



PARK FACILITIES IN INFLUENCING VISITATION AND STRESS LEVEL OF LOW-INCOME URBANITES

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Abstract

Mental health problems among low-income urbanites have gradually fluctuated with the current inflation. Understandably, participation in green areas can reduce the symptoms of mental health problems. Due to the limited green spaces in low-income neighbourhoods, the time constraints, distance and awareness of the importance of spending time in green space areas are not taken seriously. The fact of design preference, park facilities, and existing spaces did not attract this group to see the benefits from it. This study examines the visitation and stress levels of low-income urbanites in Kuala Lumpur through the influence of park facilities. Self-reported stress level scale and survey questionnaires as the main methodology were distributed to the residents from Program Perumahan Rakyat (PPR) to identify stress levels, the frequency of park visits and the park facilities at Rimba Bukit Kerinchi Park. The findings show that the park's safety is significantly associated with residents under antidepressants. The residents identify that good natural lighting, clear information about user safety, and feeling safe in the park are the most satisfying elements when visiting the park. Therefore, proper planning guidelines on PPR's housing to utilise the benefits of green spaces among low-income urbanites for better lifestyles are needed.

Keywords: Urban park, low-income community, mental health, preliminary study

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INTRODUCTION

The poverty pattern has recently changed in Malaysia, where the poverty group increased from 5.6% in 2019 to 8.4% in 2020 (Department of Statistics Malaysia, 2020). According to the Department of Statistics Malaysia (DOSM) Household Income & Basic Amenities Report 2019, the National Mean Poverty Income Line (PLI) has amended the mean value less than RM2, 500 to consider a household in poverty or known as Below 40 (B40) in B1 household group. The situation worsened when the world was announced with a deadly COVID-19 virus in 2019. People lost their jobs and sources of income, affecting the sanity of their minds (De Miquel *et al.*, 2022). Living in persistent poverty tends to have higher percentages of mental issues, as mentioned by Marchi *et al.* (2024). They added that the child's condition of living in a low-income family, especially poverty, imposes stress on parents, making the parenting process harsher and unable to meet the child's needs, contributing to the psychiatric problem. In a study done by Chang *et al.* (2020), there is no statistically significant difference between poverty and mental health. However, the study also identifies that the result of adverse life events and social support has a relationship with mental health issues. Globally, poverty has decreased in China, Kyrgyz Republic, Moldova, Vietnam, India, East Asia and Pacific, and Europe and Central Asia over the year with the initiative from the government and non-profitable organisations (Aguilar *et al.*, 2023). However, poverty is still difficult to overcome and cannot be solved daily.

Poverty-related mental issues make it difficult for people to engage in basic activities, including recreational physical activity. Poverty impacts physical and cognitive performance through poor nutrition, inadequate education, and unfavourable health circumstances, which affect productivity (Dalton *et al.*, 2017). Stressful situations such as financial difficulties, mourning, relationship problems, and the death of a loved one also contribute. Hedblom *et al.* (2019) studied the impact of natural elements in parks on stress levels. They found that bird songs and natural smells in green areas can lower stress levels. Additionally, abundant vegetation reduces psychological stress for both genders (Mennis *et al.*, 2018). Hussein *et al.* (2021) reported that local parks do not meet the quality expected by residents with moderate stress levels. Preferred parks can improve mental and physical health by increasing the number of visits. Ishak *et al.* (2022) identified design, accessibility, landscape features, and safety as crucial for treating stress.

