

Knowledge, Attitude and Practice on the Importance of Green Area among Youths in Putrajaya

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Abstract

Objective: This study investigated the relationship between knowledge, attitude and practice (KAP) on the importance of green area among youths in Putrajaya. **Method:** This was a cross-sectional study whereby, a (KAP) survey was conducted, involving community from 2 precincts in Putrajaya which are Presint 8 and Presint 9. A validated and pilot-tested questionnaire was distributed to 176 youths and results were analysed using SPSS. The questionnaire consists of four parts (social-demographic characteristic, general questions, (KAP) on the importance of green area, recommendation). The data was analysed by descriptive frequency, Pearson correlation test and Mann-Whitney U test to find the association between KAP on the importance of green area among youths in Putrajaya. **Result:** This study found a significant relationship between knowledge towards importance of green areas of Presint 8 and Presint 9 by using Mann-Whitney U test for independence. However, there was no association between attitude and practice on the importance of green area. The findings further showed there is a moderate level of knowledge, attitude and practice towards the importance of green areas. The study discovered that social media is the primary source for information regarding the importance of green areas for them. **Conclusion:** This study indicates that the respondents have moderate level of knowledge, attitude and practice towards the importance of green areas. The finding of data from youths in Putrajaya KAP data can be used as a reference to formulate effective health promotion intervention to increase the use of green spaces that would have a good impact on society, as well as on the economy and the environment of the country.

Keywords: Urban Green Area, Knowledge, Attitude and Practice (KAP), Youth

Introduction

Green areas would also include areas with 'natural surfaces' or 'natural environments,' as well as unique forms of urban greenery, including street trees, and 'blue rhythm,' which

reflects water elements varying from ponds to coastal regions (WHO Regional Office for Europe, 2016). There are so many definitions that are made by the researchers on green space areas which it could be different to any circumstances. Green areas are increasingly considered to be vital to citizens in terms of balancing their urban living by providing areas for restoration and addressing mental exhaustion and pressure or stress by assisting to mitigate for the negative psycho-physiological results of working and living in dynamically constructed in urban settings (Nath et al., 2018; Lee et al., 2015; Zhang et al., 2015; Braubach et al., 2017).

Despite advancing technology, current society depends on natural resources and services, not just for physically and mentally recovery and cultural and educational values that nature provides to human beings and food availability, but even more significantly clean air, soil conservation, water purification and adaptation to climate change or good disaster management (Włodarczyk-Marciniak, et al., 2020; Alcock, White, Wheeler, Fleming, & Depledge, 2014; Kabisch et al., 2016; Liu, Chen, & Peng, 2014; Millennium Ecosystem Assessment, 2005). Hunter, Cleary and Braubach (2019) elaborate that despite the increasing interest in and support for urban green space, nevertheless, the

existing information on environmental, health, well-being and equity-related interventions is relatively limited because the effects of these interventions on biodiversity and adaptation to climate change are relatively inadequate. It might be because the mechanisms by which green space could have an effect on climate change are minimal (Hunter et al., 2019). Green areas are increasingly considered to be vital to citizens in terms of balancing their urban living by providing areas for restoration and addressing mental exhaustion and pressure or stress by assisting to mitigate for the negative psycho-physiological results of working and living in dynamically constructed in urban settings (Nath, et al., 2018; Lee et al., 2015; Zhang et al., 2015; Braubach et al., 2017). Hence, Braubach et al. (2017), state that offering green areas is therefore a solution centred on biodiversity with a range of identified health and medical advantages.

The importance of urban nature and green spaces in promoting residents' health and well-being has long been recognised (Jalkanen, J. et al., 2020; Ayala-Azcárraga, Diaz, & Zambrano, 2019; Cox, Shanahan, Hudson, Fuller, & Gaston, 2018; Ekkel & de Vries, 2017; Norwood et al., 2019). Chia-bai et al. (2020) state that the association involving environmental and semi-natural ecosystems, on the present side, and human health and welfare, on the other, has been studied not only by scientists but also by organisations responsible for health promotion and environmental protection. There are two studies (Laan & Piersma, 2021; Haaland and van den Bosch, 2015) indicate that in urban areas, green spaces are critical for preserving ecosystems, regulating climate, reducing air pollution, and protecting against fire. In addition, there are several studies (Bonilla-Bedoya et al., 2020; Benedict & McMahon, 2012; Bottalico et al., 2016) state that forests and urban green spaces, also known as green infrastructure, support holistic, systematic approaches to land management, as well as land-use strategy and sustainability activities for both people and the natural environment.

Materials and Method

Study Design, Setting and Participants

A cross-sectional study has been conducted in this re- search. This study has used knowledge, attitude and practice (KAP) to assess correlation with the importance of green area among youths in Putrajaya. The sampling population was among youths in Presint 8 and Presint 9 of Putrajaya. Only youths aged 18-30 will be the respondents for this study. The first or initial method was purposive sampling where Putrajaya has been purposively selected to be included as the main location in this study due to several criteria that related with the importance of green area. In particular, there have been two precincts that are selected due to their specific criteria which were Presint 8 and Presint 9. Subsequently, systematic random sampling has been used which every 4th person found is selected to be the respondent and consecutively continued for the 8th person until total of sample sizes are achieved in Presint 8 and also Presint 9.

