The Strata Housing Attributes for Elderly to Age In Place

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Abstract: As we navigate the journey of life, we encounter myriad experiences that shape who we are. Each stage brings new challenges and triumphs, and the process of ageing is no different. Ageing in place has becoming a popular trend among the elderly whereby they insist on growing older in a familiar place especially at their own house. Despite of their impairments, they prefer to ageing in place. Added to that, in line with the rapid urbanisation, they might ageing in place in a high-rise building such as condominiums and apartments.

However, this trend has triggered concerns among family members, such as, how safe are their parents or grandparents in their own homes? Thus, this book will delve into the high-rise building attributes that enable the elderly to age in place. Surveys and interviews were conducted among elderly individuals with impairments to gather input on the required high-rise building attributes for them to age in place.

Throughout the pages of this book, you will encounter diverse perspectives and experiences that illuminate the many-sided nature of ageing in place which contributes to 3 types of high-rise building attributes which are internal attributes, external attributes, and technology attributes. Together, we can create a nation that allows everyone to age gracefully, independently, and safely in either condominiums or apartments. May this book inspire us to envision and build a future where ageing in place in either condominiums or apartments is not only a possibility but a cherished reality for all.

Keywords: Elderly, housing attributes, residential safety, strata housing

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2025

First Published 2025

Authors: Amalina Azmi, Peter Aning Tedong, Zafirah Al Sadat Zyed

ISBN: 978-629-490-158-2

Published by:

Penerbit UTHM
Universiti Tun Hussein Onn Malaysia
86400 Parit Raja,
Batu Pahat, Johor

Tel: 07-453 8698 / 8529
Fax: 07-453 6145

Website: http://penerbit.uthm.edu.my
E-mail: pemasaran.uthm@gmail.com
http://e-bookstore.uthm.edu.my

Penerbit UTHM is a member of
Majlis Penerbitan Ilmiah Malaysia (MAPIM)

Printed by:

FIRDAUS PRESS SDN. BHD.
No. 28, Jalan PBS 14/4,
Taman Perindustrian Bukit Serdang,
43300 Seri Kembangan, Selangor

Cataloguing-in-Publication Data

Perpustakaan Negara Malaysia

A catalogue record for this book is available from the National Library of Malaysia

ISBN 978-629-490-158-2

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LIST OF ABBREVIATIONS

AIP	Ageing in Place
ADL	Activities of Daily Living
CWC	Central Welfare Council
DSW	Department of Social Welfare
ETA	Ecology Theory of Aging
GEM	Gerontological Association of Malaysia
IADL	Instrumental Activities of Daily Living
MITI	Ministry of International Trade and Industry
MS1184:2014	Malaysian Standard 1184:2014
MWFCD	Ministry of Women, Family and Community Development
NASCOM	National Senior Citizens Organisation Malaysia
NHMS	National Health and Morbidity Survey
NGO	Non-Governmental Organisation
PE-Fit	Person-Environment Fit
PWD	Person with Disabilities
QoL	Quality of Life
RCC	Residential Care Centre
RDS	Respondent-driven sampling
UD	Universal Design
UBBL	Uniform Building by Law
WHO	World Health Organization

PREFACE

As we navigate the journey of life, we encounter myriad experiences that shape who we are. Each stage brings new challenges and triumphs, and the process of ageing is no different. Ageing in place has becoming a popular trend among the elderly whereby they insist on growing older in a familiar place especially at their own house. Despite of their impairments, they prefer to ageing in place. Added to that, in line with the rapid urbanisation, they might ageing in place in a high-rise building such as condominiums and apartments.

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ACKNOWLEDGEMENT

This book completion could not have been possible without my dedicated team (Professor Sr Wan Nor Azriyati Wan Abd Aziz, Dr. Peter Aning Tedong and Dr. Zafirah Al-Sadat binti Zyed. Your passion, guidance and expertise have been invaluable throughout this process. The insights and feedback have not only shaped this book but also enhanced my understanding of the complexities surrounding housing for the elderly. Not to forget, Cik Puteri Ameera Mentaza Khan, Cik Nur Hafizah Juhari, Cik Nurhayati Md Khair & Dr Sheelah a/p Sivanathan, thank you so much for your endless support.

I would also like to extend my sincere thanks to NAPREC for the financial support. Your belief in the importance of this research enabled me to dedicate the necessary time and resources to this project. Thank you to the elderly participants who shared their experiences and insights with me. Your stories and perspectives are at the heart of this book, and I hope that it will contribute to the creation of more supportive and enabling strata housing for aging in place.

