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STRESSED ADULT'S PREFERENCES FOR OUTDOOR RECREATIONAL ACTIVITY IN URBAN PARKS

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Abstract

Albeit the importance of the urban parks to serve as physical, physiological, and health relief platforms, little attention has been paid to the study of the adult's preferences of outdoor recreational activity that is based on the human stress level. Therefore, the aim of this paper is to unveil the preference for outdoor recreational activity according to the human stress levels. Accordingly, this paper adopts a quantitative method through a web-based questionnaire survey that rests upon Kuala Lumpur's urban population as the representative sample. The questionnaire consists of three parts- personal data, the preference of outdoor recreational activity, and a self-reported health status. This paper reveals from a pilot study of 62 respondents only, as the actual questionnaires' survey and data analysis are still in progress. The data was analysed using factor and descriptive statistics in order to identify the most preferred outdoor recreational activity by a stressed adult. The result showed that the 20 items of outdoor recreational activities load into two dimensions, i.e., passive activity and active activity. The preferred passive activities by the adult who is reporting stress are enjoying the peace, resting and relaxation, enjoying the fresh air, releasing stress, enjoying nature, enjoying the sun and the sound of birds. For active activities, most of the adults who are reporting stress prefer to jog and do brisk walking. Significantly, the study's findings enlighten the urban park planners - including the landscape architects, to design parks for outdoor recreation that could correspond and accommodate the different levels of stress.

***Keywords**:* Outdoor recreational activity, stress level, urban park, preference

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INTRODUCTION

By 2019, the total population of Malaysia is 32.6 million, of which its urban population has been recorded at 76.2% as compared to 75.6 % in 2018 (DOS, 2019, p.6). This steady increase of the urban population put an overwhelming pressure on urban life, which consequently leads to significant demands for functional urban facilities and amenities, including urban parks, that could relieve the people's stress as suggested by Zhang et al. (2019). It is also revealed that Malaysian urban workers are facing work-stress that is related to heavy workload, understaffing, overtime, and looming deadlines (Mallow, 2016; Taap Manshor et al., 2003); stress may be considered a risk factor for the development of diseases such as coronary heart disease, type II diabetes, and depression (Memari et al., 2017).

Relevant studies in several fields, ranging from medicine to environmental psychology and to landscape architecture, have highlighted the urban park as a restorative experience, which covers many perspectives such as mental health (refer to Kaplan, 1989), and stress (refer to Ulrich, 1983). The urban park plays a significant role in the restorative experience in urban areas as it provides a unique setting for daily activities, to enjoy nature, and to engage in social interactions for the urban dwellers (Arifwidodo & Chandrasiri, 2020).

Moreover, the factor such as performing outdoor recreational activities in the urban parks (Karlsson & Grahn, 2011) also contributes to the restorative experience and encourages more people to conduct physical activities to overcome the noncommunicable diseases (NCD) (Malek & Nashar, 2018). A study by Anuar and Muhamadan (2018), reveals that people who perform outdoor recreational activities expect certain outcomes and experiences through the provision of facilities that suit their preferred activities. However, there is inadequate research attention on the preference of outdoor recreational activities that examines people who are stressed (Karlsson & Grahn, 2011).

By examining the preferred outdoor recreational activities of people who are stressed, this study intends to enlighten the local administrators, planners, and landscape architects on factors that need to be taken into account in designing urban parks that correspond to stressed people's expectations and needs.

LITERATURE REVIEW

Some of the pioneering works in leisure and recreational activities had studied the type of specific outdoor recreation in the different activities that were performed between children and adults (see Jansen & von Sadovszky, 2004; Nilsson et al., 2006; King et al., 2007). These activities include taking advantage of all the little opportunities for adults to be active, such as using the stairs and doing routine tasks, home repairs, and gardening, as well as more traditional leisure activities such as taking longer walks, cycling, and swimming (WHO, 2006). The influential work of the outdoor recreational activities give rise to a

renewed interest in environmental psychology of certain activities that are connected to the restorative experience such as mental fatigue (Cimprich, 1990) and stress reduction (Gao et al., 2019).