Therefore, this study aims to determine park facilities that influence visitation and stress levels of low-income urbanites in Kuala Lumpur. The objectives are to describe stress levels of low-income urbanites and identify preferred park facilities influencing visitation. These purposely to inform urban planning and public health strategies that support mental well-being and equitable access to green spaces. Urban living can be suffocating, especially for disadvantaged communities. Rapid development has reduced green spaces due to

inadequate planning and regulatory control (Muhamad Nor *et al.*, 2021). Green spaces in cities are managed by local authorities. Urban growth brings disadvantages, including long-lasting mental health issues (stress) and poverty. High air and noise pollution in urban areas increase perceived stress, which can be reduced by green spaces (Liu *et al.*, 2024). Natural environments can alleviate stress. Access to green spaces for low-income communities is limited, especially in urban areas. Rigolon and Németh (2020) identified access issues for low socio-economic and minority groups. High housing prices in green space areas make it difficult for low-income urbanites to afford (Wolch *et al.*, 2014). Despite job opportunities and services, the high cost of living affects people's mental and physical health. Having well-maintained green spaces not only enhance the visual appeal of communities but also have a positive impact on residents' mental well-being (Ibrahim *et al.*, 2024). Some green spaces charge admission for improved nature and recreation. In Bochum, Germany, societal, physical, and sociodemographic factors discourage the community from using public green spaces. (Romelli *et al.*, 2025). Park quality, use patterns, and residents' satisfaction with parks are linked to motivation to visit nearby green spaces (Malek *et al.*, 2015). Residents demand appropriate facilities for recreational and sports activities at parks (Anuar & Muhamadan, 2018).

Hussein *et al.* (2021) suggested that quality parks meeting residents' expectations should undergo annual evaluations to identify problems and improve visitation, reducing stress levels. Better facilities and services, such as toilets, car parks, bicycle racks, trees for shelter, and safety information, can help residents relax and reduce stress. Cleanliness, water features, various activities, and good lighting also contribute to reducing stress (Ishak *et al.*, 2018). Natural elements like clean air and green settings make park users feel calmer (Moulay & Ujang, 2016; Ujang *et al.*, 2015). Moreira and Duarte (2023) supported the importance of landscape elements such as water features, outdoor play areas, and scented plants, along with proper design, to reduce residents' stress.

METHODS

To achieve the study's aim, it's essential to select an urban park near low-income residential areas. Rimba Bukit Kerinchi Park in Kuala Lumpur is chosen as the case study. This park is surrounded by high-density residential areas within walking distance and is within 500 meters of schools and commercial areas. It covers 66.15 hectares and is maintained by the Kuala Lumpur City Council. The park includes both hardscape and softscape for recreation and is part of Bukit Gasing, formerly a rubber plantation now requested to be a reserved forest. Rimba Bukit Kerinchi Park is centrally located for low-income urbanites from the Program Perumahan Rakyat (PPR) or the People's Housing Project. It is within a 3 km radius of nearby low-income housing, making it suitable for the study. Visitors can explore the park's natural stream, canopy walk, lush vegetation,

children's playground, and open areas like a camping site. The park also offers hiking trails with varying difficulty levels, from easy to quite challenging. Figure 1 shows amenities at Rimba Bukit Kerinchi Park for the public.



a) Natural stream at park



b) Camping site



c) Hiking trails for beginners



d) Platform stairs at the second entrance

Figure 1: Attractive places at Rimba Bukit Kerinchi Park

Source: Petitgo website, retrieved on 17th August 2023

The park's suitability for the case study and the identification of respondents in this study took two weeks of examination with the help of the local authority. Targeted respondents from the nearby high-density, low-income residents familiar with Rimba Bukit Kerinchi Park either have visited the park or at least know the park's location. Figure 2 shows the space segregation for each recreational activity at the park provided by the Landscape and Recreational Department from Kuala Lumpur City Council.