By using proportion for one group with 95% of confidence interval which has 1.96 of standard errors and 10% of desired precision. The smaller the precision, the higher the number of sample size required. The precision can be ranged from 5% to 10% and I used 10% to lower the number of sample size required. The reasoning or justification of the chosen precision is the limitations caused from the implementation of Movement Control Order (MCO) where researcher movement is limited on a fixed curfew and most public won't spending their times outdoor due to feeling afraid of getting infection from the ongoing outbreak. However, 10% drop out rate is needed to be taken into consideration just in case of any likelihood for drop out respondents. Hence, the total estimated sample is 108 respondents.

Questionnaire

The level of KAP on importance of green area among youths in both Presint 8 and Presint 9 has been evaluated by using self-administered questionnaire. The questionnaire includes of four components which are Section A (Socio-demographic traits), Section B (General questions), Section C (KAP on the importance of green area) and Section D (Recommended suggestions). Approvals have been obtained from 3 experts in the field and the questionnaire have been pre-tested after approvals are first obtained to ensure good content validity is achieved.

Statistical Analysis

The questionnaire has been examined by using Statistical Package for Social Sciences (SPSS) version 25.0. Descriptive analysis was used to identify the socio-demographic status, source of information about the importance of green area, level of KAP towards the importance of green area and the best medium to disseminate information and the most effective measure for preservation and conservation of green area in Malaysia. Then, Chi-Square Test was used to determine the association between socio-demographic variables with KAP towards the importance of green area and association between socio-demographic variables with KAP towards the importance of green area. After that, Mann-Whitney Test was used to compare knowledge, attitude and practice on the importance of green area between youths in Presint 8 and Presint 9.

Results

This research was conducted among youths in Presint 8 and Presint 9 of Putrajaya. In this research, there was a total of 176 respondents which were among youths in Presint 8 (n=92) and Presint 9 (n=84) were involved to assess their knowledge, attitude and practice on the importance of green area. The findings of the study were displayed as the following.

Socio-Demographic Characteristics

Table 1

Socio-demographic Characteristics (N=176)

Socio-demographic Profile		Presint 8 (n=92) N (%)	Presint 9 (n=84) N (%)
Age			
	<24 years old	46 (50.00)	38 (45.23)
	≥24 years old	46 (50.00)	46 (54.76)
Gender			
	Male	53 (57.61)	42 (50.00)
	Female	39 (42.39)	42 (50.00)
Race			
	Malay	63 (68.48)	57 (67.86)
	Non-Malay	29 (31.52)	27 (32.14)
Level of Education			
	Primary	4 (4.34)	6 (7.14)
	Secondary	21 (22.83)	19 (22.62)
	Tertiary	67 (72.83)	59 (70.24)
Household Income			
	B40 (<RM4,850)	37 (40.22)	33 (39.29)
	M40 (RM4,850 – RM10,959)	42 (45.66)	40 (47.62)
	T20 (>RM10,959)	13 (14.13)	11 (13.10)
Years of Living in Putrajaya			
	1-5 Years	35 (38.04)	31 (36.90)
	5-10 Years	35 (38.04)	39 (46.43)
	>10 Years	22 (23.91)	14 (16.67)

From the total of 176 youths that had participated, 92 of them are from Presint 8 and 84 of them are from Presint 9. Next, about half youths from Presint 8 have age of below 24 years old (50.00%) and another half is 24 years old and above. For Presint 9, there are 38 youths who have age of below 24 years old (45.23%) and 36 for youths who have age of 24 and above (54.76%). Besides, majority of respondents from Presint 8 are males (57.61%) and half number of respondents from Presint 9 are males (50.00%). Most of the youths from both Presint 8 and Presint 9 are Malay with the percentage of 68.48% and 67.86%, have tertiary level of education which are 72.83% and 70.24%, and also are coming from household income of M40 which are 45.66% and 47.62% each. Last but not least, respondents from Presint 8 have an equal percentage of years of living in Putrajaya for two groups which are 38.04% of them have been living for 1-5 years, another 38.04% have been living for 5-10 years while the last group is more than 10 years which is made up of 23.91% of respondents from

Presint 8. Presint 9 has majority of 46.43% of youths that have been living in Putrajaya for 5-10 years.

Knowledge on the Use of Green Areas

Table 2

Level of Knowledge on the Importance of Green Areas

Variables	Presint 8		Presint 9	
	N	(%)	N	(%)
Knowledge				
Low	5	5.43	6	7.14
Moderate	74	80.43	75	89.29
High	13	14.13	3	3.57

Majority of the youths from Presint 8 and Presint 9 had moderate knowledge level which was 74 (80.43%) and also 75 (89.29%) respectively. Whereas, only 13 (14.13%) youths from Presint 8 and 3 (3.57%) from Presint 9 had high knowledge on the importance of green areas. Meanwhile, 5 (5.43%) and 6 (7.14%) of respondents from both Presint 8 and Presint 9 respectively had poor level of knowledge on the importance of green areas.

