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## **THE PREFERENCES AND REQUIREMENTS OF GREEN GARDEN RETIREMENT CARE OF THE ELDERLY: CASE STUDY AT RSK TAIPING, PERAK, MALAYSIA**

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### **Abstract**

The elderly people in retirement homes generally pain from health's problems, depression, and anxiety. Previous study revealed that the elderly requires high consumption of healthcare facilities. However, in Malaysia, the gap of the built environment for green garden, especially in the existing strategy at planning, design, and implementation of the elderly institutional care is currently lacking and inadequate. Consequently, the elderly usually requires much green or naturals to spend considerable time gardening and therapeutic activities. The green garden can entail and develop their stimulation, increase socialization, and decrease feel of isolation. Therefore, this study investigates the requirements of green garden retirement care for the elderly in supporting their active ageing and preferences design of green garden to improve the quality of life at retirement homes. This study embedded mixed-method designs, including structured interviews with the sixteen (16) residents and four (4) staff at RSK Taiping, Perak. together with observation of senior outdoor survey (SOS) tools. Findings revealed that the requirement of green garden retirement care facilities and location influenced garden usage in the elderly at retirement homes. The design considerations of landscape design on green gardens have been identified to be prominent in preferences for the elderly at retirement homes. The evidence in this study is particularly compelling for the holistic planning, design of the green garden at retirement homes and provides better reflection in future policy for institutional care facilities development.

**Keywords:** Green garden, retirement care, preferences, requirements

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## **INTRODUCTION**

Green garden is a new term practiced worldwide with its primary aim is highlighting the gardening activities with sustainable landscape management practices. According to Prasad (2017) and Wen et al. (2018) green garden is comprised to as therapeutic, green space and natural landscape. The concept has been adopted on various types of the garden, from an individual's own private garden to the community garden (Curl et al., 2016; Finlay et al., 2015). Recently, increasing evidence shows that 'exposure to the green garden is beneficial to mental and physical health' (Darmawati, 2019; Shi et al., 2019). Thus, providing a natural environment in institutional care and health facilities for the elderlies played a significant role in determining a healthy environment (Zainol & Pettit, 2016). The green garden concept should be applied to various levels of society, especially in the elderly community. Previous research by National Institute on Aging (2019) shown that elderly or older adults are more prone to various mental and health conditions. In Malaysia, the numbers of elderly are increasing dramatically. From 2015 until 2030, the Malaysian ranking of ageing are increasing fast. According to the Department of Statistics Malaysia (2017-2020), Malaysia is expected to become an ageing nation in 2030 with a population aged 60 years that will overreach 15.3% of the total population. Hence, to ensure the elderly are well protected from mental and physical diseases, a green garden was referred to therapeutic and green space concept as one of the best activities for the elderly in Malaysia. Moreover, green garden activities can be enjoyed even among the elderly with limited mobility. Therefore, the green garden concept should be introduced, especially in the institutional care of the elderly in Malaysia. This paper sets out to study investigates the requirements of green garden retirement care for the elderly in supporting their active ageing and preferences design of green garden to improve the quality of life at retirement homes. In addition, this study also involved selected variables gained from the literature review to test on physical, and social needs of the elderly in Malaysia institutional care facilities. The findings from this study are expected to portray the elderly needs, specifically in the Malaysian context, on constructing and emphasizing the green garden for the elderly institutions.

### **Green Garden: The Dimension and Benefit to the Elderly**

Generally, the green garden concept refers to gardening area, therapeutic, natural landscape and green area inhabited by plants, minimizing disturbance to the environment, and a simple garden (Prasad, 2017). Nowadays, the concept of a green garden has been adopted in the green pocket area for an eco-friendly environment. It is either horizontal on the earth surface, vertically set up, or ceiling or roof green garden. These dimensions lead to improved quality of community through self-health aspects, economic, and socially balanced. Given

