



**NATURAL ENVIRONMENT EFFECTS ON HEALTH AND PSYCHOLOGICAL
WELL-BEING OF PEOPLE IN DAMANSARA CITY, MALAYSIA**

By

THIVYA LAXSHMY RAMAN

**Thesis Submitted to the School of Graduate Studies, Universiti Putra
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Science**

December 2021

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Abstract of thesis presented to the Senate of Universiti Putra Malaysia in fulfillment of the requirement for the degree of Master of Science

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December 2021

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Malaysia is also on the verge of a mental deterioration wave. A large part of the day is spent in the workplace. Due to this, Malaysians are more vulnerable to mental illness. Malaysia's psychological well-being concerns have grown in the last two decades due to a lack of mindfulness of emotional well-being and cultural shame surrounding mental diseases. As a result, there is a real need for a technique for self-care that will promote psychological well-being during this period. Hence, the purposes of the study were to analyze the short-term effects of walking on diverse environmental conditions among working adults and give psychological information on the health outcomes of different urban green environments. The participants of this study were 80 working adults include males and females. The study area chosen for this study was Kota Damansara Community Forest Reserve, Mutiara Damansara Recreational Park, and Urban Green Corridor along Jalan PJU 7/2 was used as a control study site. All three study sites were visited in random order and on random weekends. Participants were asked to walk along a given route in three areas in which the time was set similarly three areas (30 minutes). Restorative effects that are measured: Depression, Anxiety and Stress Scale (DASS-21), Profile of Mood States (POMS) and Positive and Negative Affect Schedule (PANAS), and Restoration Outcome Scale (ROS) were used to identify psychological effects of different natural environments. The results indicated Kota Damansara Community Forest Reserve as an urban forested area and Mutiara Damansara Recreational Park as an urban park more effective in reducing stress. The restorative effects increased in all three green environments. The Kota Damansara Community Forest Reserve was chosen as most restorative than the other two. The recreational park was less restorative than urban forest but more restorative than the urban green corridor, which was at least restorative. The POMS test indicated a clear distinction of restorative effects in urban forested area and recreation park as the Total Mood Disturbance (TMD) of participants are negative, whereas in urban green corridor showed no changes. According to the PANAS test, participants showed an increase in positive attitude after took their

walk at Kota Damansara Community Forest Reserve and Mutiara Damansara Recreational Park compare to the urban green corridor.



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**KESAN PERSEKITARAN SEMULAJADI TERHADAP KESIHATAN DAN
PSIKOLOGI KESEJAHTERAAN RAKYAT DI BANDARAYA DAMANSARA,
MALAYSIA**

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Malaysia kini berada di ambang gelombang kemerosotan mental. Sebahagian besar harian golongan dewasa diluahkan di tempat kerja. Disebabkan ini, golongan dewasa di Malaysia lebih terdedah kepada masalah kesihatan mental. Kebimbangan terhadap kesejahteraan psikologi di Malaysia telah berkembang semenjak dua dekad yang lalu, ia disebabkan oleh kekurangan kesedaran tentang kesejahteraan emosi dan sifat keengganan budaya yang mengalami masalah gangguan mental. Berikutan itu, amatlah diperlukan untuk mempraktikkan teknik penjagaan diri yang betul bagi menggalakkan kesejahteraan psikologi dalam tempoh ini. Oleh itu, tujuan kajian ini adalah untuk menganalisis kesan jangka pendek aktiviti berjalan kaki pada keadaan persekitaran semula jadi yang berbeza di kalangan orang dewasa yang bekerja justeru memberi maklumat psikologi tentang hasil kesihatan persekitaran bandar hijau yang berbeza. Peserta kajian ini adalah 80 orang dewasa yang bekerja termasuk lelaki dan wanita. Kawasan kajian yang dipilih untuk kajian ini adalah Hutan Simpan Komuniti Kota Damansara, Taman Rekreasi Mutiara Damansara dan Koridor Hijau Bandar di sepanjang Jalan PJU 7/2 dijadikan lokasi kajian kawalan. Ketiga-tiga lokasi kajian dikunjungi oleh peserta secara rawak pada hujung minggu. Peserta diminta berjalan di sepanjang laluan tertentu di tiga kawasan di mana waktunya ditetapkan sama di tiga kawasan (30 minit). Kesan pemulihan yang diukur: Depresi, Kecemasan dan Skala Tekanan (DASS-21), Profil Keadaan Mood (POMS) dan Jadual Pengaruh Positif dan Negatif (PANAS) dan Skala Hasil Pemulihan (ROS) digunakan untuk mengenal pasti kesan psikologi dari persekitaran semula jadi yang berbeza. Hasil kajian menunjukkan Hutan Simpan Komuniti Kota Damansara sebagai kawasan hutan kota dan Taman Rekreasi Mutiara Damansara sebagai taman bandar jauh lebih berkesan dalam mengurangkan tekanan. Kesan pemulihan meningkat dengan ketara di ketiga-tiga persekitaran hijau. Hutan Simpan Komuniti Kota Damansara sebagai hutan bandar paling banyak dipulihkan daripada dua yang lain. Taman rekreasi kurang restoratif daripada hutan bandar, tetapi lebih banyak restoratif daripada

koridor hijau bandar yang mana ia hanya sekurang-kurangnya untuk restoratif. Ujian POMS menunjukkan perbezaan kesan restoratif yang jelas di kawasan hutan bandar dan taman rekreasi kerana Keseluruhan Mood Gangguan (TMD) peserta adalah negatif sedangkan di koridor hijau bandar tidak menunjukkan perubahan yang signifikan. Menurut ujian PANAS, para peserta menunjukkan peningkatan sikap positif setelah berjalan-jalan di Hutan Simpan Komuniti Kota Damansara dan Taman Rekreasi Mutiara Damansara dibandingkan dengan koridor hijau bandar.