Attitude towards the Importance of Green Areas

Table 3

Level of Attitude on the Importance of Green Areas

Variables	Presint 8		Presint 9	
	N	(%)	N	(%)
Attitude				
Low	7	7.61	16	19.05
Moderate	73	79.35	56	66.67
High	12	13.04	12	14.29

Majority of the youths from Presint 8 and Presint 9 had moderate attitude towards the importance of green areas which were 73 (79.35%) and 56 (66.7%). Besides, 12 (13.04%) of respondents from Presint 8 and 12 (14.29%) of respondents from Presint 9 had high attitude level. Other than that, 7 (7.61%) and 16 (19.05%) youths from Presint and Presint 9 respectively had low level of attitude.

Practice on the Importance of Green Areas

Table 4

Level of Practice on The Importance of Green Areas

Variables	Presint 8		Presint 9	
	N	(%)	N	(%)
Practice				
Low	17	18.48	9	10.71
Moderate	61	66.3	68	80.95
High	14	15.22	7	7.61

Majority of the youths from Presint 8 and Presint 9 had moderate practice towards the importance of green areas which were 61 (66.3%) and 68 (80.95%). Besides, 14 (15.22%) of respondents from Presint 8 and 7 (7.61%) of re-spondents from Presint 9 had high practice level. Other than that, 17 (18.48%) and 9 (10.71%) youths from Presint and Presint 9 respectively had low level of practice.

Association between Socio-demographic Data with Knowledge, Attitude and Practice on The Importance of Green Areas

There was no association between age, gender, race, level of education, household income, and years of living in Putrajaya with youths' knowledge. The p-value for age, gender, race, level of education, household income, and years of living in Putrajaya were more than 0.05 which were 0.338, 0.41, 0.114, 0.431, 0.652 and 0.774. Hence, indicating that there were no significant association between age, gender, race, level of education, household income, and years of living in Putrajaya with knowledge of respondents.

There was no association between age, gender, level of education, and years of living in Putrajaya with youths' attitude. The p-value for age, gender, level of education, and years of living in Putrajaya were more than 0.05 which were 0.0581, 0.363, 0.221 and 0.106. Hence, indicating that there were no significant association between age, gender, level of education

and years of living in Putrajaya with attitude of respondents. However, there were a significant association on race or ethnicity and household income with attitude of respondents as shown in Table 8.0. The Chi-square Test obtained are 23.093 and 10.144 and the p-value for each are 0 and 0.038 which are less than 0.05. Thus, there was an association between race or ethnicity and household income with attitude level.

There was no association between age, gender and level of education with youths' practice. The p-value for age, gender and level of education were more than 0.05 which were 0.638, 0.447 and 0.312. Hence, indicating that there were no significant association between age, gender and level of education with practice of respondents. However, there were a significant association on race, household income and years of living in Putrajaya with practice of respondents as shown in Table 9.0. The Chi-square Test obtained are 16.834, 10.004 and 11.955 and the p-value for each are 0, 0.04 and 0.018 which are less than 0.05. Thus, there was an association between race, household income and years of living with practice level.

Association between Knowledge and Attitude with Practice on The Importance of Green Areas

In about 109 (61.93%) youths had moderate knowledge and moderate practice on the importance of green areas. Besides, only 3 (1.7%) youths had high level of knowledge with good practice and 2 (1.14%) had low knowledge level with low level of practice. The Chi-square Test obtained was 2.236 and the p-value was 0.693 which is more than 0.05. Hence, there was no association between knowledge and practice level.

There was an association between attitude and practice on the importance of green areas. There were 101 (57.39%) youths who had moderate attitude with moderate practice level and 12 (6.82%) youths had high attitude and high level of practice. Next, only 6 (3.41%) youths had low knowledge level with low level of practice. The Chi-square Test resulted to 41.279 value with the p-value of 0 which is less than 0.05. Hence, there was an association between attitude and practice in preserving and conserving green areas.

Comparison of Knowledge, Attitude and Practice on The Importance of Green Areas between Youths of Presint 8 and Presint 9

Table 5

Comparison of Knowledge on The Importance of Green Areas (N=176)

Precincts	n	Median	z	p-value
Presint 8	92	18	-2.093	0.036
Presint 9	84	17		

N=176, Mann-Whitney Test, *significant at p<0.05

There was a significant difference on the knowledge level between Presint 8 and Presint 9 where the p-value is less than 0.05 which is 0.036 respectively.

Table 6

Comparison of Attitude on the Importance of Green Areas (N=176)

Precincts	n	Median	z	p-value
Presint 8	92	59.5	-1.298	0.194
Presint 9	84	58.5		

N=176, Mann-Whitney Test, *significant at p<0.05

There was no significant difference of attitude level between youths of Presint 8 and Presint 9.

Table 7

Comparison of Practice on the Importance of Green Areas (N=176)

Precincts	n	Median	z	p-value
Presint 8	92	72	-0.143	0.886
Presint 9	84	71		

N=176, Mann-Whitney Test, *significant at p<0.05

There was no significant difference of practice level between youths of Presint 8 and Presint 9.

