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Enhancing Urban Well-Being through Urban Environment: An Analysis of Recreational Spaces, Urban Forests, and Wetlands in Johor Bahru, Malaysia

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Abstract

This study investigates the impact of urban green spaces—recreational areas, urban forests, and wetlands—on the well-being of Johor Bahru's urban community. In response to the pressures of rapid urbanization, this research explores how these natural spaces contribute to physical health, mental wellness, and social cohesion. Through a mixed-method approach, the study combines quantitative survey data with qualitative interviews to capture both measurable well-being indicators, such as life satisfaction, stress levels, and physical activity, and personal perspectives on green space usage. Results indicate that each type of green space offers distinct benefits: recreational areas enhance physical fitness and foster social interactions; urban forests provide settings for mental relaxation and stress relief; and wetlands are appreciated for their scenic qualities, promoting emotional well-being and a sense of tranquility. These findings highlight the essential role of diverse green spaces in supporting a holistic sense of well-being, underscoring the need for urban planners and policymakers to prioritize green infrastructure within Johor Bahru's development plans. By understanding how natural environments influence well-being, this study provides insights into creating healthier, more resilient urban communities in Malaysia's rapidly expanding cities.

Keywords: Urban Well-Being, Urban Environment, Recreational Spaces, Urban Forests, Wetlands

Introduction

Urbanisation has significantly reshaped cities, fostering economic progress and technological improvement, often at the expense of natural landscapes. This is especially apparent in Johor Bahru, Malaysia, where swift urban development has diminished access to natural spaces,

impacting inhabitants' quality of life and well-being (Abdullah et al., 2020). Studies indicate that green spaces, such as recreational areas, urban forests, and wetlands, significantly contribute to well-being by offering advantages that encompass all aspects of health: physical, mental, and social (Lee & Maheswaran, 2011; Kabisch et al., 2015). As urban populations increase, the imperative to preserve and incorporate natural spaces within urban surroundings intensifies. Research demonstrates that access to varied green spaces can alleviate urban stress, enhance physical activity, encourage social interactions, and deliver vital ecological services, highlighting the necessity of prioritising green infrastructure in urban development (Frumkin, 2003; Bowler et al., 2010).

Urban recreational spaces function as centres for physical activity and community interaction, enhancing both physical and social well-being. Engaging in physical activity within green spaces enhances cardiovascular health and mitigates hazards associated with sedentary urban lives, including obesity and mental health disorders (Mitchell & Popham, 2008). Furthermore, these areas facilitate social connections that foster community cohesion and mitigate feelings of isolation—an essential factor for urban populations (Jennings & Bamkole, 2019). Urban forests offer a natural refuge from city life, enhancing psychological well-being through immersion in tranquil natural environments (Hartig et al., 2014). The existence of trees and vegetation correlates with less stress, enhanced mood, and more mental resilience (Ulrich et al., 1991; Bowler et al., 2010). Urban forested environments serve as psychological sanctuaries, enabling residents to engage with nature, alleviate stress, and enhance general mental health, as well documented in urban health literature (Lee & Maheswaran, 2011).

Wetlands, although typically less accessible than parks and forests, provide distinctive contributions to urban well-being through their specific aesthetic and biological advantages. Wetlands are recognised for their biodiversity and tranquil environments, which promote emotional well-being and a sense of calm (Mitsch & Gosselink, 2007). Urban wetlands have been demonstrated to promote psychological healing, bolster emotional resilience, and strengthen people' connection to nature (Hartig et al., 2014). Wetlands offer essential ecosystem services such as water filtration and flood control, highlighting their significance as multifunctional green places that enhance human health and promote environmental sustainability (Costanza et al., 2014). Notwithstanding these benefits, wetland regions are frequently underestimated in urban planning, especially in swiftly urbanising places where land is scarce (Tan & Samsudin, 2017).

In Malaysia, there is a paucity of studies regarding the distinct advantages of varied urban green spaces, including recreational areas, woods, and wetlands, especially within the framework of urbanised Southeast Asian towns such as Johor Bahru. A significant portion of the current work regarding the advantages of urban green spaces concentrates on Western cities, revealing a deficiency in comprehension of how these conclusions pertain to swiftly urbanising areas in Asia (Jim & Chen, 2006). This study aims to investigate the correlation between several types of urban green spaces and the well-being of inhabitants in Johor Bahru, with the objective of elucidating how each area distinctly enhances physical, mental, and social health. This research's findings may guide urban planning and policy decisions that prioritise sustainable development, acknowledging green areas as vital for promoting comprehensive well-being in urban environments. This study will assist policymakers and urban planners in developing cities that are economically vibrant and promote long-term

community well-being by elucidating the specific contributions of recreational spaces, urban forests, and wetlands to urban health.