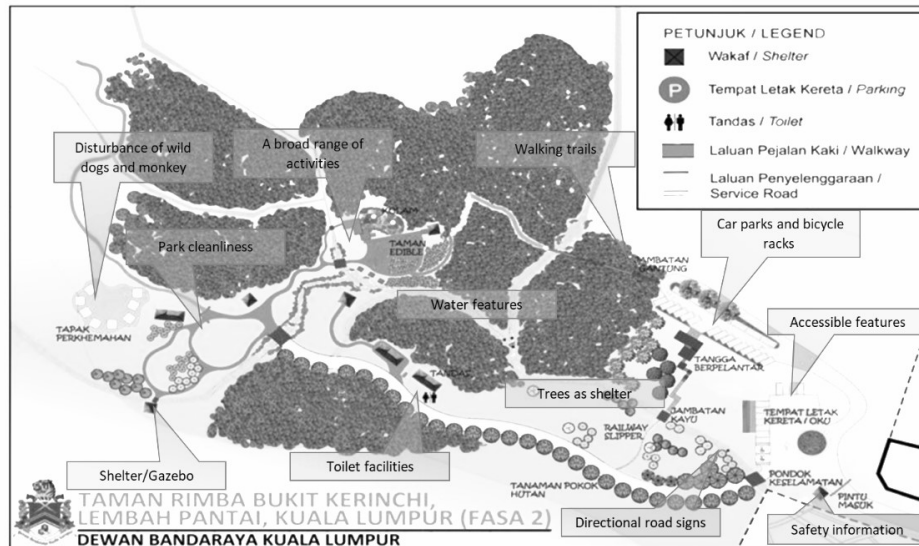


Figure 2: Park elements in Rimba Bukit Kerinchi Park

Source: Kuala Lumpur City Council, 2020

A number of $n=176$ questionnaires out of 382 samples returned from the survey were distributed to the low-income communities living at the PPR around Rimba Bukit Kerinchi Park based on a 50,000 catchment population—the age range for the sample starts from 12 years old and above. To avoid bias in data collection, the residents received the questionnaire survey at their house units and were emailed by the recruited researchers. This process is to identify the visitation to the park from the residents if they visit or do not visit the park. The construction of the questionnaire included demographic questions and park facilities that improve stress and attract visitors from the literature. Moreover, the usage of layman's words and avoidance of the scientific terms in the questionnaire delivered an understandable statement for the park users to comprehend excellently. The adapting and adopting methods from pre-existing questionnaires are applied to this questionnaire to increase the reliability and validity. The questionnaire comprised four sections: demographic, park visitation pattern, Perceived Stress Scale (PSS), and park facilities assessment which consist of 33 questions items. From the descriptive analysis, the authors measured the scale and analysed the statements according to the low-income urbanites' satisfaction variables. As a part of the study, the data gathered were analysed using the SPSS (Statistical Package for the Social Sciences) program. Survey questionnaires were distributed to identify stress levels and park facilities correlating with the park's visitation. Figure 3 shows the flow chart in preparing the survey.