Discussion

The main objective of this study is to study the knowledge, attitude and practice on the importance of green area among youths in Presint and Presint 9, Putrajaya. Presint 8 and Presint 9 in the city of Putrajaya were used to pick the respondents from a total of 176 people who answered the survey's questions. The subjects in this research were only youths between the ages of 18 and 30 years old. They were chosen for this research because both precincts are bordered by the same lake, but with various names, and because both precincts have various recreational spaces surrounding them where people can engage in outdoor sports such as cycling, running, socialising, and many other activities. In order to evaluate whether or not the sample of respondents was broadly applicable to the full population of Putrajaya, this type of information was used to do a check on it. Putrajaya is selected because it has been announced to be established as Pioneer Township of Green Technology as a

model for establishment of other townships or to be called as a model for showcase to be set as an example for other cities, said by Prime Minister in 2010 Budget (Putrajaya Corporation, 2013) and Putrajaya has become bureaucratic capital that displays nature-inspired designs which are both practical and also effective (Ariffin, 2018; Moser, 2010), which is perfect for this research. Other than that, this study only focused on youths as there was a study that shows an outcome, claiming that younger groups perform better in their KAP (Yezli et al., 2019).

A total of seven questions have been given to individuals who answered the survey questions. Specifically, the goal of this subsection is to determine their level of general awareness of the significance of green areas. When comparing two separate precincts, a descriptive statistic was used to determine the frequency and proportion of respondents that answered the same responses. The vast majority of responders from both precincts (100 %) are aware of and knowledgeable about green areas. Furthermore, the majority of respondents (87.5 %) properly answered the question about the concept of green areas, and the overwhelming amount of youths (99.4 %) are aware that green areas are essential for a high quality of life. In addition, the majority of youths (55.68 %) believe that green areas may help to decrease or cool the temperature of their surroundings, and social media has been identified as the most effective source of information for gaining awareness about the value of green areas by interviewees (43.75 %). A large percentage of respondents (32.95%) also opted for the internet as their preferred social media medium for learning about the value of green areas and most of youths (39.8 %) opted that they engage with green areas on a continuous basis in about one to two times weekly.

The large percentage of youths from Presint 8 and Presint 9 seemed to have a moderate level of knowledge. Better comprehension of public perceptions of green spaces, as well as the benefits supplied by green spaces, can be used to improve the design, administration, and aesthetic appeal of existing green spaces (Muratet et al., 2015). In addition, one study pointed out that the gain in knowledge is more concerned with the changes in behaviour and practises than with the increase in information itself (Al-Binali et al., 2010). A study by Muratet et al. (2015) has stated that the preservation and restoration of biodiversity is not the only challenge involved in green area management in cities, and notably in open green spaces, where the connection between human beings and nature is crucial for healthy living.

The most of youths from Presint 8 and Presint 9 had a moderate attitude toward the value of green spaces. A study by Arbiol et al. (2016) stated that a positive attitude must be matched by strong understanding or good knowledge in order to maximise an individual's ability to put preventive actions into practise as effectively as possible. The findings of a study conducted by Tolvanen et al. (2011) revealed that knowledge influences behaviour, but that it did so mostly through attitudes. An attitude is the possibility that a person will respond positively or negatively to a particular object, person, circumstance, or idea (Yun Ai Wong et al., 2019). As a result of these reactionary tendencies, influencing attitudes with enough positive and accurate knowledge results in the development of beneficial practises. In addition, some study found a link between knowledge and a positive attitude, which lends credence to this assertion. As a result, a gain in knowledge is inversely related to an increase in positive attitude (Aminrad et al., 2013).

The majority of youths from Presint 8 and Presint 9 had a moderate level of practise regarding the value of green areas. A study by Awang Besar et al. (2013) stated that the higher the practice level, the greater the possibility for the success to be achieved. Other than that, an article by Arbiol et al. (2016) claimed that in order to maximise an individual's ability to put preventive activities into practise as successfully as possible, a positive attitude must be accompanied by strong understanding or good knowledge. In addition, on the basis of past studies, they concluded that changing a practise is a process that may take time and may not result in a change in practise overnight. Growing up (growth, skill development), learning, conditioning, and extrinsic and intrinsic rewards are some of the variables that might lead to changes in health-related behaviour. These modifications are regarded as part of a process. This process can be influenced by a variety of internal elements, such as knowledge, attitudes, intention, and stress, as well as external factors, such as social support and the environment in which one lives (Tolvanen et al., 2011).

