EFFECTIVENESS OF URBAN GREEN SPACE ON STRESS RELIEF AT BUKIT JALIL

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EFFECTIVENESS OF URBAN GREEN SPACE ON STRESS RELIEF AT BUKIT JALIL

By
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A Project Report Submitted in Partial Fulfilment of the Requirement for the Degree of Bachelor of Park and Recreation Science in the Faculty of Forestry
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DEDICATION

Special dedicated to:
My beloved parents
Lee Foon Sang and Cheang Fong Chen.
All my dedicated lecturers,
Supervisor, Dr. Nor Akmar Abdul Aziz,
and
All my dearest friends.
Thank you so much for helping me,
I hope I have made all of you proud.
I love all of you.

ABSTRACT

This study examined the effectiveness of urban green space on stress relief at Bukit Jalil. Thirty students (male: 15, female: 15; mean age ± standard error: 22.93 ± 0.191) from the Faculty of Forestry, Universiti Putra Malaysia (UPM) participated in a 2 days experiment at Bukit Jalil Park and Bukit Jalil Street. Participants walked along the given route in both areas at the specific time set for 20 minutes. Blood pressure measurements were recorded before and after walking in both areas. The psychometric tests Profile of Mood States (POMS), Positive and Negative Affect Schedule (PANAS), Perceived Stress Scale (PSS) and Restoration Outcome Scale (ROS) were completed in the pre-test and post-test to identify the significant effect after walking in both study areas. The results indicated that systolic and diastolic pressure decreased in the urban green space and systolic pressure increase in the city. In the ROS test, participants show a significant difference (p<.001), when comparing both study areas. Urban green space shows higher mean scores in all six restorative statements, while the city had lower restorative means scores. In the POMS test, the result of Total Mood Disturbance (TMD) indicated a significant difference (p<.001) when comparing the pre-test and post-test of walking in UGS. TMD indicate a lower value in UGS and higher value in the city. Therefore, TMD indicated that participants have more mood disturbance in the city. In the PANAS test, sums of positive attitude were increased (p<.001) and sums of negative attitude were decreased (p<.001) in the urban green space, whereas, both total positive and negative attitude were reduced in the city. For PSS test, urban green space and city show a significant difference (p<.05) in the post-test. Therefore, there are differences towards urban users' health impact between UGS and City. Hence, people are encouraged to spend more time and start walking in urban green space for better stress relief.

ABSTRAK

Kajian ini mengkaji keberkesanan kawasan bandar hijau untuk melegakan tekanan di Bukit Jalil. Tiga puluh orang pelajar (lelaki: 15, perempuan: 15 ; purata umur ± *standard error* : 22.93 ± 0.191) dari Fakulti Perhutanan, Universiti Putra Malaysia (UPM) telah menyertai kajian tersebut selama 2 hari di Taman Bukit Jalil dan Jalan Bukit Jalil. Peserta berjalan sepanjang laluan yang diberikan di kedua-dua kawasan kajian pada masa yang ditetapkan selama 20 minit. Bacaan tekanan darah direkod sebelum dan selepas berjalan di kedua-dua kawasan kajian. Selain itu, ujian psikometrik Profil Status Mood (POMS), Jadual Kesan Positif dan Negatif (PANAS), Skala Tekanan Diperoleh (PSS) dan Skala Hasil Pemulihan (ROS) juga telah diisi sebelum dan selepas kajian untuk mengenalpasti kesan terhadap pengguna selepas berjalan di kedua-dua kawasan kajian. Hasilnya menunjukkan bahawa tekanan sistolik dan diastolik menurun di kawasan bandar hijau dan tekanan sistolik di bandar meningkat. Untuk ROS, peserta menunjukkan perbezaan yang ketara (p<.001), apabila membandingkan kedua-dua kawasan kajian. Kawasan bandar hijau menunjukkan skor yang lebih tinggi dalam kesemua enam kenyataan restoratif, sementara kawasan bandar mempunyai skor pemulihan yang lebih rendah. Dalam ujian POMS, keputusan gangguan mood (TMD) menunjukkan perbezaan signifikan yang tinggi (p<.001) apabila membandingkan sebelum dan selepas berjalan di UGS. TMD menunjukkan nilai yang lebih rendah di UGS dan nilai yang lebih tinggi di bandar. TMD juga menunjukkan bahawa peserta mempunyai lebih banyak gangguan mood di bandar. Dalam ujian PANAS, jumlah sikap positif meningkat (p<.001), manakala jumlah sikap negatif berkurang (p<.001) di kawasan hijau bandar, namun, sikap positif dan negatif keseluruhannya menurun di bandar. Bagi ujian PSS, kawasan bandar hijau dan bandar menunjukkan perbezaan yang ketara (p<.05) selepas kajian. Kesimpulannya, terdapat perbezaan terhadap kesan kesihatan pengguna di kawasan bandar hijau dan bandar. Oleh itu, masyarakat digalakkan supaya meluangkan masa di kawasan bandar hijau untuk melepaskan tekanan.

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APPROVAL SHEET

I certify that this research project report entitled **"Effectiveness of Urban Green Space on Stress Relief at Bukit Jalil"** by Lee Yee Shian has been examined and approved as a partial fulfilment of the requirements for the degree of Bachelor of Park and Recreation Science in the Faculty of Forestry, Universiti Putra Malaysia.