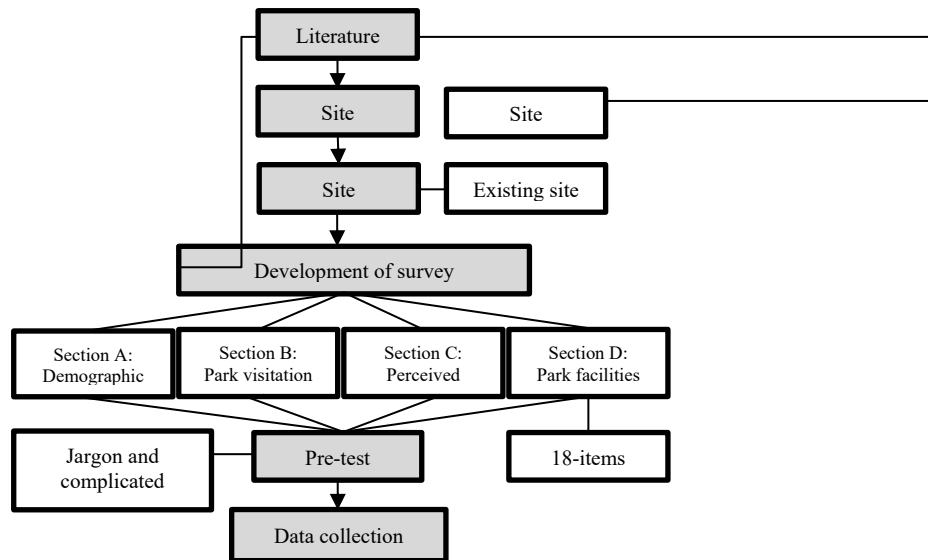


Figure 3: Flow chart of survey questionnaire at Rimba Bukit Kerinchi Park

RESULTS

Demographics of Respondents

In the first section, the respondents' demographic background is to ensure that the data from targeted respondents are gathered. Women respondents participated in more than half (64.8%) of the participation of men, 35.2%. People aged 20 to 29 were the most likely to visit the parks (31.3%), and those aged 56 years old and above were the least used parks, with only 7.3%. The Malay ethnicity dominated park visits with 86.6%, followed by the other ethnic minorities in Malaysia, namely the Indians (8.9%), others (4.5%), and none of the Chinese respondents participated. Most of the respondents are working, and most of the respondents have a good health record, 73.2%. The household income for each respondent shows they are in the B40 community as their data indicate 95.5% earn RM 3,860 and below in a month.

Park visitation data

The questionnaire's second section identifies the low-income urbanites' park visitation pattern at Rimba Bukit Kerinchi Park. The majority of respondents (33%) visited the park two to three times a week, and the most frequent visiting time was in the evening, with 77.1%. Regarding duration, 36.9% of respondents visited the park and spent two to four hours.

Perceived Stress Scale (PSS) score

The third section collects the stress level data of respondents by adopting PSS-14 items in the questionnaire. The PPS is a psychological instrument that identifies

stress based on daily experiences in the past two weeks. According to Cohen *et al.* (1983), the scale assesses “the degree to which situations in one’s life are appraised as stressful”. This scale uses the Likert scale, where the respondents can indicate what they feel if the situations are too much to take, impulsive and overwhelming. For the PSS score, three levels are shown to identify the stress severity, including high perceived stress (range 27 to 40 points), moderate stress (range 14 to 26 points) and low stress (range 0 to 13 points). Approximately 78% of respondents of low-income urbanites (n=135) categorised in 'moderate stress' level, 19% low-stress level (n=33) and 3% high-stress level (n=6) based on the self-reported questionnaire. The indication of stress level is important to identify low-income urbanites' visitation to the park based on their perception towards park facilities.

Park facilities assessment

The fourth section identifies the park facilities at Rimba Bukit Kerinchi Park to recognise their satisfaction that may correlate with park visitation. Using the Likert scale, the respondents will be guided with the level of satisfaction towards park facilities from very unsatisfied to very satisfied. The response for the park facilities assessment score shows the low-income urbanites being satisfied to very satisfied with the proper directional road signs (39.1%); clean, well-maintained park (49.7%); a sufficient number of car parks and bicycle racks (39.1%); provided shaded area structure (e.g. gazebo) (40.2%); able to enjoy nature in the park (49.2%); trees as a shelter (43%). Besides that, low-income urbanites are satisfied with the broad range of activities available at Rimba Bukit Kerinchi Park. Good natural lighting, clear information about user safety and feeling safe in the park show satisfaction with these three elements with 41.3%. Moreover, the low-income urbanites were satisfied with the accessibility for people with disabilities, children, and seniors (33%) and the travel distance from the park to the residential (37.4%). The highlighted percentage in Table 1 indicates the satisfying score on each Rimba Bukit Kerinchi Parks park element.