The existing study reveals that walking activities in natural environments have shown some effects on stress release (Gidlow et al., 2016). It is also proven that outdoor walking has been perceived to have more mental restoration effects than walking indoors (Bailey et al., 2018). In addition, it has been reported that walking in a natural environment has significantly better restorative effects than walking in urban surroundings (Hartig et al., 1991, 2003). Instead of walking, running also induces the relaxation of the mind and increases alpha brain waves as has been studied by Schneider et al. (2009). Also, Harte and Eifert (1995) supported that the health benefits of outdoor physical activity on campus reduced negative emotions instead of running on a lab treadmill. Apart from that, experiencing restorative effects from nature and pursuing various activities in the natural environment such as observing nature, walking in a natural environment, hiking, gathering berries and chestnuts, gardening, fishing and hunting, and working in the forest, have a positive correlation with the well-being of Estonians (Raudsepp, 2005).

Consistent with that, a study by Hansmann et al. (2007) have furthered the study of activities from the different stress levels they present, the result in which the length of visit and sports activities such as jogging, cycling, and playing balls give positive effects on restoration and stress release. Sports activities have shown significantly greater improvements than those engaged in less strenuous activities for example walking or relaxation. The work of Karlsson and Grahn (2011) found that the most preferred activities among the most stressed informants were ‘rest activities’, followed by ‘animal activities’ and ‘walking activities.

Notably, the research has different drawbacks of results pertaining to the outdoor recreational activities that are performed for restoration and stress relief. This might be due to the impact of gender, age, culture or ethnicity interests or expertise (Berto, 2014), expected restoration benefit (Herzog et al., 2003; Staats et al., 2003), and general preference (Purcell et al., 2001) from different individuals. This research is inspired by a similar work from the previous study. Although some progress has been made in outdoor recreational activities for people's health, further research is needed on the various types of outdoor recreational activities that are associated with the different levels of stress. This present study compares the various kinds of outdoor recreation activities from a previous research that is based on the following research question, what is the preferred outdoor recreational activity of people who are reporting stress? Thus, the objectives of this study are (1) to access the stress level and preference of outdoor recreation activities by the adult’s urban population, and (2) to analyse the most preferred outdoor recreational activities by stressed adults who are urban

dwellers, in the urban parks The result of this study is to offer a recommendation that can be used as the grounds for guidance and empiricism, in order to improve the work of the local administrators and urban planners so that their planning and design for activities in the urban park area are relevant to the preferences and demands of stressed individuals.

METHODS

A quantitative survey was conducted in this study in the form of a web-based questionnaire using Google Forms and was posted in social media platforms such as Facebook and WhatsApp's application. The convenience sampling approach with uncontrolled instrument distribution was used in this study for those who met the criteria, to fill up the questionnaire (Schonlau et al., 2002). Screening question was implemented to ensure that the respondents are from Kuala Lumpur city centre and who are eighteen years old and above. Correspondingly, the strength in using the Google Forms was that it can be set to prevent multiple access by the same people with the same email.

The data were conducted for adults in Kuala Lumpur by obtaining their information which include personal data (gender, age, socioeconomic status), preferences for outdoor recreational activities in urban parks, and health status. For this study, a study was conducted between 1st. of July to the 31st. of July 2020. This pilot study was conducted to improve and was revised for the final questionnaire survey.

The questionnaire consisted of four parts. The first part obtained the respondent's profile data such as gender, age and social-economic status. The second part focused on the self-rated respondent's health status by using a developed instrument named DASS 42. The DASS 42 is a reliable instrument that is used widely in Malaysia to measure psychological parameters (Imam, 2008), with the Malay language that has been translated by Ramli et al. (2012). DASS 42 was divided into three dimensions- depression, anxiety, and stress scale. Each of the dimensions was divided into five levels: normal, mild, moderate, severe, and extreme. The answer was listed on four scales from 0 = did not apply to me, 1=apply to me some degree, 2 = apply to me in a considerable degree, to 3= apply to me most of the time. To achieve the second objective of this study, the discussion will only focus on the stress dimension of people with severe and extreme stress levels. In the third part, the respondent was given the multiple-choice answer on outdoor activities that they preferred to do in the urban park. 20 types of outdoor activities were listed referring to the previous research (see Karlsson & Grahn, 2011; Ngesan et al., 2013; Ratcliffe et al., 2013; Sreetheran, 2017; Zainol & Au-Yong, 2016; Ni et al., 2019). The criteria have been listed in Table 1. The fourth part is the preference for park characteristics in the urban parks. However, the fourth part will not be discussed in this study as this study only focuses on the preference type of outdoor recreational activities.