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I certify that a Thesis Examination Committee has met on 9 December 2021 to conduct the final examination of Thivya Laxshmy Raman on her thesis entitled Natural Environment's Effect on Health and Psychological Well-Being of People in Damansara City in accordance with the Universities and University Colleges Act 1971 and the Constitution of the Universiti Putra Malaysia [P.U.(A) 106] 15 March 1998. The Committee recommends that the student be awarded the Master of Science.

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LIST OF ABBREVIATIONS

PANAS	Positive Affect and Negative Affect Schedule
DASS-21	Depression, Anxiety and Stress Scale
POMS	Profile of Mood States
KDCFR	Kota Damansara Community Forest Reserve
MDRP	Mutiara Damansara Recreational Park
MDUGC	Mutiara Damansara Urban Green Corridor
EEG	Electroencephalogram
AAT	Aesthetic Affective Theory
TMD	Total mood Disturbance
ART	Attention Restoration Theory
ROS	Restoration Outcome Scale
WHO	World Health Organization
IPH	Institute of Public Health
AIA	American International Assurance

CHAPTER 1

INTRODUCTION

1.1 General Background

Stress, discouragement, and anxiety difficulties are now the leading causes of incapacity in the middle to high-income countries, making working adults' psychological well-being and prosperity a critical current general medical concern (Kohli, Sharma, & Sood, 2011). This pattern may be attributed to increased urbanization, with 67% of people in more developed Asian countries like Malaysia expected to live in cities by 2050 and decreased access to natural spaces, which may help with stress reduction (O'Súilleabháin et al., 2019). In this regard, most Malaysians live and work in densely crowded areas. When working adults live in these design-overwhelmed environments, they feel increased pressure, unease, and wretchedness (Ratanasiripong et al., 2016). Stress has been linked to cardiovascular-related conditions, such as elevated blood pressure, in addition to mental health problems like anxiety and depression (Hirsch et al., 2018).

Working stress has an effect not only on the workforce but also on society, as making a generation vulnerable to both mental and physical ailments will harm society's growth and a drain on its wealth (Hanafiah & Van Bortel, 2015). In order to react to this case, a few Malaysians believe that the pressure is hypocritical. This problem has all the hallmarks of being more severe in traditional Asian social orders, such as Malaysia, where ignorance, injustice, and discrimination are deeply rooted in their knowledge, attitudes, and behavior (Furlong, Phelan, & Dodson, 2018). Malaysians must seek out arrangements that are consistent with their cultural and social characteristics to cope with their employment demands.

With a growing interest in nature-oriented stimulations' health benefits, nature dosage therapy has gained a lot of attention in many developing countries (Kabisch et al., 2016). Since it is strongly correlated with human health problems from the standpoint of preventive medicine, the natural environment, such as urban parks, green corridors, and forests, is often considered an important factor in health promotion (Cameron et al., 2012). Furthermore, it is well recognized that exposure to natural environments reduces health problems and avoids mortality in senior city dwellers. There are hypotheses that describe how restoration functions in different natural settings. Ulrich's theory of stress reduction (SRT) and Kaplan's theory of attention restoration (ART) have both been helpful in the study of cityscape ideas. The Stress Reduction Theory (SRT), which is based on the idea that natural ecosystem services help with resilience, may promptly stimulate powerful emotions and unpleasant sensations, is an elective theory of productive environments (Bedimo-Rung, Mowen, & Cohen, 2005). The term 'rebuilding,' according to the Attention Restoration Theory

(ART), refers to phases in which individuals recover from anything that has impaired their ability to adapt to their everyday duties and expectations (Kaplan & Kaplan, 1989).

The Stress Recovery Theory (SRT) articulated the discovery of the benefits of natural areas and how they can reduce psychological reactions caused by mental illnesses. These points of concern and the subsequent shifts in good effect and mindfulness manifest as the application of respect and the beneficial effect of identifying natural areas with unique flexible characteristics. The multifaceted nature, technique, power, and surface attributes, just as mysterious as the inner environment, just as semantic, such as the lack of danger and the existence of qualities, should probably be evident. In ancient Rome, where natural areas served as a daily place for individuals to frequently take evacuees in forested areas to relieve urban crowding, the use of nature to improve mental and physical well-being was referred to as "nature therapy" (Ulrich, 1983).

