related to severe diseases, hence worsening life quality.

This problem becomes more worrying when we practice imbalanced lifestyles that spend more time indoors as our preference. In general, exploring outdoors, especially surrounded by natural settings, offers more advantages physically, emotionally, and socially (Mansor et al., 2010). The past evidence has explained the association between a neighbourhood park and stress, based on the certain

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variables affecting users' thoughts and experiences (Ishak et al., 2018). The involvement and spending time in a natural setting near the residential area is vital to health to move towards the life balance to alter the unhealthy lifestyles. Nevertheless, each of the results of spending time in a neighbourhood park to reduce stress depends on the setting. Thus this study aims to investigate users' thoughts and experiences concerning the stress at the selected neighbourhood park, Taman Aman Park in Petaling Jaya. The objectives are to determine park users' stress levels and identify whether elements in the neighbourhood park enable stress relief at the chosen site study.

2.0 Literature Review

The neighbourhood park, as a recreational park, contributes to the development of green space. The neighbourhood park is described by the Malaysian Department of Town and Country Planning as a local recreational area within the housing area. The objective of having a neighbourhood park is as a place to carry out recreational activities, sports, and social activities that can be occupied by 3,000 to 12,000 users. Despite the underutilisation and different usage patterns by other racial, ethnic, gender, and age groups, parks play an essential role in providing a suitable venue for various physical activities (Cohen et al. 2018). In line with these, neighbourhood parks must develop to consider visitors' feedback that suits their recreational needs (Anuar et al., 2018). For instance, in a study done by Malek et al. (2012), a location within a short distance from the house is a simple way to identify a quality neighbourhood park. Other aspects such as passive (for example, gazebo, benches, and picnic tables) and active (for example, sports courts, jogging tracks, integrated playground, outdoor gym, and reflexology path) facilities are also considered necessary by the park visitors (Anuar & Muhamadan, 2018). Apart from providing a space for various physical activities, neighbourhood parks can also benefit individuals' mental health. Thompson et al. (2012) indicated that with a low percentage of green areas, more health problems, and a lack of quality of life would emerge. Ishak et al. (2018) suggested that planning, location, accessibility, safety, and landscape features serve as the foundation for the residents to overcome stress by having a quality neighbourhood park.

A study by Dunton et al. (2014) found that children who live within 500 meters from the park showed positive feedback on each park visit's extended duration. Also, women with lower-income and suburban residents tended to face a more significant barrier that gives limitations for them to access the park (Wendel et al., 2012). Thus, Healthy Spaces and Places (2009) proposed a neighbourhood park that retains vegetation area links with the neighbourhood centre, including retail, community purpose areas, and low-density residential areas to obtain safer surroundings. The fresh air and natural setting can assist a sense of tranquillity that spontaneously allows people to escape from being stressed (Moulay & Ujang, 2016; Ujang et al., 2015). Thompson et al. (2012) showed that an abundant amount of green space in the neighbourhood is connected to perceived stress in the urban population. Elderlies exposed to water features and birds chirping deliver a simple bliss as a potential to relieve stress.

Furthermore, a suitable design, such as the arrangement of a natural setting, can inspire residents to visit the green area (Othman & Fadzil, 2015). While most previous studies employ subjective or self-reported measures, the reduction of physiological stress levels in parks has also been reported in more recent studies (Hedblom et al., 2019; Hystad & Cusack, 2019). A plausible explanation for the influence of neighbourhood parks on these psychological outcomes can be inferred from two well-established theories; the attention restoration theory (ART) (Kaplan & Kaplan, 1989) and the stress reduction theory (SRT) (Ulrich et al., 1991). The ART asserts that visiting places such as the neighbourhood parks offers a relaxing and fascinating experience that induces involuntary attention, thus decreasing the need to concentrate on other things. On the other hand, the SRT purports that the inclination to approach natural environments such as neighbourhood parks promotes positive affective responses and reduces emotional negativity by providing physiological relaxing effects.

3.0 Methodology

Identification and justification of a neighbourhood park are essential to achieve the aim of this study. The selection of Taman Aman Park in Petaling Jaya, Selangor, is based on park classification by the Department of Town and Country Planning Malaysia. The park's characteristic is that it is strategically a recreational park surrounded by housing, school, and commercial area providing recreational activities, sports, and social activities for all ages. The neighbourhood park's size area from 2 up to 7.9 hectares can cover the population from 3,000 to 12,000. The spacious outdoor green space offers facilities, for example, walking trails, playgrounds, toilets, basketball courts, outdoor gym, and reflexology path. This well-maintained park under the Petaling Jaya City Council provides useful landscape features consisting of mature trees, a lake, benches, and a shaded structure. It has 1.3 kilometres of loop trail for jogging, walking, and nature walk. Besides that, with the Landscape Department of Petaling Jaya City Council's initiative, turning Taman Aman Park into a disabled-friendly park with the installation of braille tiles, tactile, ramp specialise for wheelchair users, and barrier-free facilities such as an integrated playground. A set of questionnaire surveys were distributed to the park users to identify the stress level and response to the neighbourhood park's current condition. Figure 1 shows the location of Taman Aman Park.

