

The Impact of Green Space in Residential Yard

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Abstract: The green space in residential area have been played an extremely important role in contributing to the quality of human health and environment. World Health Organization (WHO) website 2012 said that they had been doing the recent estimates show on the physical inactivity to poor of access to green area, account for 3.3% of global death. global deaths. "Developers must provide green space" said local council from The Star newspaper. Despite this, some evidence of the positive impacts of green spaces on health was found. The main objectives of this research is to study how green space boost the health qualities among residents in housing development, to study the development of green space in construction industry and to found out the effective improvement needed for green spaces in residential yard. This research had been successfully proof that green spaces really helps in boost health qualities among populations in residential area. There development of green spaces in residential yard are also follow some guideline provided. The respondents also give the best effective improvement to be taken for the green spaces in residential yard. This study was being conducted in Malacca with mixed method in both quantitative and qualitative methods in the form of survey and interview respectively. The survey has been distributed to 200 respondents in Malacca but only 100 respondents managed in answering the survey. For the interview, there three respondents chosen but due to Covid-19 pandemic occurs in Malaysia, interview session can't be done to prevent the virus spread. Therefore, the interview session is conducted by distribute the Google form survey only to the respondents.

Keywords: Green Space, Residential Yard, Impact, Green Environment

1. Introduction

Urban open green spaces are not only at the top of sustainability, but also play an important role in improving the liveability of our Earth. A positive connection exists between the measure of green in an

individual's living climate and that individual's feeling of security. In exceptionally urbanized areas, encased green spaces are felt to be hazardous and the plan of green components requires unique consideration. On hot days, districts with large amounts of green spaces or surface water can be up to 10 degrees cooler than largely paved urban areas. Trees have a favourable effect on the microclimate due to the shade they provide and the fact that the ground below them retains less heat. All forms of green and water surfaces have a cooling capacity because of evaporation. Developers and planners are looking for new dwelling concepts that might be implemented in relatively high density but also respond to the growing demand for space. Green spaces such as parks and sport fields as well as woods and natural meadows, wetlands or other ecosystems, represents a fundamental component of any urban ecosystem. Green urban areas facilitate physical activity and relaxation, and form a refuge from noise. Trees produce oxygen, and help sift through destructive air contamination, including air borne particulate issue. Water spots, from lakes to streams and wellsprings, moderate temperatures.

1.1 Research Background

Green space most strongly protects against mood disorders, depression, neurotic behavior, and stress-related issues, the study found, signaling that psychological restoration may be the strongest protective mechanism that green space offers. The effect of green space is also dose-dependent, meaning those who have longer exposures to green space have greater mental health benefits. However, Malaysian government has stressed that the provision of housing should be developed in a sustainable manner.

Green areas in towns and cities are also important in terms of the climate for attracting knowledge-intensive and internationally operating businesses and highly-educated individuals. The living environment is only a factor in the choice of location for research and development businesses and other businesses with highly educated employees. Businesses measure the quality of the living and recreation environment primarily by the amount of physical variation in the living environment and by the presence of good schools and pleasant outdoor recreation areas.

1.2 Problem Statements

First problem statement is the provision of green space as outlined by the World Health Organization (WHO) may reduce impressions, yet it has a positive impact on the community's spatial and functional space (Jusoh, 2014). Next, World Health Organization (WHO) website 2012 said that they had been doing the recent estimates show the physical inactivity to poor of access to green area, accounts for 3.3% of global deaths.

From my research in one of the journal about "Green Homes Development : Factors affecting Housing Developers Readiness", I found out there are three significant factors that influencing the Malaysian housing developers' readiness to develop green homes that comprise of government supports, external expertise supports and housing market readiness. This implies that government's role, the availability of local green technology expertise and marketing research (Abu Bakar, Abd Razak, Abdullah and Awang , 2009). "Developers must provide green space" said local council from The Star newspaper (Thursday 22 Sep 2016). 10% of the housing development projects have to be allocated for open spaces (Shahrin Ahmad,2016).

As we know, green spaces also very important to mental health. Having access to green spaces can reduce health inequalities, improve well-being, and aid in treatment to mental illness. Some analysis suggests that physical activity in a natural environment can help remedy mild depression and reduce physiological stress indicators. Therefore, green spaces are important to mental health which can boost health qualities, improve well-being, aid in treatment of mental illness and releasing stress after working.

1.3 Research Objectives

- (i) To determine how the green space boost the health qualities in residential yard among residents in a housing development.
- (ii) To study the development of green space in the residential yard.
- (iii) To found out the effective improvement needed for green spaces in residential yard.