Despite the fact that study into the role and significance of nature restoration has grown, it is still unclear whether qualities of nature are generally beneficial (WHO, 2018). The majority of research comparing the beneficial impact of green areas to developed areas following exposure to these areas has found that a natural environment reduces stress more effectively. A significant number of studies have looked at the health benefits of physical activity in green environments (forest bathing), with similar findings (Pasanen et al., 2019). The majority of studies have compared the beneficial impact of green spaces to those of developed environments. There is currently little evidence-based on field experiments exploring how different urban green areas promote regeneration (Chan et al., 2019) and even fewer field studies comparing the nature dosage of different urban green areas (Ekkel & de Vries, 2017; Wood et al., 2017). There is an awareness gap about whether different urban green spaces have different restorative effects. For example, we do not know how various forms of urban green areas, such as a green corridor, a park, or a forest, impact people's views of their health or mental health benefits.

Many countries benefit from urban green corridors, urban parks, and urban woodlands, which provide valuable recreational opportunities (Braubach et al., 2017). Urban parks and urban forests, for example, are the most common habitats for physical activity in Malaysia (Jiang, Zhang, & Sullivan, 2015). Despite a growing awareness that leisure usage of urban green space has a positive impact on well-being, Malaysia has decreased the availability of forest land by replacing patches of urban green corridors and pocket parks with forest (Melaas et al., 2016). However, this initiative has reduced the green area's suitability for leisure (WHO, 2004). As a result, we must investigate how different urban green spaces can benefit and influence restoration outcomes.

1.2 Problem Statement

In Malaysia, two significant cities/districts are evaluated as high costs to live in: Kuala Lumpur and Petaling Jaya district (Alya, 2018). Damansara is a city of Petaling Jaya's heart, which is a busy urban city with the higher movement people. Likewise, those living in urbanized areas tend to undergo high stress. They had to face traffic jams, high living expenses and pressure from the working environment. The most prevalent source of financial stress is a high cost of living, followed by a low income and a lack of savings (Meikeng, 2021). Furthermore, Malaysia is also on the verge of a mental deterioration wave (Hassandarvish, 2020). A large part of the day is spent in the workplace. Due to this, Malaysians are more vulnerable to mental illness. Malaysia's psychological well-being concerns have grown in the last two decades due to a lack of mindfulness of emotional well-being and cultural shame surrounding mental diseases (Chua, 2020). As a result, there is a real need for a technique for self-care that will promote psychological well-being during this period.

Given that most people spend most of their waking hours at work (Health, 2019). As a result, studying environmental psychology, i.e., a walk-in green space and its impact on human behaviour, become a critical research issue that must be addressed. Psychological studies show that humans have an emotional attachment to natural environments, helping with stress relief, depression and anxiety relief, and psychological rehabilitation. However, it is unclear how the various physical characteristics of urban green areas affect mood improvement, increase in positive feelings, vitality level, etc. (Gunawardena, Wells, & Kershaw, 2017). In this study, we set out to bridge a knowledge gap about the effectiveness of walking in various urban green environments among working adults from both psychological perspectives. For this reason, we investigate three study sites in Damansara City, allowing working adults to have easy access to it.

1.3 Research Questions

Furthermore, to better understand the effects of physical activity in various forms of urban green spaces. The following research questions identified below:

1. Would there be a difference in the (POMS, PANAS and ROS) in urban recreational park and urban forested area compared to urban green corridors after the experiment?
2. Is there a relationship between the restorative effects of visits in three different urban green environments; an urban forested area, an urban park and an urban green corridor?
3. Is there a relationship between the effect of walking on DASS-21, PANAS, and POMS?

1.4 Research Objectives

The study's three primary goals are as follows:

1. To compare the effects of three urban natural environments: an urban forested area, an urban green corridor and urban park (ROS, PANAS and POMS).
2. To investigate the relationship between restorative effects of visits in three different kinds of urban natural environments: an urban forested area, an urban recreational park, and an urban green corridor
3. To evaluate the effect of walking on DASS-21, PANAS and POMS.

1.5 Significance of Study

This study will show how urban green environments benefit mental health in working adults. Working adults, policymakers, governmental planners, academicians, private industries, and non-governmental organizations are among the authorities who can use the results of this study. It is important for them to take note of this result especially policymakers since they have neglected mental health. The more it is neglected by the policymakers and the local authorities, the more loss of productivity and it will add more burden on medical services.

Besides, there are few studies in Malaysia have been done specifically on the stress level among the undergraduates' students (Aziz et al., 2021; Mokhtar et al., 2018). Since then, the studies on mental health well-being of working adults in Malaysia is still lacking. Hence, it is expected that the results of the working adult's stress levels influenced by different urban natural environments would lead to those sectors becoming more beneficial and sustainable for working adults. Furthermore, it can be used as a testing tool and reference in future studies. For instance, this research can be used as a guide for any new variables found that could influence working adults' stress levels in the urban green space industry. Furthermore, the study would provide working adults with a clearer understanding of how to deal with stress effectively and a greater motivation to use urban green spaces. As a result, the severe community's mental health issues, such as working adult's stress, will be minimized and prevented in the future.

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