_____

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LIST OF ABBREVIATIONS

ADD	Attention Deficit Disorder
BP	Blood Pressure
EEG	Electroencephalogram
HRV	Heart Rate Variability
KLCH	Kuala Lumpur City Hall
PANAS	Positive and Negative Affect Schedule
POMS	Profile of Mood State
PR	Pulse Rate
PSS	Perceived Stress Scale
ROS	Restorative Outcome Scale
TMD	Total Mood Disturbance
UGS	Urban Green Space

CHAPTER 1

INTRODUCTION

1.1 General Background

In this era of rapidly developing technology, the various challenges and effects faced by the citizen, and the increased competition in life makes urban people getting more stressful. The existence of stress and its influences on the lives of many people throughout the world is a major health issue in society (Iwasaki, Takahashi, & Nakata, 2006). A common approach for people to deal with stress is through pharmacology. However, the usage of medicine in the reduction of stress level brings a side effect to the patient. Stress reduction medicine such as benzodiazepines has been proved in the previous studies that it can deteriorate instances of pre-existing despair, and current research also noted that it could doubtlessly result in treatment-resistant depression, emotional obstruct or anaesthesia and reinforce thought and feeling of suicide (Anxiety Medication, 2018).

As greater regions have given way for urbanisation and development, humans are beginning to lose connection with nature. In Malaysia, widespread quantity of urban green area was lost in Kuala Lumpur (Yaakup et al., 2005; Teh, 1989), in Penang (Tan, Lim, MatJafri, & Abdullah, 2010) and while Kanniah and Siong (2017) found 4 main cities in Peninsula Malaysia lost between 4 and 17 per cent of tree cover from their general land region between 2000 to 2012.

According to Willson's (1984), biophilia hypothesis states that human beings possess a biological need for connections with nature, for instance, living structures in preference to that of people. Thus, there is a growing number of studies, shows that explore in green spaces and get in touch with natural elements can help to minify psychological stress, improve physiological well-being, and support healing from disease and illness (Hansmann, Hug, & Seeland, 2007; Pretty, Peacock, Sellens, & Griffin, 2005).

Urban recreational park creates the environment of a liveable city. It forms part of the open space provided by the local government in supporting the urban residents' well-being and quality of life (Sanesi & Chiarello, 2006). Besides, the urban recreational park also refers to a publicly accessible open land with facilities that provide outdoor recreational activities and cover with a high degree of vegetation (Henderson, 2013; Schipperijn, Stigsdotter, Randrup, & Troelsen, 2010; Solecki & Welch, 1995).

1.2 Problem Statement

Urbanization with low green space affects mental health (Srivastava, 2009), and resulting in people undergoing stress (Wolf, 2018). Stress is a universal experience. Everyone experiences stress, it seems a normal as part of life. Different people experience different types of stress in a different circumstance. For instance, conflict with a friend might create stress for certain people and

effect on their mood for the rest of the day while another might just easily forget about it. In other words, people who care about maintaining relationships work harder at keeping themselves healthy and happy. These can grow to be to persistent stress which interrupts almost every system in the human body and lead to severe health problems. Chronic stress could suppress the body's immune system, trouble on the digestive system and the reproductive system, induce in the rate for risk of heart attack and stroke, and hurry the ageing process. It can also easily cause anxiety, depression and other mental health problems to individuals who experiencing continual stress (Segal, Smith, Segal, & Robinson, 2018).

According to Barton and Rogerson (2017), global urbanization has reduced green space access and engagement, resulting in individuals have greater mental stress, more anxiety and depression, when living in urban areas with less green space. Reduction of urban green space is not a good phenomenon, as urban green infrastructure provides many benefits to the public (Hegetschweiler et al., 2017), which these urban green area helps to promote physical activity (Lovell, 2016) that are needed to help in the restoration of both promoting psychological (Bratman, Hamilton, Hahn, Daily, & Gross, 2015; Bratman, Hamilton, & Daily, 2012) and physiological state (Park, Tsunetsugu, Kasetani, Kagawa, & Miyazaki, 2010; Van den Berg, Maas, Verheij, & Groenewegen, 2010).

In 2016, park user arises an issue to Kuala Lumpur City Hall (KLCH) about the deteriorating condition of the Bukit Jalil Park. A signature campaign to gather support to protect the park has been planned to highlight their concerns as the park users. This is because the condition of the Bukit Jalil Park had undergone drastic changes compared to the seven years ago. The size of the green space is reduced in size, water in the ponds is muddy. This happened due to the surrounding construction project taken are some in the green space and construction debris was dumped next to the park.

Therefore, the study on the effectiveness of urban green space on stress relief should be done to see how effective that green area can reduce stress among the public. In Malaysia, there are still lacking study in linking recreational activities in an urban green space with a person's health level (Nath, Han & Lechner, 2018). This research will contribute to the stakeholder or the future developer to consider the importance of urban green space during urbanization activities.

1.3 Objective

The main objective of this study is to determine the effectiveness of urban green space on stress relief at Bukit Jalil. The specific objectives of this study are:

a. To distinguish the differences between urban green space and city towards urban users' health impact.
b. To identify the stress restorative effect at urban green space and city on users.

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