There was no significant relationship between respondents' knowledge and any of respondents' socio-demographic data. These findings were supported by other studies that found knowledge scores were not significantly associated with gender (Selvarajoo et al., 2020) or race (Balbir Singh et al., 2019), but they were also in contrast to other findings that stated that there was an association between knowledge with age and race (Selvarajoo et al., 2020), and gender (Balbir Singh et al., 2019), as well as other findings that stated that knowledge have association with age and race (Ma Saung Oo et al., 2019). There was an association between race and household income with attitude level. Multiple studies such as Tan et al. (2010), Al-Zurfi et al. (2015) and much more mentioned that usually there will be no correlation between race and attitude. This finding can be addressed by the fact that the vast majority of our respondents were Malays, and hence my sampling doesn't quite portray all ethnicities equally effectively. Next, a study by Jan Otto Andersson and Kangas (2002) have discovered that the element of income level had an impact or influence on the respondents' attitudes. This explains why respondents' attitude from both precincts have a correlation with household income. There was an association between race, household income and years of living with practice level. According to the findings of a research project by Brown et al. (2016), ethnic group affiliation is connected with a number of different lifestyle patterns. Higher income or wealthier people tend to have different practices than those people who receive less in the terms of practices in one's daily life and psychological characteristics such as money savings and healthy activities ("Rich People Don't Just Live Longer. They Also Get More Healthy Years. (Published 2020)," 2022). A study by (Doubeni et al. (2012) has also found that socioeconomically difference in neighbourhoods influence people's lifestyle practices. Youths' seamless transition to autonomous and healthful adulthood, admission into the profession, ongoing performance and efficient parenthood may all contribute to the country's overall security and well-being and the study also mentioned that the success or failure of any cohort of young people as a whole has implications for the stability and advancement of society as a whole (Bonnie et al., 2015).

There was no link between knowledge and degree of practice but there was a link between attitude and practice in terms of preserving and conserving green areas for both Presint 8 and Presint 9 of Putrajaya. In this case, it is possible to say that shifting from poor practise to good practise is the outcome of shifting one's knowledge and attitude. This assertion is supported by a study who found that an increase in knowledge and awareness regarding environmental

dilemma has a significant impact on changes in environmental behaviour and human practises toward nature (Hammami et al., 2017).

In terms of knowledge, the difference between Presint 8 and Presint 9 was statistically significant. This may be due to several green programs that have been implemented in the precinct. For an example, there were 123 plants or trees planted in two locations (Sisiran tasik & monorail bridge area) which were both in Presint 8 under a program that is called 'Pledge and Plant a Tree Programme' in 2017, organised by Malaysian Institute of Planners which Putrajaya Corporation was in line to participate in making Putrajaya as a low carbon and green city (Putrajaya Corporation, 2018). There was no significant difference of attitude level between youths of Presint 8 and Presint 9. In terms of practice, the p-value obtained from the test was 0.886 which is more than 0.05. Hence, there was no significant difference of practice level. These findings were aligned with previous research by Johar & Razak, (2015) claim that in terms of environmental knowledge and attitude, there is no statistically significant difference between the two neighbourhoods. In addition, the research also indicates that similar socio-economic and demographic factors between the two green neighbourhoods may result in a similar level of environmental knowledge between the two communities and when compared to other study sites, some sites have a more positive attitude toward the environment, which may be related to the neighborhood's status and attributes (Johar & Razak, 2015).

Conclusion

In conclusion, majority of youths from Presint 8 and Presint 9 have moderate level of knowledge, attitude and practice towards the importance of green areas. To improve the knowledge and practice of this generation, it is recommended to increase their understanding. People's attitudes toward their own behaviour are influenced by their knowledge of the world around them and since knowing more about healthy behaviour can influence one's health-related attitudes, this can lead to an increase in one's health-related behaviours (Tolvanen et al., 2011).

In addition, this study had some limitations, including the probability that members of the community specifically youths were not telling the truth when completing the questionnaire, particularly when responding to questions about attitudes and practices, and that this could make a contribution to a bias in the results based on social preferences. Instead, by assuring people that their anonymity would be held in strict confidentiality, they will be able to get around this limitation. Although just two precincts were used to collect the data, it is possible that the results may not correctly reflect the population of Putrajaya as a whole, as would be expected. As a result, the research setting should be enlarged to encompass numerous regions from different precinct in order to provide a more variety sample that is representative of the target population of Putrajaya. Moreover, because the findings of this study data analysis are based on cross-sectional data, it is not feasible to draw general conclusions from the findings.

Furthermore, in order to provide urban residents with locations for recreation, social, and leisure activities, it is necessary to plan green spaces in an appropriate manner. Parks, open space, gardens, and urban woods, among other things, give tourists, neighbours, and children with a variety of chances for physical activities such as walking, running, and cycling, as well as

opportunities for social contact and nature observation. In addition, boosting environmental education in schools, especially for the next generation, is critical since it can help students learn how to better care for and protect the environment for future generations. Consequently, more emphasis should be placed on educating children about the need of protecting the environment for the long-term viability of their lives. In light of the well-documented benefits of urban green spaces for health and well-being, as well as the positive responses from residents, the promotion and support for the use of green spaces by Malaysians should be seen as a significant public health intervention. This would have a favourable impact on society, as well as on the economy and the environment of the country.