1.5 Scope of the Study

From the objectives, this study being conducted in Malacca, as Malacca is a Green Technology City. The researcher had been doing the study in residential area all over Malacca. Green spaces in residential yard had been applied widely all over the country as to follow the Green Building Index (GBI). In Malaysia, studies related to green space and its relation to the residents lives in the housing area is not widely discussed. This study aims at exploring the impacts of green spaces to the social environment and also the effectiveness of green space to the community lives in residential area in Malacca. Furthermore, this study will found out on how the development of green space in Malacca is completely provided by the construction company in Malacca.

1.6 Significance of the Study

From the research, we study on the importance of green spaces in our home environment. The researchers studied on how it affects the emotional, physical condition of a person living in a residential area and how the development of green spaces by the developer in residential yard. Most of people living in urban residential areas are often get stressed after coming home from work. One of the factors is because they are not exposed to green areas in their environment. They have to go to recreational area to rest their mind but maybe in their rest day.

In recent years the design of urban green areas has emerged and has been one of the important areas of particular interest for landscape designers and planners. It is now believed that sustainability indicators for urban development should include more parameters about urban green areas, as well as indexes reflecting citizen's satisfaction and perception of their living environments. In addition to the many environmental, ecological, and psychological benefits, urban green spaces can play a very important role in sustainable community development. Not only urban green spaces, but also in residential areas. People spends 70% of their life at their home, therefore it's very important to have green spaces surrounding to helps people live their life healthily.

2. Literature Review

2.1 Introduction

The literature review is focused on the disclosure of research-related information that will be carried out through written sources such as books, journals, past thesis, and others. The growing need for housing in parallel with population growth has made the importance of open spaces more prominent in rapidly growing cities. How can residents enjoy the greenery of their home without having to go to the neighbourhood parks? By having a green space from their residential yard is one of the solution. Sometimes they don't have enough time to go to the recreational parks to take some fresh air by the greenery environment especially in the city full of cars, jammed, traffic lights. The crowded city may have a very busy road and jammed on the weekend. Some of people don't like to go out and prefer to have family time at home.

2.2 Importance of Green Spaces

Now, the World Health Organization (WHO) are looking to highlight the importance of green space in well-being and public health. Urban green spaces such as parks, sports fields, woods, lakeside, and gardens give people the space for physical activity, relaxation, peace, and an escape from heat. Multiple studies have shown that these spaces reduce stress and boost mental and physical health. Green spaces are also associated with better air quality, reduced traffic noise, cooler temperatures, and greater diversity. Furthermore, recent estimates put around 3.3% of global deaths down to a lack of physical activity, mostly as a result of poor walk ability and limited access to recreational areas. (World News Today, 2019)

(a) Importance to childhood growth

The impact of green space throughout childhood is significant. Exposure to green space is comparable to family history and parental age when predicting mental health outcomes. Only socioeconomic status was a slightly stronger indicator. Researchers are still working out exactly why green space is so beneficial, but it clearly provides health benefits across the population. It can encourage exercise, provide spaces for socializing, decrease noise and air pollution, and improve immune function by providing exposure to beneficial microbiota. It also can help with psychological restoration; that is, green space provides a respite for over-stimulated minds.

(b) Mental Illness and Nature Response

Over 2 million children in the U.S. have been diagnosed with Attention Deficit Disorder (ADD), a condition that has detrimental effects on social, cognitive, and psychological growth. Studies show that childhood ADD symptoms can be reduced through activities in green settings and that “green time” may be an important supplement to established drug-based and behavioral treatments. In one study, the greenness of a child’s home did not significantly affect ADD symptom severity, but greenness of play setting was related to a reduction of symptom severity. Children who played in windowless indoor settings had significantly more severe symptoms than those who played in grassy, outdoor spaces with or without trees.

Nature experiences provide mental health benefits for the elderly as well, including Alzheimer’s patients. Alzheimer is a type of dementia that causes memory impairment, intellectual decline, temporal and spatial disorientation, impaired ability to communicate and make logical decisions, and decreased tolerance to high and moderate levels of stimulation. Certain environments can provide prosthetic support for dementia patients to compensate for their reduced cognitive capabilities.

Clinical reports have noted the loss of concentration and increased distract ability in patients experiencing serious illness. Studies have tested the correlation between stress and cognitive function under various conditions in women diagnosed with breast cancer. The impairment of CDA has been observed to set in before the start of a cancer treatment, suggesting that attentional fatigue has an early onset and is a result of the diagnosis itself.