the strong tendency of people to connect with nature, it seems appropriate to distinguish 'green garden' as a particular form of dimension that is of great importance to the elderly, and nature may affect the relative importance levels of the preferences (Scannell & Gifford, 2013, 2017). The green gardens that are planted together can help in improving the long-term quality of health. Through planting and gardening activities at green garden, it can help in improved mental health. This is addressed from a study conducted by Finlay et al. (2015); Scott et al. (2015) and Wakefield et al. (2007) that participants found the opportunity to interact with nature relaxing and calming. Moreover, Dahlkvist et al. (2016) revealed that green garden may enable psychological distance, engage effortless attention, encourage more frequent visitation, and leads to the formation of positive self- characters. Detweiler et al. (2012) stated that elderly people with dementia tend to have a reduction in aggression and medication and thus lowering the costs. Furthermore, green garden helps the elders to be more engaged and do light activities to promote their self-health and self-movement. According to Fumagalli et al. (2017), green gardens that have these characteristics may promote positive health development: (i) a lush garden setting, (ii) safe and comfortable, (iii) outdoor walking and activities, (iv) easy to see and reach, and (v) connect to the world. A well-designed garden for the elderly plays an essential role in providing a sense of belonging and encourages the elderly to be more physically active. Dahlan et al. (2016) stated in their study that having more greenery, and natural elements in outdoor spaces such as green gardens for the elderly people will promote various experiences. Such as being away and fascinated when residents' go outdoors and that this, in turn, will encourage more frequent visitation and better health. Both combinations of facilities, natural garden setting and aesthetic quality play an essential function in making these good social places for seniors' citizens. Furthermore, green garden also helps strengthen the bonds of unity and quality of communication between the community of elderly people.

### **The Preferences of Green Garden in Retirement Homes**

The garden is part of a green background that ensures a sense of calmness and peace (Ali et al., 2019). Several studies have investigated green-space preferences of different age segments. The elderly needs a specific green space or garden at retirement homes or care centres to improve their quality of life (Ali et al., 2019). The previous study by Azmi et al. (2021) revealed that the elderly needs environment features with activity and gardening space. The green garden makes the elderly stay active and positive. For example, access to gardens has a connection with giving benefits to healthier older people; yet little was known about the conditions of experiences in green and gardens that may endorse health (Scott et al., 2015). Garden is seen as an imperative nature support tool to the

health facilities, and it fabricates sustainability for the elderly communities at retirement houses (Ali et al., 2019). Elderly people's physical condition and cognition have gone through the aging process, so they may find some green spaces to be more attractive than young people would (Wen et al., 2018). Previous studies defined preference as a cognitive process where some people appreciate a landscape more than another, considering it to be more aesthetic, lively, or desirable' (Wen et al., 2018). The elderly has different preferences for social and physical aspects of green spaces (Arnberger et al., 2017). Thus, in this study, the preferences of a green garden in a retirement home are divided two-aspect which are physical and social.

### **Physical and Social**

By engaging and interacting with green spaces or gardens on daily basis help the elderly to garner their mental and physical health benefits. Therefore, green gardens require physical preferences to meet the needs of the elderly in retirement homes. For the example, elderly prefer seating opportunities along access routes to green spaces providing resting points for them (Arnberger et al., 2017). The Elderly also need physical activities and movement to improve and maintain their health. Physical activities such as gardening, walking, or leisure depend on age and the individual's capacity (Artmann et al., 2017). Therefore, when they do activities in the green garden with the facilities provided, it will enhance their life aspects. The elderly also prefers more plants, flowers, and some interaction with animals. Animals and plants are more important for the older compared to younger residents living close to the green elderly (Arnberger et al., 2017). In social aspects, a few studies have observed that social factors play a significant role in the green garden preferences of the elderly (Arnberger et al., 2017). Green garden was denoted that specific social aspects seem to be more vital for the elderly than for younger individuals. Elderly people, especially, feel less lonely and experience more social support when living in green areas (Artmann et al., 2017). Green gardens in retirement homes for elderly people benefit their social interactions with different groups of individuals. It can create elderly social and pleasure bonding with each other (Ali et al., 2019). For example, they found that social support provided by friends to be positively related to leisure-time physical activities of older adults. The enjoyment and access to sightseeing in the provided green allow the elderly to gain their memorabilia, experience and it enhances the sensitivity to the staff and communities. Consequently that, they felt that their life is closed to them.

### **DESIGN AND METHODS**

This study embedded mixed method designs to achieve the research aims. This method is provided to complete the data collection, support each methodology's

strength, and provide more meaningful in-depth data (Creswell & Pioano Clark, 2007; Wisdom & Creswell, 2013). This study employed with qualitative research design using structured interview with the residents and staffs in institutional care facilities. According to Patton (1990), qualitative data brings results to life through in-depth case elaboration. Besides, quantitative research is designed by observation process. The observation has utilized an environmental audit checklist by using the senior outdoor survey (SOS) as a research instrument to explore the requirements and essentials of the green garden for the elderly. All qualitative and quantitative data are collected in concurrent studies.