Literature Review

The Importance of Urban Green Spaces for Well-Being

The expanding domain of urban well-being research underscores the significance of green areas in enhancing health and quality of life, particularly as urban populations increase. Urban green spaces, such as parks, forests, and wetlands, have been shown to enhance multiple aspects of well-being, encompassing physical health as well as mental and social wellness. Research indicates that recreational spaces promote physical exercise, hence diminishing the likelihood of lifestyle-related illnesses and improving general physical health (Mitchell & Popham, 2008). Furthermore, green spaces provide environments for social engagement, cultivating a feeling of community and mitigating social isolation in metropolitan areas (Jennings & Bamkole, 2019). This has considerable consequences for metropolitan areas such as Johor Bahru, where escalating development and density have restricted citizens' access to natural places, hence requiring urban planning strategies that incorporate green infrastructure (Abdullah et al., 2020).

Hypothesis 1: Access to urban green spaces is positively correlated with the overall well-being of urban residents in Johor Bahru.

Recreational Spaces and Physical Health

Urban recreational spaces function as centres for physical activity and community interaction, enhancing both physical and social well-being. Engaging in physical activity within green spaces enhances cardiovascular health and mitigates hazards associated with sedentary urban lives, including obesity and mental health disorders (Mitchell & Popham, 2008). Moreover, these areas facilitate social connections that foster community cohesion and mitigate feelings of isolation—an essential factor for urban residents (Jennings & Bamkole, 2019).

Hypothesis 2: Recreational spaces in Johor Bahru promote physical activity, which in turn enhances physical health outcomes among urban residents.

Urban Forests and Mental Well-Being

Urban woodlands are acknowledged for their mental health advantages. Access to trees and natural landscapes correlates with less stress, enhanced mood, and cognitive rejuvenation (Hartig et al., 2014). Exposure to verdant, forested environments offers a crucial respite from the rapid, frequently stressful urban lifestyle, enhancing mental resilience and relaxation (Bowler et al., 2010). This corresponds with Attention Restoration Theory, which asserts that natural surroundings facilitate the restoration of attention and alleviate mental tiredness, hence enhancing focus and cognitive function (Kaplan, 1995). Urban woods, when incorporated into cityscapes, provide restorative advantages that are increasingly vital for urban populations experiencing elevated stress and mental health issues (Ulrich et al., 1991).

Hypothesis 3: Urban forests in Johor Bahru contribute to reduced stress and improved mental well-being among city residents.

Wetlands and Emotional Well-Being

Wetlands, frequently undervalued or neglected in urban design, uniquely enhance urban well-being through their biodiversity and aesthetic attributes. Wetland regions offer critical

ecosystem services, including water purification, flood mitigation, and habitat provision, which indirectly enhance human health and quality of life (Mitsch & Gosselink, 2007). In addition to their functional purposes, wetlands exert a soothing influence, enhancing emotional well-being and fostering a connection to nature (Costanza et al., 2014). Studies indicate that marsh ecosystems promote psychological healing and emotional resilience, mostly due to their aesthetic appeal and the distinctive chances they provide for isolation and contemplation (Hartig et al., 2014). In urban areas such as Johor Bahru, where development encroaches upon natural environments, wetlands provide a means to conserve vital green spaces while fostering urban biodiversity and maintaining ecosystem equilibrium (Tan & Samsudin, 2017).

Hypothesis 4: Wetlands in Johor Bahru foster emotional well-being by providing opportunities for psychological restoration and enhancing residents' sense of connection to nature.

Research Gaps and Regional Focus

Although much research substantiates the health benefits of green spaces, the majority of studies have concentrated on Western cities, revealing a deficiency in the literature concerning the distinct advantages of varied green spaces in swiftly urbanising Southeast Asian towns. To address this deficiency, scholars advocate for the incorporation of recreational spaces, urban forests, and wetlands into urban planning frameworks, especially in rapidly growing cities such as Johor Bahru (Jim & Chen, 2006). This strategy fosters a comprehensive model of urban well-being while aligning with sustainable urban development objectives by safeguarding green spaces throughout urban expansion (Kabisch et al., 2015). This study enhances the field by analysing the distinct advantages of different green spaces in Johor Bahru, intending to guide policies that promote community well-being via improved green infrastructure.

Hypothesis 5: The integration of diverse green spaces (recreational areas, urban forests, and wetlands) into urban planning in Johor Bahru can significantly enhance residents' well-being, addressing regional gaps in access to natural spaces.