In addition to physiological symptoms, stress can lead to depression, schizophrenia, anxiety, exhaustion, and fatigue syndromes. Stress can occur at any time in life; however, such responses are especially prominent at later age due to physical, psychological, and social changes.

Depression also occurs at any age and can be helped through improved social connections (to decrease the feeling of isolation) and exercise, both of which are promoted by having nearby green outdoor spaces. In one study, 71% of people found a reduction in depression after going on an outdoor walk versus a 45% reduction by those who went on an indoor walk.

3. Research Methodology

In achieving the objectives of the study discussed, several stages of research have been conducted to obtain the necessary information which is about the methodological approach of the study designed to align with the objectives of the study.

3.1 Research Design

Data were collected through mixed methods research, which are quantitative and qualitative methods via questionnaires and non face-to-face interviews by using platform Google form. To obtain the data and information required for the questionnaire, the questions has been created through Google form to facilitate researchers in distributed links to the targeted respondents. For an interview session, due to the current situation of COVID-19 occurs in our country, most of the companies do not accept to be interviewed. Therefore, interviews are also conducted in Google form whereby to facilitate the collection of data and information that is important to achieve the objectives of the study.

By that, researchers have carried out both ways to obtain the data needed an accurate and correct data analysis sessions. The selection of respondents for the questionnaire is generally involving only individuals living in housing estates in Malacca. For the interview session, it involved the persons who work in construction company.

In this research, the sampling method used is stratified sampling method which is involves in collecting all involves dividing the population into subpopulations that may differ in important ways. It allows you draw more precise conclusions by ensuring that every subgroup is properly represented in the sample. The questionnaire consists of 2 types of analysis which is demographic analysis and descriptive analysis. There are 5-point Likert scale (Strongly agree, Agree, Neutral, Disagree and Strongly Disagree) in the descriptive analysis which allows the respondents to express their neutral opinion. "The data were keyed in and analyzed by SPSS" (Ridzuan, *et al.*, 2018).

There are 8 steps carefully being planned and followed in this study. Those 8 steps are identifying problems, literature review, hypothesis development, research design, data collection, data analysis, data interpretation and report. Figure 1 below shows the process.

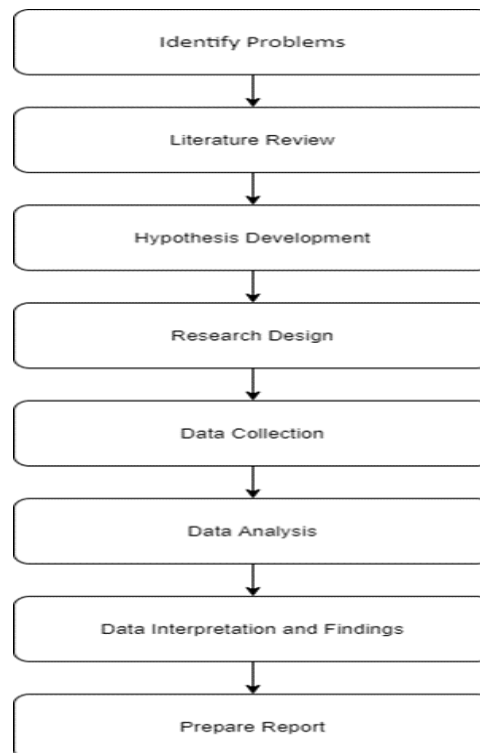


Figure 1: Research flow chart process

The first thing to do to conduct this study is to find the major problems currently occur before get into reviewing previous studies conducted by other researchers to gain more knowledge and understanding of the topic observed. Next step is hypothesis development by testing the logical of the research to start designing on how to carry out the study in obtaining data from the respondents. Data is collected and analyzed after the questionnaire and interview session that have been distributed and collected is completed by the respondents. The findings will be finalized and report is structured.

3.2 Data Collection

A total of 200 Google form link were distributed to all the residents live in Malacca by Whatsapp and email. After a month from the date distribution of all questionnaires, a total of 100 sets of questionnaires only had been answered updated in the Google form. Total feedback received is equivalent to 50 percent of the entire questionnaire has been distributed (refer Table 1). This indicates that half of the 100 respondents are selected in this study has provided cooperation in the success of this study. Determining the sample sizes involve resource and statistical issues. Usually, researchers regard 100 participants as the minimum sample size when the population is large.