### Context of the Study

The case study was conducted at RSK Taiping, Perak, Malaysia. The case study was selected based on Perak as the state with the highest percentage of the elderly, with 10.6% of the total elderly population in Malaysia as compared to other states. This study has determined dominant criteria that the case study targeted relatively the space of green garden facilities because these institutions are usually better designed, and RSK Taiping was the first RSK in Malaysia. The Figure 1 shown the location of RSK at Taiping, Malaysia. The RSK Taiping is located at Larut Matang District in Perak and adjacent to Jalan Stesyen Hulu, Taiping.



Figure 1: The location of RSK Taiping, Perak, Malaysia  
Source: Author, 2021. Image retrieved from Google Earth, 2021

### Structured Interview

A purposive sampling method was adopted in selecting respondents. The respondents were selected for the study interview were the residents and staff

with 16 elderly and 4 staff. Based on their health and ability to respond, the chosen respondents of elderlies were communicated well for the interview session, and they were aged 60 to 65 years (refer to Table 1). The elderly that was identified to have severe communication problems and illness were excluded from the interview. According to Patton (1990), there are no sample size rules for qualitative research because the emphasis is on quality rather than quantity. Its previous study recommends that qualitative studies require a minimum sample size of at least 12 respondents to reach data saturation (Clarke & Victoria, 2014; Fugard & Potts, 2015). As a result, a sample size of 20 appears to be adequate for this study.

**Table 1:** The respondent of residents and staffs at RSK Taiping, Perak, Malaysia

<b>Respondent</b>	<b>Number</b>	<b>Gender</b>	<b>Age</b>
Staff	4	Female	35-45 years
The Elderly (Residents)	16	12 (Female) 4 (Male)	60-65 years

The structured interview was conducted by carrying out a small interview study to explore the resident's living preferences about the design and requirements of the green garden at retirement homes. The purpose of the interview study was to comprehend which aspects or criteria of the green garden were essential and suitable for the elderly to improve their social and physical health. The interview session took between five to ten minutes on a specific topic for the green garden at RSK Taiping. Interviews were conducted in Bahasa Melayu (Malay) and transcribed into English. These interviews items included (i) what types of activities the elderly take part in the green garden, (ii) why they take part in this activity, (iii) what they satisfied or dissatisfied about the green garden, including the layout, design, and landscape elements and (iv) what might make the green garden space safer and better for their health, well-being and supportive for active ageing.

### **Observation**

The observation method is a promising way to objectively measure physical activity and environmental data at a sufficiently detailed level (Maller et al., 2009). The primary purpose of observation is to find the green garden layout or space and relationship with the elderly. The community green garden was observed and documented at RSK Taiping by using an environmental audit. The environmental audit established by Rodiek and Shepley (2014) was known as the Senior Outdoor Survey (SOS). The SOS tool was recently developed as a validated instrument that aims to assist a range of stakeholders, including

researchers, designers, planners, and care providers, to effectively evaluate outdoor features in institutional care facilities (Bardenhagen et al., 2018; Bardenhagen & Rodiek, 2015; Rodiek et al., 2016). The SOS tool is a checklist that enables researchers to evaluate the presence of the green garden based on significant domains and items. The tools contain 60 items in 5 domains, that including's (i) access to nature with 14 items, (ii) outdoor comfort and safety with 15 items, (iii) walking and outdoor activities with 14 items, (iv) indoor-outdoor connection with 11 items, and (v) connection to the world with 6 items. After the survey this study identified 2 significant domains and 22 items applied. They domain are domain 1; access to nature and domain 2; walking and outdoor activities (refer to Table 2 & Table 3). The other 3 domains and 38 items were discarded from this study since the Malaysian geographical and cultural factors were considered. This Seniors' Outdoor Survey (SOS) survey checklist uses the Likert scale. The rank of Likert scale is 1 to 7 for each item. All the ticking of checklist calculates the subtotal number in each domain and divides it by the number of items of each domain to get an average number, representing the scores of each domain. The SOS tool helps researchers to audit and evaluate the supportive potential of green garden areas at retirement homes (Rodiek, 2018). This application-oriented tool can be applied to reliably measure and relate a wide range of senior amenities and green garden areas to support decision-making (Scopelliti & Giuliani, 2008; Shukor, C. Y. E., and S. F. A., 2016; Shukor, S. F. A., 2012). This tool is valuable and essential for long-term care administrators, planners, landscape architects, and designers when creating and designing outdoor spaces, particularly for senior citizens.

## **FINDINGS AND DISCUSSIONS**

This section explains the findings and discussions of the study. It is divided into the following sections and data collection on environmental audit.