Last but not least, I would like to dedicate this book to my beloved family (Mak, Abah, Kak Long, Amin, Am & Azreen), Husbandku, friends, colleagues, my cats and the list goes on for your endless doa, love and encouragement. To everyone who played a part in bringing this book to life, I offer my heartfelt thanks.

CHAPTER 1
OVERVIEW OF GLOBAL AGEING POPULATION

1.1 Introduction

The ageing population in most countries and regions has shown a tremendous increment. According to the United Nations Department of Economic and Social Affairs Population Division (2019), the global elderly population as for 2019 is 703 million and projected to increase to 1.5 billion in 2050. The issue has been the main focus in roundtables by many global organisations, policymakers as well other stakeholders. Many regions such as North and Central America, and Europe are experiencing burgeoning numbers of elderly in their countries. In a general sense, most elderly are vulnerable as they are fragile, frail and physical impaired however, they still prefer to age in place (Gonawala et al., 2013; Tewari et al., 2018).

The rising numbers of elderly population can be seen as a worldwide phenomenon that can be observed in many countries. Some countries for example, Japan, UK, the USA and others have been declared as ageing countries (Sukhbir et al., 2017). A country will achieve the status of an ageing country when the elderly population has reached 15% of the total population (Wan-Ibrahim and Zainab, 2014). For instance, existing elderly population in Japan is 30% thus making Japan is the oldest country (Firestone, Keyes, and Greenhouse, 2018), while in Hong Kong, the elderly population is 21.7%, (Szeto et al., 2017) and followed by Italy with 21.4% (Mazzola et al., 2016). According to Issahaku and Neysmith (2013) and Kim et al. (2017), the global elderly population is estimated to increase to two billions by 2050.

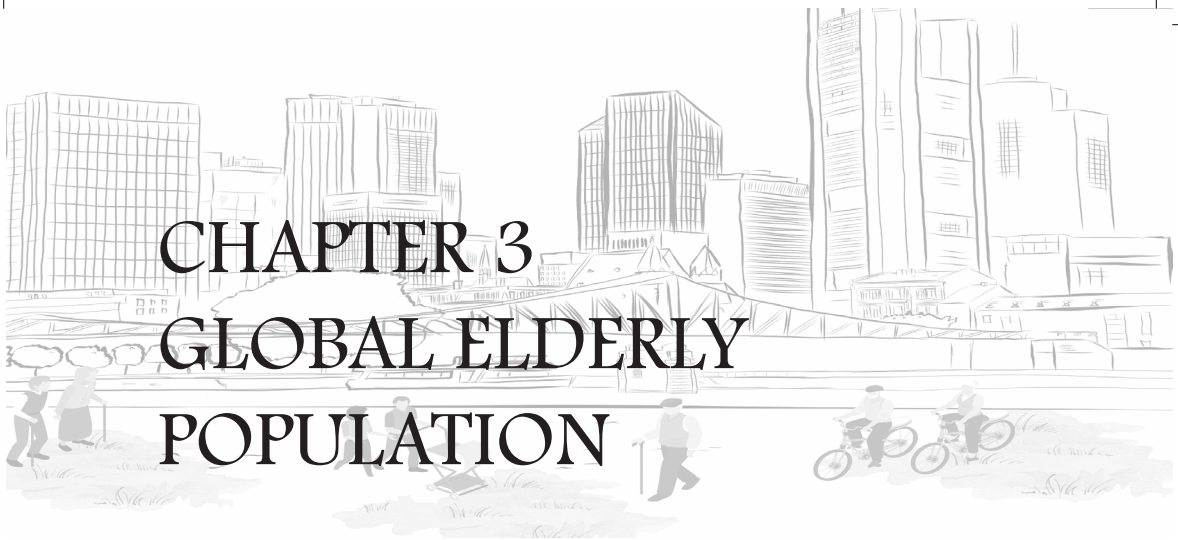
CHAPTER 2
OVERVIEW OF GLOBAL AGEING POPULATION

2.1 Introduction

In the context of ageing in place, the elderly has always associated with their competencies in terms of physical abilities, social abilities, and financial abilities in the environment. They often being portrayed as the person who wishes to remain their autonomy and being independent in their environment when they age in place. Besides, the appropriate housing attributes comprises of the external attributes, internal attributes, and technology have proven to improve the elderly's quality of life and well-being by enabling the elderly to age in place despite their impairments (Al-Shaqi et al., 2016; Feng et al., 2018 and Loo et al., 2017).