The statistical analyses in terms of factor analysis, reliability, and descriptive analysis such as frequency and percentage score were conducted using the statistical software package IBM SPSS 23 in order to meet the objective.

Table 1: Type of outdoor recreation activities

Items	(Zainol & Au-Yong, 2016)	(Sreetheran, 2017)	(Karlsson & Grahn, 2011)	(Ratcliffe et al., 2013)	(Ni et al., 2019)	(Ngesan et al., 2013)
Enjoy or nature	/	/	/			
Exercising facilities			/			
Enjoy sports	/	/	/			/
Picnic	/		/			/
Jogging and brisk walking			/		/	/
Cycling			/			
Meet up with people	/	/				
Socialise with family		/				/
Socialise with others		/				/
To get fresh air		/	/		/	
Release stress		/			/	
Rest and relaxation		/				
Exercise to stay healthy	/	/				
To obtain peace and quiet		/				/
Watch others			/			
Accompany children at the playground			/			
Play remote controlled			/			
Sound of birds				/		
Enjoy the sun					/	
Photography						/

Source: Author, 2021

RESULT AND DISCUSSION

Demographic Characteristics

A total number of 62 (N) respondents took part in the survey. The demographic characteristics such as gender, age, race, education level, occupation and income status have been listed in Table 2.

Table 2: Socio-demographics characteristics of respondents

Description	Item	Frequency	Percent
Gender	male	18	29.0
	female	44	71.0
Age	18-25	12	19.4
	26 – 35	28	45.2
	36 – 50	22	35.5
Race	Malay	60	96.8
	Indian	1	1.6
	Others	1	1.6
Education level	Secondary School	4	6.5
	Certificate	3	4.8
	Diploma	14	22.6
	Degree	27	43.5
	Masters	12	19.4
	Doctorate	2	3.2
Occupation	Government sector	22	35.5
	Private sector	19	30.6
	Self-employed	7	11.3
	Retiree	11	17.7
	Student	3	4.8
Monthly income	No income	28	45.2
	Below RM2000	34	54.8

Factor Analysis

The 20 items of outdoor recreational activities were subjected to a principal components analysis (PCA) using SPSS version 23. Prior to performing PCA, the suitability of data for factor analysis was assessed. Inspection of the correlation matrix revealed the presence of many coefficients of .3 and above. The Kaiser-Meyer-Olkin value was .76, exceeding the recommended value of .6 (Kaiser 1970, 1974) and Bartlett's Test of Sphericity (Bartlett 1954) reached statistical significance, supporting the factorability of the correlation matrix (refer Table 3). The principal components analysis revealed the presence of six components with

eigenvalues exceeding 1, explaining 20.2%, 14.35, 10.9%, 10.3%, 6.2% and 6.1% of the variance respectively. An inspection of the scree plot revealed a clear break after the second component. Using the Catell's (1966) scree test, it was decided that two components for further investigation were to be retained. This was further supported by the results of the Parallel Analysis, which showed only two components with eigenvalues exceeding the corresponding criterion values for a randomly generated data matrix of the same size (20 variables × 62 respondents). The two-component solution explained a total of 41.7% of the variance, with Component 1 contributing 24% and Component 2 contributing 17.6%. To aid in the interpretation of these two components, an oblimin rotation was performed. The rotated solution revealed the presence of a simple structure (Thurstone 1947), with both components showing a number of strong loadings and all variables loading substantially in one component. The interpretation of the two components was consistent with the previous research (see Malek et al., 2015) on outdoor recreational activity with the passive activity items loading strongly on Component 1, while the active activity items loading strongly on Component 2 (refer to Table 4). Accordingly, one variable (accompany children at the playground) has been omitted because it cannot be loaded onto any factor.