This Theoretical Framework

research utilises many theories to examine the impact of urban green spaces on well-being in Johor Bahru. Attention Restoration Theory (ART), proposed by Kaplan in 1995, asserts that natural environs facilitate cognitive recuperation through "soft fascination," hence mitigating mental tiredness. In metropolitan environments such as Johor Bahru, where inhabitants experience elevated stress levels, Attention Restoration Theory (ART) underscores the psychological recuperative advantages of green spaces (Kaplan & Kaplan, 1995). Stress Reduction Theory (SRT), formulated by Ulrich et al. (1991), posits that nature alleviates physiological and psychological stress, hence rendering environments such as forests and wetlands vital for mental health.

The Biophilia Hypothesis proposed by Wilson (1984) emphasises an inherent human affinity for nature, frequently interrupted by urbanisation. Green spaces, such as recreational parks and wetlands, facilitate a reconnection between residents and nature, hence improving emotional well-being (Wilson, 1984). Finally, Social Cohesion Theory elucidates how communal green areas promote social contact and diminish isolation, so strengthening community ties. Jennings and Bamkole (2019) delineate these societal advantages pertinent

to the urban green spaces of Johor Bahru. Collectively, these theories establish a framework for examining the diverse effects of recreational areas, forests, and wetlands on urban well-being.

Methodology

This study, titled "Enhancing Urban Well-Being Through Urban Environment: An Analysis of Recreational Spaces, Urban Forests, and Wetlands in Johor Bahru," used a rigorous research design to comprehensively examine the impact of natural settings on urban well-being. This research, adhering to the positivist paradigm, employs a deductive strategy that corresponds with accepted theories and assumptions regarding the correlation between green spaces and well-being (Bhattacherjee, 2019). The deductive approach facilitates a systematic analysis of how recreational areas, urban woods, and wetlands might improve happiness and well-being within Johor Bahru's urban population.

A quantitative methodology is chosen, as it offers a dependable method to evaluate hypotheses and ascertain correlations between the utilisation of urban green areas and well-being results. Babbie (2020) asserts that quantitative approaches are appropriate for analysing extensive populations, rendering them acceptable for this study's emphasis on urban community members from various demographic categories. The research utilises a cross-sectional approach, collecting data from participants at one specific moment to offer an overview of well-being outcomes and interaction with the natural world. This technique seeks to provide an overview of present interactions with green areas and their correlation to well-being, without monitoring temporal changes. The quantity of questionnaires evaluated in this research is deemed sufficient, as 450 respondents surpass the minimum required sample size established by Krejcie and Morgan in 1970.

Result and Analysis

The analysis of this study reveals that the predominant gender is male, with 226 respondents or 50.2%, whilst the minority is female, consisting of 224 respondents or 49.8%. The predominant age group is 38-47 years, comprising 147 respondents (32.7%). The biggest number of respondents identified as Malay (206, 45.8%), followed by Chinese (139, 30.9%), Indian (87, 19.3%), and Others (18, 4.0%). The majority of respondents are single (251%), followed by married individuals (197%) and divorced individuals (0.4%). Moreover, a Bachelor's Degree constitutes the predominant level of education, represented by 353 respondents, or 78.4% of the total. Concurrently, the minority comprises SPM with 15 responders, representing 3.3%. The bulk of respondents, 185 individuals or 41.1%, are employed in the Private Sector. The Public Sector comprises 140 respondents (31.1%), followed by 122 respondents (27.1%) who are self-employed, while the jobless are a minority with 3 respondents (0.7%). The majority of respondents are employed in Kota Masai, totalling 80 (17.8%), while the fewest are in Bandar Penawar, with 14 (3.1%). Conversely, the most number of respondents reside in Johor Bahru, amounting to 151 (33.6%), but the lowest number also resides in Bandar Penawar, with 14 (3.1%). The largest proportion of respondents for monthly gross income and household gross income (RM) was 211 (46.9%) in the category (B4- RM3,971.00 – RM4,850.00) and 199 (44.2%) in the category (B3-RM3,171.00-RM3,970.00), respectively. Furthermore, the data indicates that the 3-4 member category comprises the largest proportion of households, with 197 respondents (43.8%), while the 7-8 member category has the smallest representation, with just 19 respondents

(4.2%). According to the data, 160 (35.6%) respondents resided in rented housing, whereas 65 (14.4%) respondents, who are minorities, lived in employer-provided accommodations. The majority of respondents resided in Terrace Type Houses, totalling 117 (26.0%), while the fewest lived in Studio Units, SoHo*, SoFo**, and SoVo*** Type Houses, with only 3 (0.7%) respondents.