Engaging with the previous statement, Lawton and Nahemow's ecology theory of ageing (ETA) is used to elaborate the interaction between the elderly and their environment in this study. Which led to the conceptual framework adopted in this study whereby Person-Environment (P-E) Fit framework is used to examine the links between the elderly's impairments and the environments comprises of internal housing attributes, external housing attributes and technology.

Thus, this chapter provides an overview of the interdependency between the elderly's impairments and the environment for them to age in place. It is divides into three sections which begins with a brief literature review of the ecology theory of ageing (ETA). The purpose of this is to conceptualise the theme and issues that are pertinent to this research. The second part of this chapter, in the context of environment-ageing studies,



CHAPTER 3
GLOBAL ELDERLY POPULATION

This chapter will discuss the concept of Ageing in Place in European countries, USA, East Asia, South East Asia including the elderly population, factors of ageing in place, issues and challenges of ageing in place, theories of ecology in ageing in place. First part of this chapter will look into the demographic of ageing population, definition of elderly, concept of ageing in place, factor, issues and challenges of ageing in place around the world. While the remaining part is focusing on the discussion of the strata housing attributes which comprises of strata housing features, strata housing environment and technologies in strata housing based on the discovered theories. Numerous empirical research was reviewed in order to determine the relevant strata housing attributes and the theoretical framework.

3.1 Who is Elderly?

The elderly population has increased tremendously in most countries and regions (Gu et al., 2021) For instance, Japan, Korea, Hong Kong, Singapore and including Malaysia. It is important to note that developed and developing countries have defined elderly differently. The United Nation of World Health Organisation (WHO) 2011 defined elderly as those people who aged 60 years and above (Addae-Dapaah and Juan 2014). Developed countries have adopted the age of 60-65 as the eligibility to set pension scheme and indirectly consider it as the beginning of old age (WHO, 2011). For example, in United Kingdom defined elderly as a woman of 60 years or older and a man of 55 years or older (Sulaiman et al., 2006).

CHAPTER 4
AGEING IN PLACE IN MALAYSIA

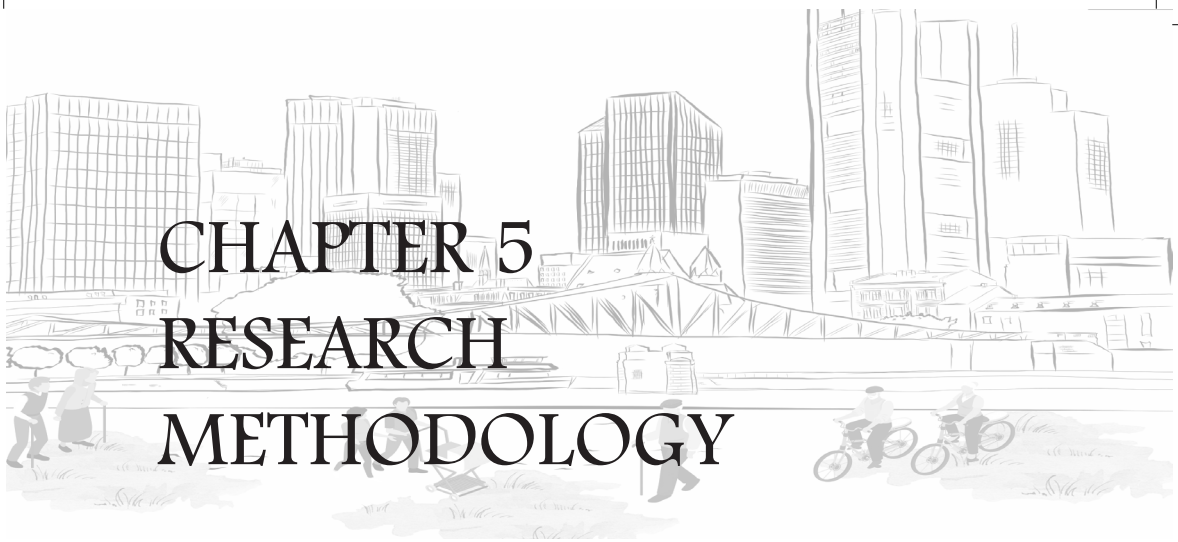
4.1 Introduction

The proportion of elderly population in Malaysia has increased significantly from year 1970 to 2010. The total of elderly population in Malaysia is approximately 3.35 million which represent 10.3% of total population in Malaysia. In Malaysia, elderly is defined as those who age 60 years and above whereas it is also the age for retirement (Mohammad et al., 2016). Furthermore, Malaysia is anticipated to become an ageing nation by 2030 (Onunkwar et al., 2016). Most of the elderly population in urban area prefer to age in place in condominium as well as apartment despite of their age and impairments.