Table 3: KMO and Bartlett's Test

KMO and Bartlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.765
Bartlett's Test of Sphericity	Approx. Chi-Square	504.633
	df	190
	Sig.	.000

Table 4: Factor analysis

Factor	**Item**	**Theme**
1	Enjoy the peace	These items appear to be passive activity
	Enjoy fresh air	
	Sound of birds	
	Enjoy nature	
	Photography	
	Enjoy the sun	
	Rest and relaxation	
	Picnic	
	Watch others	
	Release stress	
2	Play remote controlled	These items appear to be active activity
	Socialise with family	

Meet up with people
Exercise to stay healthy
Exercising facilities
Enjoy sports
Jogging and brisk walking
Socialise with others
Cycling

Reliability Test

The two factors that were produced by the PCA were tested for reliability, using Cronbach's alpha (a). Factor 1 (passive activity) shows a very high internal consistency with an overall of .861. Item-total correlations were generally at least moderate, the squared multiple regression generally confirmed that variance was moderately explained throughout. The Cronbach's alpha would not benefit from the removal of any item. This level of internal consistency was also seen for Factor 2 (active activity; a = .766).

Stress level reporting by the respondents

From the questionnaire survey, the respondents choose which outdoor activities they prefer in the multiple-choice answer. From the five groups of stress level, eleven percent of the respondents belong to the group with severe and extreme stress (Stress level >26), while eighty-eight percent belong to the group that is known to have medium stress or less (Stress level <26) (refer to Table 5).

Table 5: Different stress level by the respondents

	Frequency (n)	Percent (%)
No to medium	55	88.7
Severe to extreme	7	11.3

Type of passive activities people reporting stress prefer

To discover which of the outdoor recreational activities that people who were reporting stress preferred when they visited the urban park, a frequency analysis was conducted. Figure 1 shows that more than fifty percent of severe to the extreme stress level respondents choose 'enjoying the peace', 'resting and relaxation', 'enjoying the fresh air', 'releasing stress', 'enjoying the nature', 'enjoying the sun' and 'the sound of birds' as their preferences.

Referring to this result, the activities that are preferred by people who are reporting stress are not particularly physically demanding. The result was in line with the study by Stigsdotter et al. (2010) regarding individuals who had

reported stress and who visited green spaces for reducing stress and to relax, in order to achieve peace and quiet without noise. The most recent study by Gao et al. (2019), found that the people with the most stress were more likely to prefer quiet activities. Quiet activities do not require total silence, but can be secured through bird songs or sounds from a natural element that can bring recovery for stressed people (Ratcliffe et al., 2013).

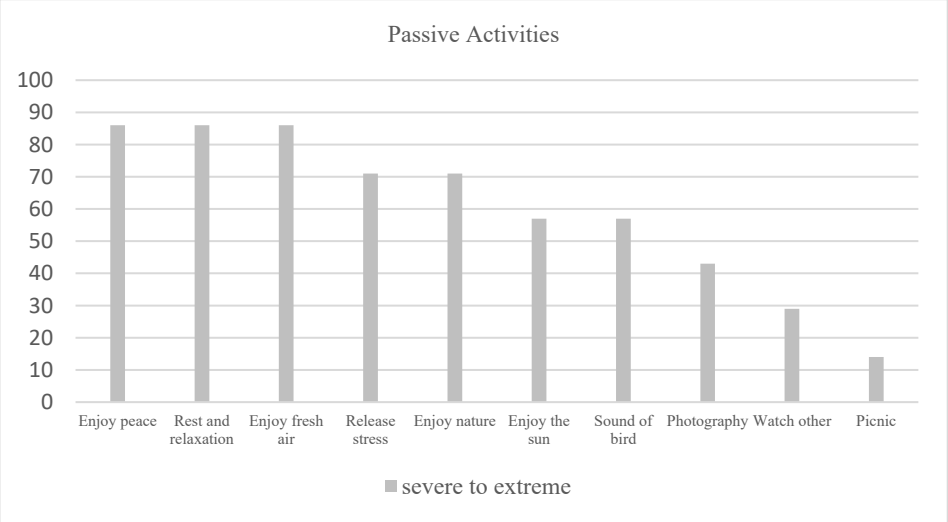

Figure 1: Preferences of passive activities by severe to the extreme stress level of respondents