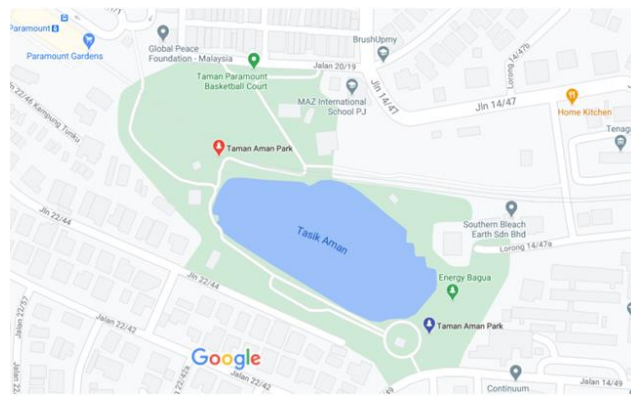


Fig. 1: The layout of Taman Aman Park surrounded by residential areas (Source: Google map)

4.0 Findings

4.1 Socio-demographic characteristics

This study received a total of n=30 completed questionnaires from the face-to-face interaction at Taman Aman Park. These samples are to measure the users' thoughts and experiences in a neighbourhood park. The authors also included adapting and adopting pre-existing questionnaires such as the Perceived Stress Scale (PSS) to increase the questionnaire's validity. The first section of the questionnaire covered the respondents' gender, age, religion, employment status, health condition, and disabilities. This data helped contextualize the findings and formulate appropriate recommendations to identify the pattern use of neighbourhood parks. The infographic in Figure 2 summarizes in detail the demographic data of Taman Aman Park users.

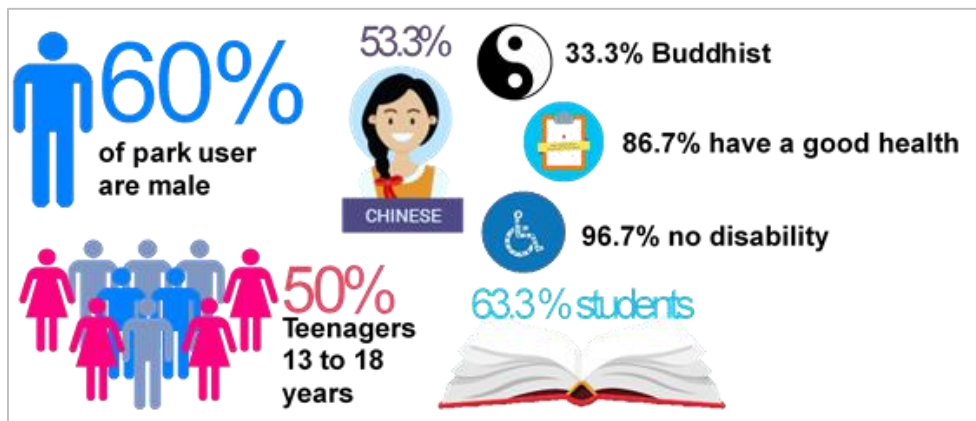


Fig. 2: Demographic data of Taman Aman Park users (Source: Authors)

4.2 Residents stress level using the Perceived Stress Scale

The second section of the questionnaire adopts the PSS as a psychological instrument in measuring stress perception. Higher PSS scores were indicated with failure to quit smoking, control blood sugar levels among diabetics, high exposure to stressful life event that triggered depressive symptoms and frequent colds (Cohen et al., 1994). The authors constructed each question 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. The scores ranging 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'. Figure 3 shows that most participants experienced a 'moderate stress' level with a higher percentage of 93.3% using PSS.