It can be seen in Malaysia that policy has shifted towards community and educational inclusion for the people with impairment particularly among elderly. This includes the development of National Policies, Malaysia Action Plan, Malaysian Plan, Housing Provisions for elderly as well as the existing guidelines which will be further elaborated in this chapter. Moreover, types of impairments that are prevalence among the elderly will be further elaborated in the next sub-topic.

4.2 Impairments Among Elderly in Malaysia

Disability is defined as a set of impairments, activity limitations, and participation or engagement restrictions (Ahmad et al., 2017; Muhammad Solihin et al., 2021). Impairment is common to be developed by any human when they grow older. Almost

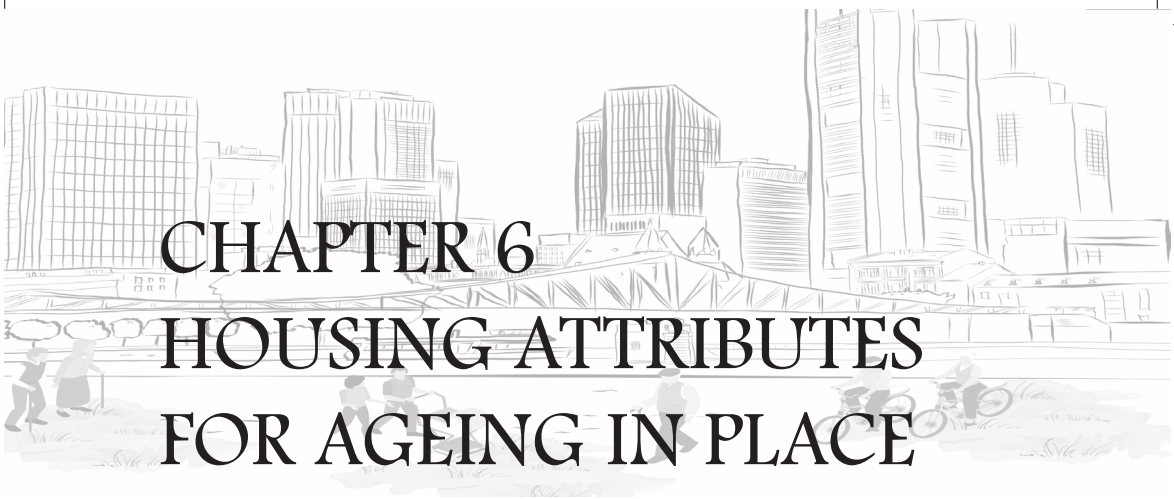


CHAPTER 5 RESEARCH METHODOLOGY

5.1 Introduction

To begin a research methodology, it is very important understand the philosophical terms, which are epistemology and ontology. Epistemology is the nature of knowledge while ontology is the nature of the reality (Al-Ababneh, 2020). The epistemology and ontology assumptions made in this study has informed my thinking and understanding in this topic. Hence, it reflected the choice of research methodology and methods for this study which will be briefly explained in this chapter.

As mentioned in Chapter 1, the aim of this research is to assess the strata housing attributes for elderly who has at least one impairment to age in place. Thus, this study applied mixed-method approach through explanatory sequential design, which emphasize on quantitative data follow by qualitative data. In the first phase of this study, the quantitative method is used to assess the elderly's aspiration on the strata housing attributes for them to age in place through questionnaire survey. Followed by the second phase of this study, qualitative method in validating the suitable strata housing for them to age in place as well as to validate the relationship between the elderlies' impairments and strata housing attributes. Eventually, recommendations to improve the existing guidelines of strata housing attributes for them to age in place will be obtained through triangulations of both data from qualitative and quantitative approach. For this rationale, this research will be focusing on strata housing attributes within Selangor. This chapter will be divided into four sections.