Table 1: Percentage of respondent's feedback

About	Number
Number of questionnaires distributed	200
Number of questionnaire answered	100
Percentage of feedback received	50%

To achieve the second objectives of the research, interview session had been conducted by distributed to people working in the construction sector all over Malaysia. Three respondents from different company had answered the Google form. Due to pandemic Covid-19, most of the company didn't want to be interviewed because of the pandemic. Therefore, the interviews were conducted by email the respondents a link of Google form to answer the questions provided.

3.3 Data Analysis

Data analysis is generally a way to analyse the received data from the respondents. In this research, the researcher used Statistical Package for Social Science (SPSS) software to completing the task of analyzing data from the raw data taken. All of the data from the questionnaire is in the form of number which made it analyzed quantitative. Demographic analysis, descriptive analysis.

4. Results and Discussion

4.1 Respondent's Demographic Analysis

In this survey, total of 2 section, Section A and Section B which have different objectives and each section were divided with 8 questions and 9 questions respectively. All the survey questions will be discussed and showed in table and figure form. Section A is related to the background of the respondents while in section B, all the questions are related to the objective number 1 of the research which is to determine how green area boost the health qualities among residents. Table 2 shows the respondent's demographic information.

Table 2: Demographic analysis (section A)

Section A	Category	Frequency	Percent	Valid Percent
Gender group	Male	32	32%	100%

	Female	68	68%	
Age Group	20-30 years old	17	17%	100%
	31-40 years old	12	12%	
	41-50 years old	39	39%	
	60 years old	26	26%	
Status group	61 years old above	6	6%	100%
	Single	17	17%	
	Married	82	82%	
How long lived in the residential	Widow/ Widower	1	1%	100%
	Less than 1 year	6	6%	
	1-3 years	11	11%	
	4-6 years	11	11%	
	7-9 years	12	12%	
How many people lived in the household	10 years above	60	60%	100%
	Only you	3	2%	
	2 peoples	7	7%	
	3-6 peoples	74	74%	
	7-9 peoples	15	15%	
Type of house	10 peoples above	1	1%	100%
	Single Storey	25	25%	
	Terrace			
	Double Storey	18	18%	
	Semi-D			
	Single Storey	16	16%	
	Semi-D			
	Double Storey	22	22%	
Terrace				
Home ownership status	Bungalow	12	12%	100%
	Others	7	7%	
	Rent	10	10%	
	Home owner	90	90%	

Table 2 above show the demographic analysis of background of the respondents include gender, age, status group, how long lived in the residential, how many people lived in the household, type of house and home ownership status.

Table 3: Data Analysis of Section B

Section B	Category	Frequency	Percent	Valid Percent
Do you often get stress?	Yes	23	23	100%
	No	77	77%	
How often you go for walk at Recreational Park?	Every weekend	17	17%	100%
	Once per month	52	52%	
	1-2 times per week	22	22%	
	3-4 times per week	8	8%	
	Everyday	1	1%	
Are there green spaces in residential	Yes	87	87%	100%
	No	13	13%	

yard?				
If yes, what are you doing in that green spaces?	Farming	47	47%	100%
	Cover the green space with tiles	7	7%	
	Build landscape in the residential yard	12	12%	
	Have no green spaces	9	9%	
	Do both farming and build beautiful landscape	7	7%	
	Doing nothing	18	18%	
From your opinion, is green spaces is important for our health mentally and physically?	Yes	100	100%	100%
	No	0	0%	
Do you feel the need for green spaces to be provided in the residential yard?	Need	96	96%	100%
	No need	3	3%	
	Not sure	1	1%	
If yes, why we need green spaces to be provided in the residential yard?	To reduce stress	68	35.1%	100%
	For farming	45	23.2%	
	A space for leisure time	45	23.2%	
	A space for socialization	29	14.9%	
	Parking spaces	7	3.6%	
Are green spaces improving the health of population?	Yes	96	96%	100%
	Not sure	4	4%	
Opinion on how green spaces improve a person's level of health.	Fresh Air	26	20.2%	100%
	Increase oxygen level	16	12.4%	
	Peaceful and Comfortable	26	20.2%	
	Good health	23	17.8%	
	Rest your mind	14	10.9%	
	No stress	10	7.8%	
	No comment	14	10.9%	

(a) *Descriptive Analysis*

The researchers conduct the descriptive analysis by combining likert scale of 4 question in Section B in the survey. Based on Table 4 below, the descriptive statistics are used to identify the opinion of the respondents on the level of agreement of green spaces helps in boosting the health qualities among residents.