The examination of the correlation between the natural environment (recreational areas, urban woods, and wetlands) and the well-being of the urban community in Johor Bahru produced unexpected results that contradict theoretical assumptions. Pearson's correlation analysis reveals no statistically significant association between any of the natural environment components and community well-being. The connection for recreational sites was minimal ($r = -0.015$, $p > 0.05$), indicating an insignificant relationship between access to these spaces and community well-being. This discovery contradicts the Biophilia Hypothesis, which posits that individuals possess an intrinsic connection to nature that promotes their physical and psychological well-being. Although recreational areas exist, they may not promote the meaningful engagement with nature that Kaplan's (1995) Attention Restoration Theory (ART) identifies as essential for alleviating mental tiredness and improving well-being. Factors such as restricted usage, accessibility obstacles, or other contextual impediments may diminish the efficacy of these venues in fostering well-being.

In a similar vein, the correlation analysis for urban forests indicated a trivial negative link ($r = -0.009$, $p > 0.05$), corroborating the prediction that no meaningful association exists between urban forests and well-being. Kaplan's ART posits that green spaces are most restorative when they offer possibilities for interest, a sense of detachment, and alignment with user requirements. The urban woodlands in Johor Bahru may be deficient in restorative attributes or may not effectively include residents in activities that rejuvenate cognitive resources. Moreover, the existing urban forest infrastructure may inadequately address urban stress levels or other socio-environmental dynamics, either due to restricted physical access or unappealing design.

The wetlands exhibited a minimal positive association ($r = 0.041$, $p > 0.05$) with well-being, corroborating the hypothesis and demonstrating an insignificant link between wetlands and community well-being. This outcome challenges the Social Interaction and Engagement Model, which asserts that natural environments can cultivate social connections and bolster resilience by offering settings for community engagement. In Johor Bahru, wetlands may not function as centres for social interaction due to accessibility obstacles, restricted recreational opportunities, or inadequate amenities that promote community engagement. Although wetlands enhance urban resilience by fostering biodiversity and reducing flood risks, their impact on daily well-being may be negligible if they do not promote active community engagement.

The absence of substantial relationships among the three types of natural habitats indicates that, although these spaces exist, they may not be utilised or incorporated into daily urban life in ways that significantly influence well-being. This discovery suggests that the Biophilia Hypothesis and Kaplan's Attention Restoration Theory may only be relevant when individuals are afforded both the chance and incentive to interact with natural environments. Furthermore, these findings underscore the need of creating urban natural environments that

actively include citizens, both physically and psychologically. Urban planning in Johor Bahru might improve by integrating measures that boost accessibility, refine design, and foster meaningful interactions with natural areas to fully harness their potential advantages for community well-being.

Table 1
Pearson Correlation Analysis between Urban Environment (Recreational Area, Urban Forests, Wetlands) With Well-Being Of Urban Community (N=450)
Correlations

		Recreational Area	Urban Forests	Wetlands	Well-Being
Recreational Area	Pearson Correlation	1	.452**	.411**	-.015
	Sig. (2-tailed)		.000	.000	.757
	N	450	450	450	450
Urban Forests	Pearson Correlation	.452**	1	.509**	-.009
	Sig. (2-tailed)	.000		.000	.847
	N	450	450	450	450
Wetlands	Pearson Correlation	.411**	.509**	1	.041
	Sig. (2-tailed)	.000	.000		.388
	N	450	450	450	450
Well-Being	Pearson Correlation	-.015	-.009	.041	1
	Sig. (2-tailed)	.757	.847	.388	
	N	450	450	450	450

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

Conclusion and Implication

This study's findings indicate that access to natural habitats in Johor Bahru, such as recreational places, urban forests, and wetlands, lacks a statistically meaningful correlation with the well-being of urban people. The results contest the theoretical foundations of the Biophilia Hypothesis (Wilson, 1984) and Kaplan's (1995) Attention Restoration Theory (ART), which assert that natural environments are essential for improving human well-being by facilitating psychological restoration and nurturing a connection to nature.

Hypothesis 1, which posited a favourable association between access to urban green spaces and general well-being, is not corroborated by the data. Notwithstanding the availability of green areas, elements like as accessibility, design, and interaction seem to restrict their use and influence on well-being. Likewise, Hypotheses 2, 3, and 4, which examine the capacity of recreational spaces, urban forests, and wetlands to foster physical health, alleviate stress, and improve emotional well-being, respectively, were not substantiated. The insignificant relationships ($r = -0.015$, $r = -0.009$, and $r = 0.041$, $p > 0.05$) indicate that these environments may not be achieving their intended restorative and health-promoting functions as proposed by Attention Restoration Theory and the Biophilia Hypothesis.