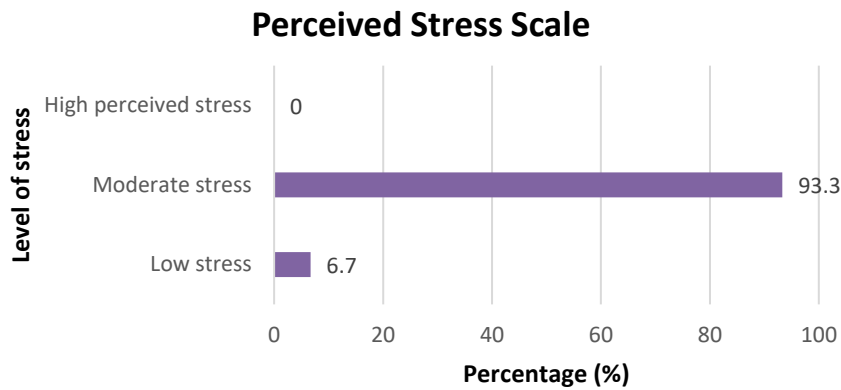


Fig. 3: The percentage stress level of residents at Taman Aman Park (Source: Authors)

4.3 Residents' satisfaction elements at the neighbourhood park

The questionnaire's final section evaluates the residents' satisfaction to investigate their thoughts and experiences, consisting of 17 variables using a Likert scale. This questionnaire section constructed based on the retaining the comprehensive literature review. In the descriptive analysis, the authors measured the scale and analysed the statements relating to the residents' satisfaction variables. As a part of the study, the data gathered were analysed using the SPSS statistical package program. Table 1 shows, provided car parks and bicycle racks averaged 3.03 (s=1.129), enjoying nature in the park averaged 3.40 (s=.724); trees as shelter in park averaged 3.03 (s=1.098), and various activities averaged 3.30 (s=.750) is in the range of 'satisfied' to 'extremely satisfied'.

Table 1. Statistics for various measures/statements of users' satisfactory

		Likert-scale						
		0	1	2	3	4		
		Very not satisfied	Not satisfied	No experience	Satisfied	Extremely satisfied		
No	Variables	Percentage %					Mean	Std. Deviation
D1	Useful directional road signs in the park	6.7	10.0	16.7	46.7	20.0	2.63	1.129
D2	Access to toilet facilities	13.3	16.7	16.7	33.3	20.0	2.30	1.343
D3	Clean, well-maintained picnic/BBQ facilities	3.3	16.7	36.7	23.3	20.0	2.40	1.102
D4	Well designed & maintained walking trails	10.0	10.0	10.0	36.7	33.3	2.73	1.311
D5	Provided car parks and bicycle racks	6.7	3.3	10.0	40.0	40.0	3.03	1.129
D6	Provided shade area structure	3.3	6.7	16.7	43.3	30.0	2.90	1.029
D7	Able to enjoy nature	0	0	13.3	33.3	53.3	3.40	.724
D8	Disturbance of wild dogs and monkey	6.7	10.0	33.3	30.0	20.0	2.47	1.137
D9	Water feature	10.0	10.0	10.0	30.0	40.0	2.80	1.349
D10	Trees as a shelter	3.3	3.3	26.7	20.0	46.7	3.03	1.098
D11	Various activities available	0	3.3	6.7	46.7	43.3	3.30	.750
D12	Good lighting	3.3	6.7	20.0	36.7	33.3	2.90	1.062
D13	Clear information about user safety	10.0	16.7	10.0	23.3	40.0	2.67	1.422
D14	Feeling safe in the park	16.7	13.3	10.0	20.0	40.0	2.53	1.548
D15	Number of visitor present	6.7	20.0	30.0	26.7	16.7	2.37	1.172
D16	Accessible features for people with disabilities, children, and seniors	0	16.7	16.7	33.3	33.3	2.83	1.085
D17	Distance from park to residential	3.3	3.3	33.3	33.3	26.7	2.77	1.006

(Source: Authors)

5.0 Discussion

The highest indication shows that respondents enjoy natural elements in the park, with 53.3% 'extremely satisfied'. Hedblom et al. (2019) explained the exposure to the natural environment could contribute to potential stress induction and stress recovery. A broad range of parks activity improve moods, ease stress, and allow people to develop a sense of wellness. The respondents' shows 46.7% of satisfaction on provided activities to stay fit physically, and the therapeutic effects of nature would indicate improving psychological

health. The contribution of activities and events in the neighbourhood park can create an opportunity for health and the environment. For example, spending time and performing horticulture in designed urban green environments can improve mental health (Vujcic et al., 2017). Besides, a well-maintained tree canopy as shelter, giving an excellent feeling to mental health (Astell-Burt & Feng, 2020) as 46.7% of respondents 'extremely satisfied' with this landscape feature in the park. The residents were also displayed 40% either 'satisfied' to 'extremely satisfied' with the provided car parks and bicycle racks by local authorities at the park entrance. Even though the result has shown the 'most unsatisfied' variable where the respondents saw a lack of access to toilet facilities with an average of 2.30 ($s=1.343$), most respondents are 'satisfied' with a percentage of 33.3%. Chen et al. (2016) stated that well-maintained facilities increase the community open spaces usage. On the other hand, most respondents signify 'no experience' for BBQ facilities (36.7%), disturbance from wild dogs and monkeys (33.3%), and the number of other visitor presence at the park (30%) based on the frequency data.