Table 4: The Level of Agreement of Green Areas Boost Health Qualities among Residents

	N	Mean	Std. Deviation	Level	Rank
Do you think green space in your residential yard is really help in boost health qualities among population? (SC1)	100	4.7200	0.60436	Medium	1
Physically, mentally and emotionally human beings are influenced by their environment as well. Do you think green	100	4.5000	0.77198	Medium	3

environment effected by human lifestyle ? (SC3)	100	4.5500	0.68718	Medium	2
There are research said that “Green space most strongly protects against mood disorders, depression, neurotic behavior, and stress-related issues, the study found, signaling that psychological restoration may be the strongest protective mechanism that green space offers. The effect of green space is also dose-dependent, meaning those who have longer exposures to green space have greater mental health benefits.” Do you agree with the statement? (SC5)	100	4.4600	0.67300	Medium	4
Do you agree on the effectiveness of green spaces in this residential yard help in improving the health status of the population? (SC6)	100				
Valid N (listwise)	100				
Total	4.5575				

Section C is the last section in the survey. In this section of the survey aims to gets an opinion on the important of the green spaces and improvement needed in the green spaces in residential yard. In this section, an open ended question for the respondents to stated their opinion on what improvement needed for the green spaces in their residential yard. There are five questions related to how important and improvement needed for the green spaces in residential yard.

- (i) In the green neighborhood planning guidelines, green development is essential to create a small agricultural area around the house. Why do you think it is important?

According to this question, respondents had to give their opinion on the important of creating a small agricultural area around the house based on the Green Neighbourhood Planning Guidelines. The answers had been concluded to a few answers option selected by the respondents as in Table 5.

Table 5: The important of small agricultural areas around the house

	Responses		Percent of Cases	
	N	Percent		
The important of small agricultural areas around the house	• To enhance household food security and well-being	43	15.5%	43.4%
	• To build fresh green environment in residential yard	89	32.1%	89.9%
	• To make it easier for residents to get food ingredients without going to the store such as curry leaves, lemongrass and etc.	64	23.1%	64.6%
	• Liven up the greenery environment in residential yard	81	29.2%	81.8%
Total	277	100.0%	279.8%	

a. Dichotomy group tabulated at value 1.

- (ii) Green space is also important for the Earth. Why do think it is important? Choose your answer.

According to this question, respondents had to give their opinion on the important of green space for the Earth. The answers had been concluded to a few answers option selected by the respondents. Table 6 below shows the result on important of green spaces for the Earth.

Table 6: The important of green areas for the earth

		Responses		Percent of Cases
		N	Percent	
The important of green space for the Earth	• Prevent global warming	93	24.0%	93.0%
	• Helpful in mitigation of environmental pollution	71	18.3%	71.0%
	• Helpful in restoration of degraded lands	38	9.8%	38.0%
	• Helpful in the maintenance of ground water level.	35	9.0%	35.0%
	• Help in maintaining oxygen balance	86	22.2%	86.0%
	• Allows Earth to maintain a comfortable temperature	64	16.5%	64.0%
Total		387	100.0%	387.0%

a. Dichotomy group tabulated at value 1.

(iii) Do you feel comfortable there is a green space in your home yard?

According to Figure 2 below shows the percentage of respondents who feel comfortable if there a green area in their home yard. There are a total of 98 respondents with 98% of very comfortable and 2 respondents with 2% of who are not comfortable at all.

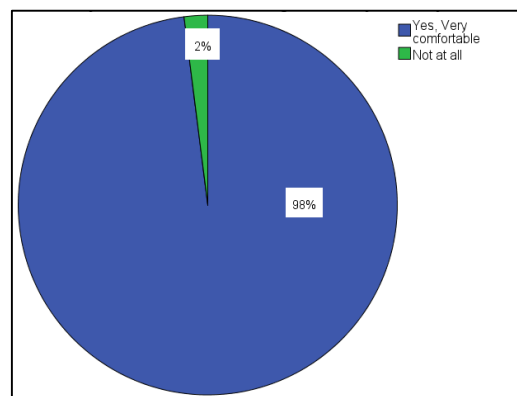


Figure 2: Feeling comfortable with availability of green space in home yard

(iv) If yes, why is it comfortable for you?

According to this question, respondents had to give their opinion how comfortable green space in their home yard. This question is an open-ended question where respondents can write their opinion. These answers had been concluded from respondent’s answer using Excel and then run into SPSS. Table 7 below are the results.

Table 7: Reason on how green space in home yard can bring comfort

		Responses		Percent of Cases
		N	Percent	
Why green space in home	• Can Reduce Stress	6	5.2%	6.2%
	• Peaceful and Comfortable	23	19.8%	23.7%

yard is comfortable?	• Beautiful Scenery and new hobby	26	22.4%	26.8%
	• Fresh your mind and boost health qualities	24	20.7%	24.7%
	• Fresh air	17	14.7%	17.5%
	• No comment	20	17.2%	20.6%
Total		116	100.0%	119.6%

a. Dichotomy group tabulated at value 1.