### **Preferences and Satisfaction of the Green Garden to the Elderly**

Most of the respondents, 8 from 16 (50%) of the elderlies and 2 out of 4 (50%) staff in this study, described that they are satisfied and pleased with the living environment at RSK Taiping. The area of RSK Taiping was described to possess greenery elements with many areas or zoning of green garden. The following are statements from respondents involved in this study:

*Male 2 & Female 1: "I enjoy living here because it's like being in a park and lots of plants, colourful and fascinating".*

Wan Noor Anira Wan Ali @ Yaacob, Dr Nur Huzeima Mohd Hussain, Dr Nadiyahati Mat Nayan, Marina Abdullah & Mohd Zulhaili Teh  
*The Preferences and Requirement of Green Garden Retirement Care for The Elderly: Case Study at RSK Taiping, Perak, Malaysia*

*Female 4,5,6 & 9 and Male 1: "Every evening, I can go outside to see the plants and the sound of birds. It gives calmness and freshness".*

*Male 3: "Uncle like gardening. Usually, I've planted the lemongrass tree surrounding the green area in RSK. I've felt healthy and better physically".*

*Staff 1: "Plants and green garden contributed significantly to the elderly by stimulating their sense and offering rewarding activities".*

*Staff 2: "We always hear about humans' negative impact on the environment, but by gardening, we can indeed "go green and food security" to benefit the elderly".*

Based on these responses from respondents, it reveals that visiting and doing some activities at the green garden was perceived to be good for the mind and self-satisfaction of the elderly and staff. According Rappe (2005) and Rappe et al. (2006), seeing the green garden and self-rated health was strongly associated with the elderly living in long-term care facilities or retirement homes. Moreover, nurturing plants enables the respondents to use cognitive skills, offered emotional experiences and facilitated social relations among the elderly in care (Detweiler et al., 2012; Mousavi Samimi & Shahhosseini, 2020). The experiences being in the green garden areas is of great significance for most of the elderly, and they considered it essential to see plants and observe natural surroundings. The visit to the green garden affects their mood and emotion positively; almost all respondents addressed to be more joyful and cheerful. The respondents who are exposed to the green garden or outdoor also were found to have lower scores for anger and fear. Roger S. Ulrich et al. (1991) stated that changes in emotional states are associated with contact with the green garden. The green garden elicits more optimistically toned effects on the elderly. The study has also shown that the elderly (Male 3) was attached to the plant growth, and it has helped the respondent to improve his physical abilities and self-expression. These findings are similar to Meyer (2007) who found that the elderly could create new memories and meanings for their social lives among residents and staff through gardening. Performing gardening activities provide more benefits and can be applied as a therapeutic tool to improve the elderly well-being. Gardening or planting activities may help the elderly to maintain health, facilitate rehabilitation from and cope with chronic diseases and impairments, and alleviate symptoms of dementia (Brozen, 2014; Hawkins et al., 2011; Herrington, 2008; Scott et al., 2015; Soga et al., 2017; Toyoda, 2012).



### **Requirements of the Green Garden to the Elderly**

Gardening or green garden have been used as a therapy tool for different groups of people in various settings to promote health, well-being, and social inclusion (Detweiler et al., 2012). Plants and greenery can improve the elderly well-being and provide positive physiological responses. However, the study also found that green garden for domain 1 (access to nature) in Table 2 with 79.4% was lacking with the diverse mix of plants and it did not have proper landscape elements (views and water features). The document is also supported by the statements of three respondents who are: “We are happy being here, but sometimes we really miss the environment and pleasant view like home-village with surrounding of river (water elements), diverse and edible plants”. Based on these responses, the study identified that the elderly is generally happy with the retirement homes services, however there are need in better and supportive environment for the green garden. These finding revealed that plants and water (blue space) were essential elements to provide sensory stimulations to all the senses through texture, sounds, colours, and scents. Previous study by Kaplan (2001), Kaplan (1995), Kaplan & Berman (2010) and Pappas (2006) have reported access to nature or green environment in retirement communities and homes for the elderly is very significant for the elderly. Furthermore, Joseph et al. (2016) and Kothencz et al. (2017) also supported that involvement with a green environment by looking from windows and excursions into outdoor areas are essential constituents of well-being and life satisfaction for the elderly.