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References

- Al-Binali, A. M., Mahfouz, A., Suliman Al-Fifi, & Al-Gelban, K. S. (2010, November). Asthma knowledge and behaviours among mothers of asthmatic children in Aseer, south-west Saudi Arabia. ResearchGate; World Health Organization.
- Aminrad, Z., Zarina, S., Sayed Zakariya, B., Hadi, A., & Sakari, M. (2013). Relationship Between Awareness, Knowledge and Attitudes Towards Environmental Education Among Secondary School Students in Malaysia. *World Applied Sciences Journal*, 22(9), 1326–1333. <https://doi.org/10.5829/idosi.wasj.2013.1326.1333>
- Arbiol, J., Orencio, P., Romena, N., Nomura, H., Takahashi, Y., & Yabe, M. (2016). Knowledge, Attitude and Practices towards Leptospirosis among Lakeshore Communities of Calamba and Los Baños, Laguna, Philippines. *Agriculture*, 6(2), 18. <https://doi.org/10.3390/agriculture6020018>
- Awang Besar, T., Hassan, H., Bolong, J., & Abdullah, R. (n.d.). SOCIAL SCIENCES & HUMANITIES Exploring the Levels of Knowledge, Attitudes and Environment-Friendly Practices Among Young Civil Servants in Malaysia. Retrieved December 11, 2021, from <http://psasir.upm.edu.my/id/eprint/40687/1/03%20Page%2021-38.pdf>
- Balbir Singh, H. K., Badgujar, V. B., Yahaya, R. S., Abd Rahman, S., Sami, F. M., Badgujar, S., Govindan, S. N., & Ansari, M. T. (2019). Assessment of knowledge and attitude among postnatal mothers towards childhood vaccination in Malaysia. *Human Vaccines & Immunotherapeutics*, 15(11), 2544–2551. <https://doi.org/10.1080/21645515.2019.1612666>
- Bonilla-Bedoya, S., Estrella, A., Santos, F., & Herrera, M. Á. (2020). Forests and urban green areas as tools to address the challenges of sustainability in Latin American urban socio-ecological systems. *Applied Geography*, 125, 102343. <https://doi.org/10.1016/j.apgeog.2020.102343>
- Bonnie, R. J., Stroud, C., Breiner, H., on, C., Board, Institute of Medicine, & National Research Council. (2015, January 27). *Young Adults in the 21st Century*. Nih.gov; National Academies Press (US). <https://www.ncbi.nlm.nih.gov/books/NBK284782/>

- Braubach, M., Egorov, A., Mudu, P., Wolf, T., Ward Thompson, C., & Martuzzi, M. (2017). Effects of Urban Green Space on Environmental Health, Equity and Resilience. *Theory and Practice of Urban Sustainability Transitions*, 187–205. https://doi.org/10.1007/978-3-319-56091-5_11
- Chiabai, A., Quiroga, S., Martinez-Juarez, P., Suárez, C., García de Jalón, S., & Taylor, T. (2020). Exposure to green areas: Modelling health benefits in a context of study heterogeneity. *Ecological Economics*, 167, 106401. <https://doi.org/10.1016/j.ecolecon.2019.106401>
- Cohen, D. A., Inagami, S., & Finch, B. (2008). The built environment and collective efficacy. *Health & Place*, 14(2), 198–208. <https://doi.org/10.1016/j.healthplace.2007.06.001>
- Doubeni, C. A., M. Schootman, J. M. Major, R. A. Stone, A.
- Du, M., & Zhang, X. (2020). Urban greening: A new paradox of economic or social sustainability? *Land Use Policy*, 92, 104487. <https://doi.org/10.1016/j.landusepol.2020.104487>
- Enssle, F., & Kabisch, N. (2020). Urban green spaces for the social interaction, health and well-being of older people— An integrated view of urban ecosystem services and socio-environmental justice. *Environmental Science & Policy*, 109, 36–44. <https://doi.org/10.1016/j.envsci.2020.04.008>
- Grahn, P., & Stigsdotter, U. A. (2003). Landscape planning and stress. *Urban Forestry & Urban Greening*, 2(1), 1–18. <https://doi.org/10.1078/1618-8667-00019>
- Hartig, T., Evans, G. W., Jamner, L. D., Davis, D. S., & Gärling, T. (2003). Tracking restoration in natural and urban field settings. *Journal of Environmental Psychology*, 23(2), 109–123. [https://doi.org/10.1016/s0272-4944\(02\)00109-3](https://doi.org/10.1016/s0272-4944(02)00109-3)
- Health-enhancing physical activity and sedentary behaviour in children and adolescents. (2021). *Journal of Sports Sciences*. <https://www.tandfonline.com/doi/abs/10.1080/02640410410001712412>
- Ho, J. Y., Zijlema, W. L., Triguero-Mas, M., Donaire-Gonzalez, D., Valentín, A., Ballester, J., Chan, E. Y. Y., Goggins, W. B., Mo, P. K. H., Kruize, H., van den Berg, M., Gražuleviene, R., Gidlow, C. J., Jerrett, M., Seto, E. Y. W., Barrera-Gómez, J., & Nieuwenhuijsen, M. J. (2021). Does surrounding greenness moderate the relationship between apparent temperature and physical activity? Findings from the PHENOTYPE project. *Environmental Research*, 197, 110992. <https://doi.org/10.1016/j.envres.2021.110992>
- Huang, B., Xiao, T., Grekousis, G., Zhao, H., He, J., Dong, G., & Liu, Y. (2021). Greenness-air pollution-physical activity-hypertension association among middle-aged and older adults: Evidence from urban and rural China. *Environmental Research*, 195, 110836. <https://doi.org/10.1016/j.envres.2021.110836>
- Jalkanen, J., Fabritius, H., Vierikko, K., Moilanen, A., & Toivonen, T. (2020). Analyzing fair access to urban green areas using multimodal accessibility measures and spatial prioritization. *Applied Geography*, 124, 102320. <https://doi.org/10.1016/j.apgeog.2020.102320>
- Jim, C. Y., & Chen, W. Y. (2006). Recreation–amenity use and contingent valuation of urban greenspaces in Guangzhou, China. *Landscape and Urban Planning*, 75(1-2), 81–96. <https://doi.org/10.1016/j.landurbplan.2004.08.008>
- Johar, F., & Razak, M. R. (2015). The Right Attitude to Sustain the Green Neighbourhoods. *Procedia - Social and Behavioral Sciences*, 202, 135–143. <https://doi.org/10.1016/j.sbspro.2015.08.216>