Type of active activities people reporting stress prefer

Figure 2 shows the active activities such as jogging and brisk walking which are the most preferred by people who are reporting stress. Activities such as walking and jogging are common activities that are performed in open space, and have been researched by Pietilä et al. (2015), Wooller et al. (2018), and Zuniga-Teran et al. (2019); it has been proven that those activities have restorative effect on health, emotion and feeling. Moreover, the research by Bailey et al. (2018) has reported that walking in an area of greenery provides peace and calm to the people who are reporting stress. This suggests that people who are reporting stress are more positively oriented towards walking in an area of greenery or routes.

Meanwhile, activities that were related to social demand such as meeting up with people, socialising with others or family, playing remote-controlled items, cycling, enjoying sports, were found to be the least preferred by people who were reporting stress. This finding is expected since gathering activities should be avoided for people who are experiencing stress as has been stated in Karlsson and Grahn's (2011). This argument is also consistent with the

recent findings from Hadavi et al. (2015) where the rest and restoration activities need a place where people can be alone.

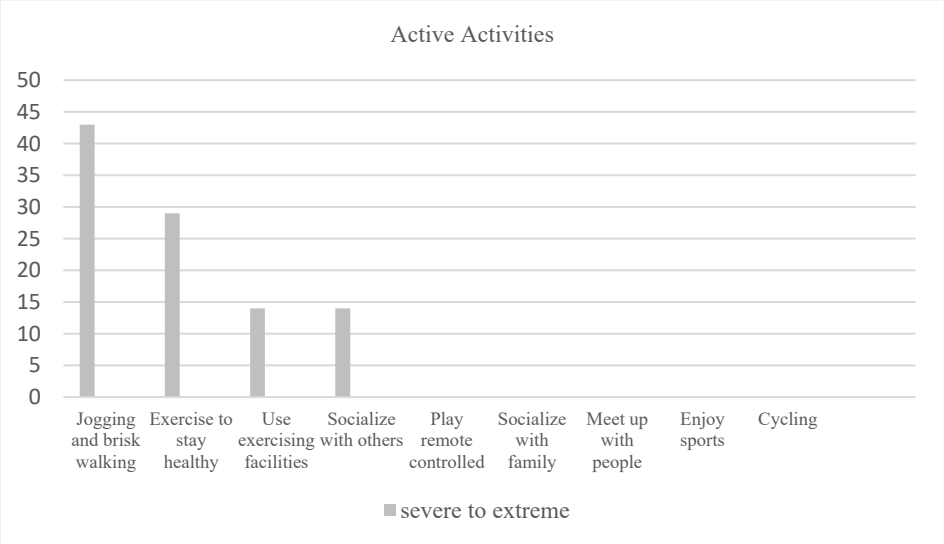

Figure 2: Preferences of active activities by severe to the extreme stress level of respondents

CONCLUSION

The findings from this study reveal that the physical characteristics that need to be incorporated in the planning and designing of urban green spaces have been specially tailored to the needs of people who are reporting stress. Another noticeable finding is that individuals with high levels of stress prefer to enjoy the nature, sun, peace, fresh air, and the sound of birds, to go jogging, brisk walking, rest and engage in relaxation activity, and release stress in the urban park. Thus, the physical characteristics that need to be incorporated in the planning and designing of the urban park have been specially tailored to the needs of people who are reporting stress. Under this circumstance, if the objective of the society is to promote the health and well-being of its citizens, increasing the use of the urban parks by enhancing their characteristics and qualities is probably a good way to achieve the objective. These findings have suggested that the urban parks need to be a public health promotion resource, particularly to reduce socio-economic inequalities, which usually have a strong impact on health (Mitchell &` Popham, 2008). As a consequence, there may be a need to analyse and partially redesign open green spaces with regard to the urban context and the needs, preferences, and health problems of modern citizens. One method of doing this

could be to provide a park design with space for outdoor activities. Within the field of landscape and local planning, both fields will benefit from this study.

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