The results show a positive correlation on shaded area structure with the respondent's satisfaction ($r = .393$; $p>0.05$). The results indicate that users' stress levels likely be more ease by the shaded area structure provided in Taman Aman Park. Mansor et al. (2019) supported Malaysia's hot and humid weather demands park users get covered and shades. Thus, shaded area structures at the neighbourhood park have a good impact on relieving the stress and can increase the number of visitations throughout the day. Besides that, the availability of water features in Taman Aman Park shows a significant relationship with respondents' stress levels ($r = .389$; $p>0.05$). The lake present within the park's bound states an element to consider in planning and developing stress reliever in neighbourhood parks. According to Mattocks (2019), besides the park's natural setting, features such as trees, gardens, fields, playgrounds, and urban farms substantially influence mental health. Table 2 presents the results of the correlation analysis between stress level and residents' satisfaction constructs.

Table 2. Correlation between stress level and satisfaction variables

			Stress level
Spearman's rho	The park provides shaded area structure	Correlation Coefficient	.393*
		Sig. (2-tailed)	.032
		N	30
	Water feature in the park	Correlation Coefficient	.389*
		Sig. (2-tailed)	.034
		N	30

* Correlation is significant at the 0.05 level (2-tailed).

(Source: Authors)

Reliability analysis was carried out and Cronbach's alpha coefficients of 0.7 or higher were found for all measured items and deemed very acceptable. Hence the neighbourhood parks chosen and stress survey were reliable, (48 items; $\alpha = 0.761$). This study's limitation includes the questionnaire-based on self-reports. A high possibility that respondents overestimated park use and time spent there and perceived might have also inflated the health scores. Moreover, this study sample was not enough to represent the residential area's population in a radius of 500 m to 800 m from Taman Aman Park, which contributes to less precise data. Besides, some refuse to take part in the survey and incomplete forms, rainy days, haze, and difficulty to obtain cooperation from residents.

6.0 Conclusion & Recommendations

The evaluation of the respondents' satisfaction level at Taman Aman Park indicated that all variables almost reached a satisfying level. It shows that shaded area structures and water features have significant relationship between stress level and the respondents' satisfaction. The study concluded that the result represents the Chinese teenage male students with moderate stress level, good health, and no disability in Taman Aman Park. Ghani et al. (2018) stated parks' usage by the teenagers as prone to the parks' naturalness to make them feel physically and mentally healthy.

Moreover, creating activities such as extreme sports impulse in upgrading the usage of facilities designated for youths. Low neighbourhood park satisfaction can directly impact park use; therefore, planning and design, safety, and park features will improve. Hence, in promoting healthy lifestyles by reducing stress to the lower level, the 15 variables that fall between the ranges 'no experienced' to 'satisfied' need to be looked further by evaluating user satisfaction in parks or facilities with stress levels for improvements. Advocating knowledge of the benefits of participating in a green environment and the effects to the stress from a good design attract users to the neighbourhood park. Malaysia is currently moving on with the MyParks (Malaysia Park, Amenity and Recreation Management Society) by the National Landscape Department. This initiative is introduced in 2019 for a better park scoring system, considering the accessibility, safety, and park features of a neighbourhood park to improve and guide the local authority.

For the study's recommendation, there is a need to compare two different case studies regarding the geographic and demographic factors and a thorough selection of the variables. Besides that, an increased number of respondents is needed to have a more precise result. The Perceived Stress Scale needs to develop a clinical method to test the stress level using the salivary cortisol method. Future

studies can consider discussing the actions taken by design professionals, local authorities, and the government moving towards the life balance. It helps to create a better resident-friendly neighbourhood park in Malaysia to reduce stress levels.

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Paper Contribution to Related Study

This study considers whether Taman Aman Park has the benefit of a stress reliever through users' satisfaction. Nowadays, health problems relating to mental stress are rocketing all over the world. The need for alteration on unhealthy lifestyles towards life balance is essential. By looking into the general contribution, this study can benefit the community in staying healthy and promoting awareness of the danger of stress. This study also guides the local authority, town planners, developers, landscape architects, and other design professionals to create stress reliever neighbourhood parks.

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