(v) What do you think to be improved the green space in your residential yard?

According to this question, respondents had to give their opinion improvement needed of green space in their residential yard. This question is an open-ended question where respondents can write their opinion. These answers had been concluded from respondent’s answer using Excel and then run into SPSS. Table 8 below shows the results.

Table 8: Opinion on Improvement the Green Spaces in the Residential Yard

		Responses		Percent of Cases
		N	Percent	
Opinion on the Improvement of Green Spaces in Residential Yard	• Addition of landscape and plants	49	46.7%	49.0%
	• Maintenance and take care it neatly	22	21.0%	22.0%
	• For farming	2	1.9%	2.0%
	• Increase the area of space and land	8	7.6%	8.0%
	• Addition of facilities	5	4.8%	5.0%
	• Do campaign	10	9.5%	10.0%
	• Nothing to be improved	9	8.6%	9.0%
Total		105	100.0%	105.0%

a. Dichotomy group tabulated at value 1.

(b) Interview Results

In interview sessions, the researcher conclude the data by divided to a few sections.

(i) Background of respondents

There are 3 respondents which are respondent 1, respondent 2 and respondent 3. respondent 1 is a site manager of his own construction company which is MKA Suria Enterprise that have been focused on waterproof construction company and supplies waterproof construction products in the field of construction.

Meanwhile, respondent 2 is a project manager in Setiapadu (M) Holdings Sdn. Bhd. which is a private limited company and has been existed for 3 years. He has work experience 1-5 years in construction company and now served as a project manager who manage the site project.

Respondent 3 is a managing director in construction firm in SS Group. Served for 11-15 years experience in construction company who manage and prepare the tender document in the initial construction project.

(ii) Company background and Knowledge in GBI Concept

Respondents have given their respective opinions on green buildings in Malaysia. According to respondent 1, he said that green buildings in Malaysia need to be maintained while respondent 2 said that green buildings are good for health and the environment.

"The world is getting older, buildings with the concept of greenery need to be maintained and built more to create a healthy environment, and to repair the earth's ecosystem which is increasingly paralyzed by human actions" (respondent 1)

Respondent 3 said that green building in Malaysia is still less compared to neighbouring countries like Singapore. In Sabah and Semenanjung itself, only a few buildings with GBI. This is because the developers still think it will costs a lot when it comes to implementation of new technologies.

In this research, respondent 2 and 3 applied green concept in their mission and vision of company while respondent 1 is out of their field of work. Respondent 1 is more likely apply green concept in their repair work project of waterproofing works. Respondent 3 company's focus to become a competitive contractor company and they always try to follow the latest trend which is sustainable construction.

(iii) The need for the construction of green spaces in residential yard

Respondent 1 and 2 stated that 30% are provided for the formation of green spaces in residential yard while respondent 3 used to follow the design set by the client only. Same goes to the guideline followed by respondent 1 and 2 are using Green Neighbourhood Guidelines but respondent 3 didn't follow any rules.

Based on Green Neighbourhood Guidelines, there are a number of displacement set according to different house categories. For example, displacement of terraced type residential housing buildings is about 6.1 m minimum from the front, 3.5m minimum at car porch end with lot boundary and many others. Table 9 below show example of displacement set according to terraced type house.

Table 9: Displacement of Terraced Type Residential Housing Buildings (Green Neighbourhood Guidelines)

Aspect	Standards
● In front Displacement (minimum)	6.1 m (20')
● Front Displacement between the End of the Car Porch and Lot boundaries (minimum)	3.05 m (10')
● Corner-lot Displacement (minimum)	6.1 m (20') - The distance from the side walls of the side building to the border of the side road reserve 5.03 m (16.5') - The distance from the edge of the side roof to the boundary of the side road reserve
● The Distance between the Back of the Building (minimum)	6.1 m (20') - The distance between the walls of the building at the back to the walls of another building

(iv) The opinion on Important of Green Space in Residential Yard

All of the respondents were agreed about the important of green space in human lifestyle as it related to human mental and psychological well-being. Respondent 1 said that green spaces provided in residential yard can rest the residents mind as greenery environment give fresh feel to us. Respondent 2 stated that green space is good for the future environmental. Green space will makes the environment cheerful and guarantees the future of the country and healthy environment.

Respondent 3 shared that green area really helps in mentally and physically health.