**Table 2:** The data of access to nature at RSK Taiping, Perak, Malaysia

Item	Rating Scale	1	2	3	4	5	6	7
<b>Domain 1:</b>	1. Abundance of greenery						6	
<b>Access to Nature</b>	2. Diverse mix of plants and trees				4			
	3. Easily reachable or raised plants							7
	4. Hard boundaries screened by plants						6	
	5. Seating has pleasant views						6	
	6. Water features available		1					
	7. Outdoor fairly quiet						6	
	8. Privacy from resident rooms						6	
	9. Private place to sit						6	
	<b>TOTAL</b>							<b>48 score</b>
<b>Average Score</b>							<b>76.2%</b>	

Domain 2: walking and outdoor activities was identified to be an essential item of environmental audit for the elderly outdoor activities. Walkability and outdoor activities were related to the themes of safety, comfort or convenience, and aesthetics (Rodiek, 2006; Wen et al., 2018). According to

(Khalid et al., 2020), for accessibility and environment for the elderly needs easily accessible for the elderly with greater consideration on mobility, security, and activity. In RSK Taiping, the walkway or pathway area facilities with 54.8% in domain 2 (refer Table 3) were lacking in providing walkways with different lengths. Some of the walkways' levels need to improve significantly for the elderly who use support equipment such as wheelchairs, crutches, and more for their ease of movement when having social activities. According to RSK Taiping staff respondents, the most problematic task is to manage a group of the elderly, especially in taking care of those in wheelchairs for outdoor activities.

**Table 3:** The data of walking and outdoor activities at RSK Taiping, Perak, Malaysia

	Item	Rating Scale	1	2	3	4	5	6	7
<b>Domain 2: Walking and Outdoor Activities</b>	1. Roundtrip walkways available				3				
	2. Paving level, easy for wheelchairs			2					
	3. Paving non-skid and non-glare			2					
	4. Handrails along some walkways					4			
	5. Walkways partly shaded					4			
	6. Interesting views from walkways						5		
	7. Frequent seating along walkways		1						
	8. Some walkway seating in shade			2					
	9. Destinations to walk toward						4		
	10. Places for social activities								6
	11. Places for recreation and exercise								6
	12. Place for gardening, horticultural therapy								7
	<b>TOTAL</b>							<b>46 score</b>	
	<b>Average Score</b>							<b>54.8%</b>	

This study findings also discovered that the materials of the walkway were not incorporated with paving non-skid and non-glare elements. The staff also reported that slippery paths were considered as a significant hindrance for the elderly who use wheelchairs and walking aids. Previous research recognizes that all these risks are regularly made poorly to the elderly physical (Tobi et al., 2018). Consequently, to make it safer for the elderly, it is essential to create a better design and facilities of a green garden in institutional care. Overall, a thriving green garden environment satisfies the physical, and social needs of elderly people. The green garden design, landscape, and social activities need to compensate for their physical and it has encouraged usage for the elderly. Identifying specific environmental audits at retirement homes will assist the

landscape architect, planner, and designer to provide better design solutions for the green garden.

## **CONCLUSION**

Investigating the preferences and requirements of the green garden for the elderly are significant due to beneficial treatments as well as benefits for their mental and physical health. Through structured interview with 16 numbers of residents living and 4 numbers of staffs associated with observation, this study has tested the environmental audit domains (SOS tools) adopted by Rodiek & Shepley (2014). The findings revealed that the domain 1 'Access to Nature' with 48 scores (76.2%) average that represent as more favorable items compared to domain 2 'Walking and Outdoor Activities' items with 46 scores (54.8%). The study presented that the most required items for a green garden were the abundance of greenery, easily reachable or raised plants, and seating with a pleasant view. The preferences findings discovered that the respondents showed a significant correlation with greenery and safety, highlighted by Kaplan & Berman (2010) as the most effective environment content in retirement communities. Green garden was attempted that the study findings, specifically the senior outdoor survey (SOS) domains, can offer a better understanding in planning design, and proposed of the standard features of green garden elements for the elderly at retirement homes and become guidelines to further develop the resilient living environment for the ageing population in Malaysia. The senior outdoor survey (SOS) tools create a reliable and accurate way to determine the community's outdoor spaces based on how well the survey meet the needs and requirements of the elderly residents. Therefore, these findings boost physical and social contributions that pursuit the environmental audit investigations at a retirement home, specifically in the RSK Taiping, Perak. Furthermore, these domains would then provide better prospects for the institutional care facilities development in retirement care facilities for near future.

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Wan Noor Anira Wan Ali @ Yaacob, Dr Nur Huzeima Mohd Hussain, Dr Nadiyahati Mat Nayan, Marina Abdullah & Mohd Zulhaili Teh  
*The Preferences and Requirement of Green Garden Retirement Care for The Elderly: Case Study at RSK Taiping, Perak, Malaysia*

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