Table 1: Park facilities assessment at Rimba Bukit Kerinchi Park

		Likert-scale					
		0		1		2	
		Very Unsatisfied		Unsatisfied		Neutral	
						Satisfied	
						Very satisfied	
No	Park facilities	0	1	2	3	4	Mean
		Percentage %					Sd.
1	Proper directional road signs	17.3	10.1	21.2	39.1	12.3	2.19
2	Toilet facilities access	23.5	16.8	30.2	22.9	6.7	1.73
3	Clean, well-maintained park	7.8	8.9	14.5	49.7	19.0	2.63
4	Well-designed and maintained walking trails	6.1	10.6	14.5	43.6	25.1	2.71
5	Sufficient car parks and bicycle racks	6.1	7.8	22.9	39.1	24.0	2.67
6	Provided shaded area structure	3.9	10.1	16.8	40.2	29.1	2.80
7	Sufficient seating area	3.9	6.1	27.9	38.0	24.0	2.72

		Likert-scale						
		0	1	2	3	4		
		Very Unsatisfied	Unsatisfied	Neutral	Satisfied	Very satisfied		
No	Park facilities	0	1	2	3	4	Mean	Sd.
		Percentage %						
8	Able to enjoy nature in the park	3.9	4.5	12.8	49.2	29.6	2.96	.979
9	Disturbance of wild dogs and monkey	15.1	10.1	36.9	22.9	15.1	2.13	1.236
10	Water feature (river, stream, or pool)	26.3	10.1	30.7	19.6	13.4	1.84	1.366
11	Trees as a shelter at the park	5.6	5.0	15.1	43.0	31.3	2.89	1.078
12	A broad range of activities available	7.3	10.1	16.2	36.3	30.2	2.72	1.204
13	Good natural lighting	2.2	5.0	12.3	39.1	41.3	3.12	.964
14	Clear information about user safety	2.2	5.0	12.3	39.1	41.3	2.39	1.321
15	Feeling safe in the park	2.2	5.0	12.3	39.1	41.3	2.43	1.156
16	Number of other visitors present	8.9	8.9	36.3	32.4	13.4	2.32	1.100
17	Accessible features for people with disabilities, children, and seniors	20.7	9.5	25.1	33.0	11.7	2.06	1.314
18	Distance from park to residential	5.6	6.7	16.2	37.4	34.1	2.88	1.125

Source: Author's Calculation

Correlation analysis between the frequency of park visitors and park facilities score at Rimba Bukit Kerinchi

Spearman's Rho correlation analysis showed a weak positive correlation at the 0.01 level (2-tailed) between park visitors' frequency and park facilities score at Rimba Bukit Kerinchi Park ($r = .222$, $p < .01$). Local authorities provide proper directional road signs, a well-maintained park, ample car parks and bicycle racks, shaded structures like gazebos, and a range of activities. The park's proper setting allows low-income urbanites to enjoy nature with tree shelter. Park preferences depend on various features and elements (Ishak *et al.*, 2018). Respondents reported satisfaction with park safety, good natural lighting, and clear information. The park is accessible for people with disabilities, children, and seniors, and its distance from residential areas is suitable. Longer travel distances to parks can reduce visits (Tu *et al.*, 2020). The highest mean score was for natural and artificial lighting ($m = 3.12$; $s.d. = .964$). A weak positive correlation exists between gender and stress level score ($r = .149$, $p < .05$). Unsatisfactory park facilities included toilet facilities ($m = 1.73$; $s.d = 1.24$). Table 2 shows correlation on park facilities score.

Table 2: Spearman Rho's rank correlation table

			Park visit frequency	Stress level	Period visits to the park
Spearman Rho's	Park facilities score	Correlation Coefficient	.222**	.051	.002
		Sig. (2-tailed)	.003	.494	.982
		N	176	176	176

** . Correlation is significant at the 0.01 level (2-tailed).

Source: Author's Calculation

The respondents' stress levels did not significantly correlate with park facilities data. However, according to the question of the low-income urbanites during the survey questionnaire, 92.6% (n=163) have indicated that park visitation can relieve their stress. The results have the chances of bias due to self-reported data.