“Yes, green area give the big impact to human because as I get stressed, I will go for walk and see greenery environment. Perhaps, I think it really helps for mental and psychological” (Respondent 3)

All of the 3 respondents also agree on the green space helps in boost the health qualities among humans. Respondent 1 and 2 stated that green area helps in supply oxygen for the human and increasing the oxygen supply respectively while respondent 3 stated that it helps in releasing stress and increase the level of human health.

The result of interviewed, all the respondent gives the positive answer on the impact of green space to environment and society. Respondent 1 said we can breath the fresh air while respondent 3 said that in the environment it helps reduce the pollution and increase the health for the society. Respondent 2 said green space give both good impact to environment and society.

Benefit of green space gives different opinion from all the respondents. All three respondents prefer with green space than without green space. Respondent 1 assess that green space gives clean environment and reduce heat. Respondent 2 stated that green space gives refreshing the atmosphere and environment of the house while respondent 3 said green spaces helps in reduce stress in the workplace.

4.2 Discussion

- (i) Objective 1: To determine how the green spaces boost the health qualities in residential yard among residents in a housing development.

In achieving 1st objective, the survey had been conducted in demographic analysis and descriptive analysis by using chosen answers for each questions in the survey. Section B in the survey aims in achieving the objective 1 of this research. In demographic analysis, most of the respondents are not often get stress whereby most of them have green space at home. This can be concluded that, the presence of green space can reduce stress of the residents. Moreover, most of the respondents are lazy to go for walk at recreational park to get fresh air, so that they used this alternative at home to released their stress only at home. Researchers also ask on what are they doing in their green space. 47% of the respondents do farming in the yard and they loved to build beautiful landscape around their house. In problem stated in chapter 1, there are about 3.3% of global death to human who are not exposed to the green spaces. This had been the serious problems that globally impact health of human mentally and physically. All the respondents also agree on the importance of green space for our health and most of them stated that also the need for green space to be provided in residential yard. Next question study about the what was the need of green space in residential yard for. 68% of them said that green areas really help in reduce stress and then go for farming and a space for leisure time. Green spaces really help in improving the health for the population as 96% of them agreed. Lastly, respondents also give their opinion on how green spaces improve a person’s level of health? Green spaces give fresh air, increase in oxygen level, peaceful and comfortable for the population, maintain the good health of human, can rest their mind and give no stress to them.

- (ii) Objective 2: To study the development of green space in the residential yard.

The development of green spaces in residential yard has long been implemented by housing developers and contractors on the basis of the Green Building Index (GBI) since 2007 in Malaysia. Resulting from the interview session on 3 respondents from different work background have give the positive data feedback. As we know, the Green Neighbourhood Guidelines had been stated that each of type of house need to have displacement of green spaces for the residents. It is about minimum of 6.5m from the house either in front, back or side of the house. By providing the green spaces in residential yard it helps the increase in greenery environment around the house and maintaining the good health of the residents. All of the respondent stated that, their company apply the greenery concept most of their

projects. Respondent 1 said that green space helps in keep the temperature of the surrounding low, clean and fresh. Respondent 2 mentioned that green spaces help in keep good health and maintain the greenery of the environment while respondent 3 strongly emphasizes that green spaces can help in reducing stress in the workplace and green spaces are very important for human health. Formation of green spaces from respondent 1 and 2 provide about 30% of their construction project while respondent 3 only follow the design by their clients. Therefore, we know that the development of green spaces in most of construction company in Malaysia.

(iii) Objective 3: To found out the effective improvement needed for green spaces in residential yard. This objectives of the research is conducted by form an open ended questions survey on descriptive analysis which is to identify the opinion on an effective improvement needed for the green spaces. From respondents' answer, the researcher concluded from each questions into a few answers to easily turn into SPSS. There are 5 random open ended question provided. Most of the respondent are likely love to have green spaces in their residential yard because they can make farming as their hobby, a space for their leisure time and socialization, they can build beautiful landscape in their home yard or even a parking spaces. There are really few of the respondents didn't have green spaces in their residential yard. This means developers and contractor have been really serious in built green spaces in residential yard nowadays. All of the opinion from the respondents had been sum up into 7 separated answers. Most of them said that green spaces in the residential yard need to put an addition of landscape and plants in new development of houses. Next, respondents suggest to have maintenance and green spaces need to take care neatly. There are also some of them suggest to increase the area of green spaces and land in residential yard. To improve the effectiveness of green spaces, respondents also suggest for the government to do a campaign about the importance of green spaces or awareness of cultivating in the home area. All of the response for the effective improvement in green spaces is observed.