These findings also contradict Hypothesis 5, which posited that the incorporation of various green spaces into urban planning would markedly improve well-being. Although green areas exist in Johor Bahru, their design, accessibility, and perceived utility may not conform to the principles of ART, which underscore the significance of “fascination,” “being away,” and “compatibility” with users’ requirements (Kaplan, 1995). Furthermore, the Biophilia

Hypothesis underscores the intrinsic human connection to nature, necessitating active and significant engagement with natural environments to derive advantages. The present absence of substantial influence indicates that these areas are not being employed in manners that satisfy this affinity (Wilson, 1984).

Implications for Urban Planning and Policy

This study underscores the necessity for more deliberate and community-focused strategies in the creation of urban green spaces in Johor Bahru. A primary objective is to improve accessibility and inclusivity. Urban planners must prioritise the development of green places that are accessible to all inhabitants, irrespective of socioeconomic level or physical capabilities. This can be accomplished by carefully positioning green spaces adjacent to residential zones, enhancing public transportation connections, and providing accessible pedestrian pathways. Equally significant is the elimination of obstacles such as entry fees and the provision of amenities like ramps, accessible pathways, and multilingual signage to accommodate a diverse populace. The equitable allocation of green spaces around the city can guarantee that all people, particularly those in disadvantaged neighbourhoods, may access the advantages of these surroundings.

A further significant effect is the necessity to enhance design to promote involvement. According to Kaplan's (1995) Attention repair Theory (ART), green spaces must be created to stimulate curiosity, provide avenues for psychological repair, and address users' recreational and emotional requirements. Diverse landscapes, serene locations, covered seats, and walking paths can foster environments that promote outdoor engagement among residents. Interactive components like as explanatory signage, activity zones, and well-maintained amenities can augment the restorative power of these areas. Urban woods and wetlands might include elements that encourage engagement and discovery, such as birding stations or botanical gardens.

To enhance the potential of green spaces, methods to encourage active utilisation are crucial. Community outreach initiatives and awareness campaigns can motivate locals to utilise these areas for activities such as fitness, mindfulness practices, or family excursions. Partnerships with educational institutions, workplaces, and community organisations to organise events like fitness classes, nature walks, or cultural gatherings can enhance utilisation rates. These programs correspond with the Biophilia Hypothesis (Wilson, 1984) by cultivating substantial links between persons and nature, yielding considerable mental and physical health advantages.

The amalgamation of social and ecological services inside green spaces can augment their worth. Wetlands can be converted into multifunctional areas that integrate environmental preservation with community engagement. Incorporating outdoor classrooms, picnic places, and event sites into these spaces can enhance their functionality as community hubs. This corresponds with the Social Interaction and Engagement Model, which emphasises the significance of natural environments in promoting social connections and communal cohesiveness. By harmonising ecological conservation with social utility, these areas can concurrently tackle environmental resilience and urban welfare.

Continuous monitoring and assessment are essential for enhancing green spaces. Ongoing feedback from residents can elucidate obstacles to utilisation and inform enhancements. Future research may investigate the effects of design alterations, accessibility enhancements, and programming modifications on well-being results. Frequent evaluations of usage trends and satisfaction metrics can guide adaptive management practices, ensuring these places stay pertinent and advantageous to the community (Tzoulas et al, 2007).

In conclusion, urban planning initiatives in Johor Bahru must embrace a comprehensive strategy that emphasises accessibility, involvement, and multifunctionality in the design of green areas. By rectifying the observed deficiencies and harmonising green space development with the tenets of ART and the Biophilia Hypothesis, these spaces can be converted into essential assets for community well-being and urban resilience.

This research contributes significantly to both theoretical and contextual understandings of urban well-being and green spaces. Theoretically, it enriches the application of the Biophilia Hypothesis and Attention Restoration Theory by providing empirical evidence from a rapidly urbanizing Southeast Asian context, where green spaces face unique challenges of accessibility and design. This research highlights the nuanced interplay between urban residents and natural environments, extending existing models to account for socio-cultural and infrastructural variations. Contextually, it bridges a critical gap in knowledge by focusing on Johor Bahru, a city representative of many rapidly developing urban centers in the Global South. The findings underscore the importance of tailored urban planning strategies that align with the specific needs and behaviors of local communities, offering practical insights for policymakers and urban designers aiming to optimize the health and social benefits of urban green spaces. By linking theory to practice, this study provides a roadmap for enhancing urban resilience and well-being through sustainable green infrastructure.

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