DISCUSSION

Females, teenagers, and residents living close to Rimba Bukit Kerinchi Park visit the park most often. Park facilities, like toilet facilities, disturbances from stray dogs and monkeys, water features, and the low number of users, received neutral responses. Access issues can be severe for able-bodied individuals and worse for those with disabilities. Most low-income urbanites reported moderate stress levels using self-reported PSS, with stress levels significantly but weakly correlated with females. Male respondents visited the park less frequently, with less than 50% visiting, likely due to work commitments and lack of time for recreation. Low-income urbanites face barriers and lack motivation to visit parks, as supported by Bakar *et al.* (2016) and Munson (1994). Park facilities influence visitation rates, with limited time, safety concerns, and inadequate equipment deterring regular visits. Gender preferences influence park visits for various purposes. Men and boys used physical activity related park amenities such as sports fields (Sun *et al.*, 2025; Cohen *et al.*, 2007). In contrast, women tend to use parks less compared to men due to safety (Derose *et al.*, 2018). However, Ho *et al.*, (2005) has shown no notable gender differences in visit patterns or perceived benefits. Satisfied park facilities, as highlighted in Table 1, can increase park visits, although they do not affect stress levels. Improvements in park facilities like seating, water features, children's play areas, and trees can improve mental health, according to Subiza-Pérez *et al.* (2020). Figure 4 categorizes park facilities into three groups.

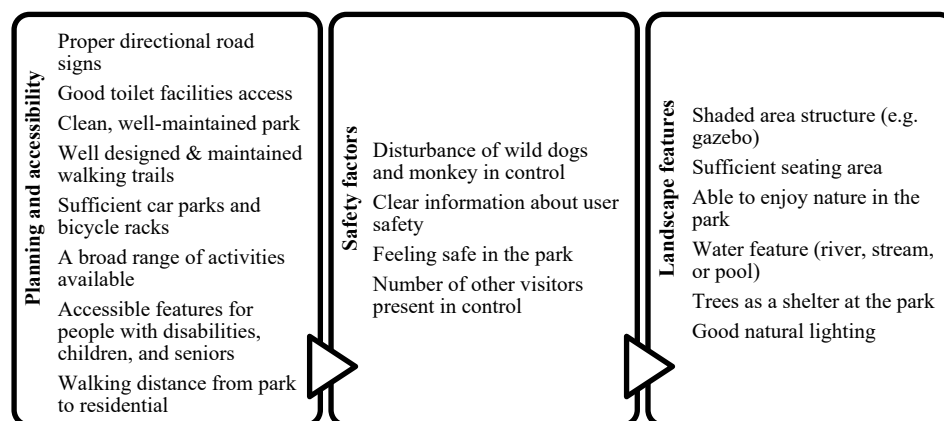


Figure 4: Suggestions for improvement at parks in low-income urbanite neighbourhood

This study highlights the importance of understanding the park facilities preferred by low-income urban residents to improve their mental health. Natural settings with fewer artificial features attract these individuals to parks. Although park facilities primarily influence park visitation, those that satisfy visitors still help reduce stress, as indicated by the data. Additionally, the high demand for cleanliness and well-maintained parks suggests that these improvements can guide park designs for this group. Future studies should involve professionals, local authorities, and the community in park proposal design and planning. Regular meetings with low-income urban residents can help develop proposals for improving and adding to existing facilities. Furthermore, organizing on-field events and activities, like park cleaning programs involving various age groups, can increase visitation rates and improve stress levels.

Government actions in applying professional suggestions and ideas to park development are essential to ensure that parks offer equal opportunities for low-income urban residents. This can help create better, more inclusive parks in Malaysia, which can improve stress levels. The limited living conditions in PPR often prevent residents from accessing fresh air, highlighting the importance of nearby parks. Parks can serve as a medium for low-income urban residents to reduce stress. To improve future studies, increasing the number of respondents will yield better and more precise data, reducing bias. Additionally, researchers should use clinically measured stress levels for a better understanding, rather than relying solely on self-reported data. This approach will provide more accurate information and avoid overestimating mental health status.

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