- Klomp maker, J. O., Hoek, G., Bloemsma, L. D., Gehring, U., Strak, M., Wijga, A. H., van den Brink, C., Brune- kreef, B., Lebret, E., & Janssen, N. A. H. (2018). Green space definition affects associations of green space with overweight and physical activity. *Environmental Research*, 160, 531–540. <https://doi.org/10.1016/j.envres.2017.10.027>
- Klomp maker, J. O., Hoek, G., Bloemsma, L. D., Gehring, U., Strak, M., Wijga, A. H., van den Brink, C., Brune- kreef, B., Lebret, E., & Janssen, N. A. H. (2018). Green space definition affects associations of green space with overweight and physical activity. *Environmental Research*, 160, 531–540. <https://doi.org/10.1016/j.envres.2017.10.027>
- Laan, C. M., & Piersma, N. (2021). Accessibility of green areas for local residents. *Environmental and Sustain- ability Indicators*, 10, 100114. <https://doi.org/10.1016/j.indic.2021.100114>
- Liu, Y., Wang, R., Grekousis, G., Liu, Y., Yuan, Y., & Li, Z. (2019). Neighbourhood greenness and mental well- being in Guangzhou, China: What are the path- ways? *Landscape and Urban Planning*, 190, 103602. <https://doi.org/10.1016/j.landurbplan.2019.103602>
- Marselle, M. R., Stadler, J., Korn, H., Irvine, K. N., & Bonn, A. (Eds.). (2019). *Biodiversity and Health in the Face of Climate Change*. Springer International Publish- ing. <https://doi.org/10.1007/978-3-030-02318-8>
- McCombes, S. (2019, February 22). *The Literature Review | A Complete Step-by- Step Guide*. Scribbr. <https://www.scribbr.com/dissertation/literature-re- view/>
- Moradpour, M., & Hosseini, V. (2020). An investigation into the effects of green space on air quality of an urban area using CFD modeling. *Urban Climate*, 34, 100686. <https://doi.org/10.1016/j.uclim.2020.100686>
- Munyat, C., & Drummond, J. H. (2020). Loss of urban green spaces in Mafikeng, South Africa. *World Develop- ment Perspectives*, 19, 100226. <https://doi.org/10.1016/j.wdp.2020.100226>
- Muratet, A., Pellegrini, P., Dufour, A.-B., Arrif, T., & Chi- ron, F. (2015). Perception and knowledge of plant diversity among urban park users. *Landscape and Urban Planning*, 137, 95–106. <https://doi.org/10.1016/j.landurbplan.2015.01.003>
- Nath, T. K., Zhe Han, S. S., & Lechner, A. M. (2018). Urban green space and well-being in Kuala Lumpur, Malay- sia. *Urban Forestry & Urban Greening*, 36, 34–41. <https://doi.org/10.1016/j.ufug.2018.09.013>
- Nielsen, T. S., & Hansen, K. B. (2007). Do green areas affect health? Results from a Danish survey on the use of green areas and health indicators. *Health & Place*, 13(4), 839–850. <https://doi.org/10.1016/j.healthplace.2007.02.001>
- Ova Candra Dewi, Intan Chairunnisa, T Hidayat, & Andry Napitupulu. (2018, March). *Green Open Space: Awareness for Health or Sustainability?* Re- searchGate; IOP Publishing. https://www.re- searchgate.net/publica- tion/323674101_Green_Open_Space_Awareness_for_Health_or_Sustainability
- Peters, K., Elands, B., & Buijs, A. (2010). Social interactions in urban parks: Stimulating social cohesion? *Urban Forestry & Urban Greening*, 9(2), 93–100. <https://doi.org/10.1016/j.ufug.2009.11.003>
- Qin, B., Zhu, W., Wang, J., & Peng, Y. (2021). Understand- ing the relationship between neighbourhood green space and mental wellbeing: A case study of Beijing, China. *Cities*, 109, 103039. <https://doi.org/10.1016/j.cities.2020.103039>
- Rich People Don't Just Live Longer. They Also Get More Healthy Years. (Published 2020). (2022). *The New York Times*. <https://www.ny- times.com/2020/01/16/science/rich- people-longer- life-study.html>