5. Conclusion

Nowadays, the importance of the development of green spaces in residential area has been applied to most of construction housing estate as follow the Green Neighbourhood Guidelines. The effectiveness and awareness of the green environment in Malaysia had been realized by the aware of all the people and they love the green spaces more now. As the result of this study, green spaces in residential yard really helps in improving and boost the health qualities among residents. The effective improvement suggested by the respondents can be used as recommendation on improving the green spaces in residential yard. Finally, the overall result of this study had been achieving all of the objectives research and give a lot positive data and results. The result shown green space in residential yard is really give the big impact to human mental health and environment and we need to take care of the environment and green spaces around our home to ensure a conducive and healthy home environment.

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References

- Alshibly, Haitham. (2018). Re: How to determine sample size in quantitative research?. Retrieved from: https://www.researchgate.net/post/How_to_determine_sample_size_in_quantitative_research/5a4b2f553d7f4b89d837da40/citation/download.
- Chapman, R. (2019, December 21). What Is Data Analysis In Research And How To Do It? Retrieved May 29, 2020, from <https://limeproxies.com/blog/what-is-data-analysis-in-research-and-how-to-do-it/>

- Coolen, H., & Meesters, J. (2011). Private and public green spaces: meaningful but different settings. *Journal of Housing and the Built Environment*, 27(1), 49–67. doi: 10.1007/s10901-011-9246-5
- Cul-de-sac. (n.d.). Retrieved from <https://www.designingbuildings.co.uk/wiki/Cul-de-sac>
- Courtyard house. (2020, March 20). Retrieved from https://en.wikipedia.org/wiki/Courtyard_house
- Cva, K. (2017). <https://www.medwinpublishers.com/JOB/D16000139.pdf>. *Journal of Orthopedics & Bone Disorders*, 1(7). doi: 10.23880/jobd-16000139
- Construction: Meaning in the Cambridge English Dictionary. (n.d.). Retrieved May 18, 2020, from <https://dictionary.cambridge.org/dictionary/english/construction>
- Definition. (2020, May 06). Retrieved May 18, 2020, from <https://en.wikipedia.org/wiki/Definition>
- (n.d.). Retrieved May 18, 2020, from <https://study.com/academy/lesson/construction-definition-types.html>
- Economic benefits of green spaces. (2017, June 17). Retrieved from <https://www.thestar.com.my/business/business-news/2017/06/17/economic-benefits-of-green-spaces/>
- Green Space is Good for Mental Health. (n.d.). Retrieved May 18, 2020, from <https://earthobservatory.nasa.gov/images/145305/green-space-is-good-for-mental-health>
- Holdings Sdn Bhd. (n.d.). Plan Malaysia @ Melaka. Retrieved from <https://www.jpbdmelaka.gov.my/v2/xs/index.php>
- Idrus, D. S. (2016, April 23). Kawasan Hijau penting dalam perancangan bandar. Retrieved from <https://www.bharian.com.my/node/146556>
- Mixed Methods Approach When Conducting Research - Thesis Writing & Dissertation: Academic Writing Help for Those Feeling Stuck. (2018, March 31). Retrieved from <https://unstuck.me/mixed-methods/>
- Residential area. (2020, April 13). Retrieved May 18, 2020, from https://en.wikipedia.org/wiki/Residential_area
- Research Population - The Focus Group of a Scientific Query. (n.d.). Retrieved May 29, 2020, from <https://explorable.com/research-population>
- Streefkerk, R. (2019, April 12). Qualitative vs. Quantitative Research: Differences & Methods. Retrieved May 20, 2020, from <https://www.scribbr.com/methodology/qualitative-quantitative-research/#data-collection-methods>
- Tan Abdullah, D. I. H. (2015, March 13). Teknologi hijau tingkat kualiti hidup , pacu ekonomi negara. Retrieved from <https://www.thestar.com.my/business/business-news/2017/06/17/economic-benefits-of-green-spaces/>
- The social and economic importance of green and blue areas: Urban green-blue grids. (n.d.). Retrieved from <https://www.urbangreenbluegrids.com/social/>
- Templeton, L. (2019, December 2). Green spaces in cities can help people live longer. Retrieved May 18, 2020, from <https://www.medicalnewstoday.com/articles/327177>
- Urban green spaces. (2016, August 4). Retrieved from <https://www.who.int/sustainable-development/cities/health-risks/urban-green-space/en/>
- Yard. (n.d.). Retrieved May 18, 2020, from <https://www.merriam-webster.com/dictionary/yard>