- Romagosa, F. (2018). Physical health in green spaces: Visitors' perceptions and activities in protected areas around Barcelona. *Journal of Outdoor Recreation and Tourism*, 23, 26–32. <https://doi.org/10.1016/j.jort.2018.07.002>
- Ross, A. (2021). Valuing open space: land economics and neighborhood parks. *Mit.edu*. <https://doi.org/http://hdl.handle.net/1721.1/8754>
- Selvarajoo, S., Liew, J. W. K., Tan, W., Lim, X. Y., Refai, W. F., Zaki, R. A., Sethi, N., Wan Sulaiman, W. Y., Lim, Y. A. L., Vadivelu, J., & Vythilingam, I. (2020). Knowledge, attitude and practice on dengue prevention and dengue seroprevalence in a dengue hotspot in Malaysia: A cross-sectional
- Singh, A., & Chapman, R. (2011). KNOWLEDGE, ATTITUDE AND PRACTICES (KAP) ON DISPOSAL OF SHARP WASTE, USED FOR HOME MANAGEMENT OF TYPE-2 DIABETES MELLITUS, IN NEW DELHI, INDIA. *J Health Res*, 25(3). <https://www.thaiscience.info/Journals/Article/JHRE/10893074.pdf>
- Situation Analysis of Adolescents in Malaysia. (2020, September 30). *Unicef.org*. <https://www.unicef.org/malaysia/reports/situation-analysis-adolescents-malaysia>
- Sullivan, W. C., Kuo, F. E., & Depooter, S. F. (2004). The Fruit of Urban Nature. *Environment and Behavior*, 36(5), 678–700. <https://doi.org/10.1177/0193841x04264945>
- Tan, Y., Hesham, R., & Rashwan, H. (2010). Knowledge and Attitude of University Students in Health Sciences on the Prevention of Cervical Cancer. *Med J Malaysia*, 65(1). http://www.e-mjm.org/2010/v65n1/Cervical_cancer.pdf
- Taylor, L., & Hochuli, D. F. (2017). Defining greenspace: Multiple uses across multiple disciplines. *Landscape and Urban Planning*, 158, 25–38. <https://doi.org/10.1016/j.landurbplan.2016.09.024>
- Coon, J., Boddy, K., Stein, K., Whear, R., Barton, J., & Depledge, M. H. (2011). Does Participating in Physical Activity in Outdoor Natural Environments Have a Greater Effect on Physical and Mental Well-being than Physical Activity Indoors? A Systematic Review. *Environmental Science & Technology*, 45(5), 1761–1772. <https://doi.org/10.1021/es102947t>
- Tolvanen, M., Lahti, S., Miettunen, J., & Hausen, H. (2011). Relationship between oral health-related knowledge, attitudes and behavior among 15–16-year-old adolescents—A structural equation modeling approach. *Acta Odontologica Scandinavica*, 70(2), 169–176. <https://doi.org/10.3109/00016357.2011.600722>
- Berg, A. E., Hartig, T., & Staats, H. (2007). Preference for Nature in Urbanized Societies: Stress, Restoration, and the Pursuit of Sustainability. *Journal of Social Issues*, 63(1), 79–96. <https://doi.org/10.1111/j.1540-4560.2007.00497.x>
- Vujcic, M., Tomicevic-Dubljevic, J., Zivojinovic, I., & Toskovic, O. (2019). Connection between urban green areas and visitors' physical and mental well-being. *Urban Forestry & Urban Greening*, 40, 299–307. <https://doi.org/10.1016/j.ufug.2018.01.028>
- Wakefield, M. A., Loken, B., & Hornik, R. C. (2010). Use of mass media campaigns to change health behaviour. *The Lancet*, 376(9748), 1261–1271. [https://doi.org/10.1016/s0140-6736\(10\)60809-4](https://doi.org/10.1016/s0140-6736(10)60809-4)
- Wan, C., Shen, G. Q., & Choi, S. (2021). Underlying relationships between public urban green spaces and social cohesion: A systematic literature review. *City, Culture and Society*, 24, 100383. <https://doi.org/10.1016/j.ccs.2021.100383>
- Włodarczyk-Marciniak, R., Sikorska, D., & Krauze, K. (2020). Residents' awareness of the role of informal green spaces in a post-industrial city, with a focus on regulating services and

- urban adaptation potential. *Sustainable Cities and Society*, 59, 102236. <https://doi.org/10.1016/j.scs.2020.102236>
- Wong, Y. A., Mukari, S. Z.-M. S., Harithasan, D., & Mazlan, R. (2019). Knowledge and attitude on childhood hearing loss among mothers and mothers-to-be in urban and rural areas in Malaysia. *International Journal of Pediatric Otorhinolaryngology*, 124, 79–84. <https://doi.org/10.1016/j.ijporl.2019.05.040>
- Wood, L., Hooper, P., Foster, S., & Bull, F. (2017). Public green spaces and positive mental health – investigating the relationship between access, quantity and types of parks and mental wellbeing. *Health & Place*, 48, 63–71. <https://doi.org/10.1016/j.healthplace.2017.09.002>
- Yezli, S., Yassin, Y., Mushi, A., Maashi, F., Aljabri, N., Mohamed, G., Bieh, K., Awam, A., & Alotaibi, B. (2019). Knowledge, attitude and practice (KAP) survey regarding antibiotic use among pilgrims attending the 2015 Hajj mass gathering. *Travel Medicine and Infectious Disease*, 28, 52–58. <https://doi.org/10.1016/j.tmaid.2018.08.004>