CHAPTER 6
HOUSING ATTRIBUTES FOR AGEING IN PLACE

6.1 Introduction

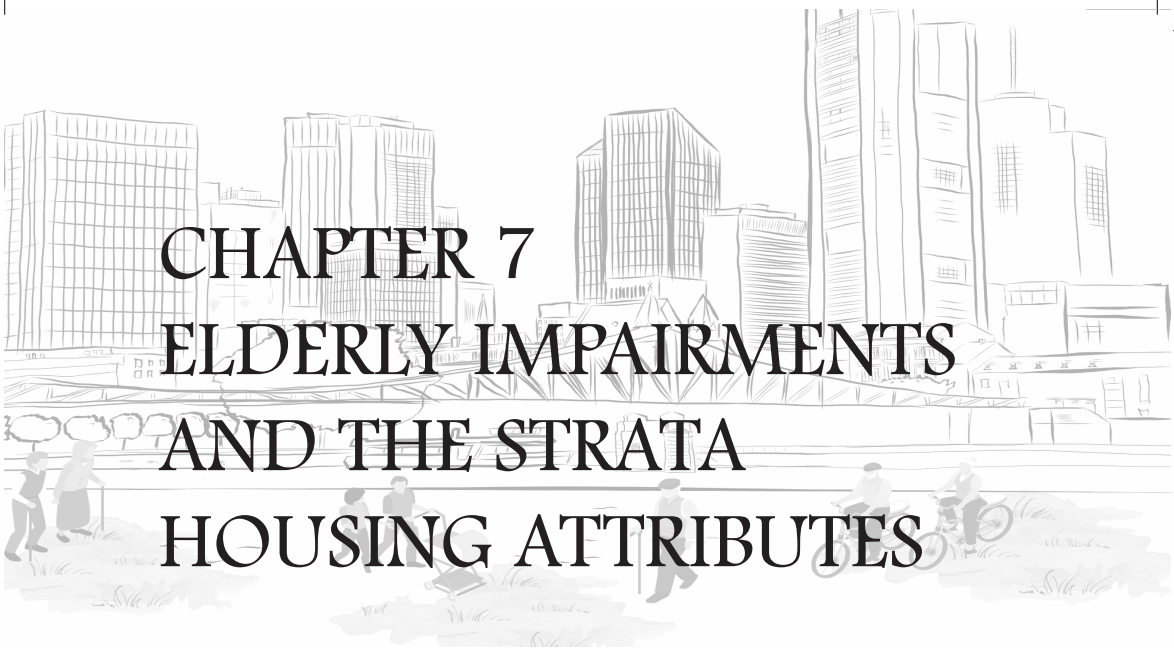
This chapter will analyse suitable strata housing attributes for elderly to age in place from the quantitative and qualitative data. For quantitative data, it starts with the reliability test result and the preliminary findings and analysis. The reliability test result is to prove the validity of the research components and will be tabulated in the next section. Overall, this chapter will be (re) visited to include the overall details of results and analysis.

Based on the previous literatures, most of the elderly were experiencing reduced in health (Gonawala et al., 2013; Tewari et al., 2018). The elderly who experienced reduced health condition or with impairment requires assistance in their daily activities or requires housing modifications as there associated with their age. All of the respondents included in the research are having impairments.

6.2 Housing Features Descriptive Analysis

The mean results indicate that the important strata housing attributes for elderly to age in place. As this study adopted 4-likert scales (1-Strongly Not Important to 4- Strongly Important), hence it for the mean score of "**0 to 2.99**" is considered as "**Not Important**" while mean score of "**3.00 to 4.00**" is considered as "**Important**".

Moreover, the elderly through the interview confirms the important attributes that has been indicated in the empirical data.



CHAPTER 7
ELDERLY IMPAIRMENTS AND THE STRATA HOUSING ATTRIBUTES

7.1 Statistical Analysis of Crosstab

This chapter will tabulate the relationship between the elderly's impairment and the strata housing attributes via Cross-Tabulation analysis, Normality test before Pearson Chi-Square Test. Researchers use cross-tabulation to examine the relationship between two variables (Whittier, Wildhagen, and Gold, 2016). A crosstab report shows the connection between two or more questions asked in the study. To resolve the dilemma, crosstab is computed along with the Chi-square analysis, which helps identify if the variables of the study are independent or related to each other.

In this study, crosstab analysis between the elderly's impairment and strata housing attributes, including the internal housing attributes, external housing attributes and technology has been conducted, for the purpose to achieve the Research Objective 2 which is to determine the relationship between impairment and housing attributes for elderly to age in place.

On the hand, this chapter will also elaborate the findings from the interview conducted with the 12 elderlies to validate the empirical data.

7.1.1 Impairments with Internal Housing Attributes

Before delve further into the relationship between the

CHAPTER 8
INTERVIEWS WITH THE ELDERLY

This chapter will validate the strata housing attributes for elderly to age in place and the relationship between impairment and suitable strata housing attributes for elderly to age in place. Thus, it will provide some recommendations to improve the gray areas

8.1 The strata housing attributes

As mentioned in Chapter 3 and 4, the strata housing attributes are divided into 3 categories which are internal housing attributes, external housing attributes and technologies. Previous studies have confirmed that housing attributes are divided into internal and external housing attributes (Haselwandter et al., 2015). During the semi-structured in-depth interviews, the participants were asked to describe a perfect condominium or apartment attributes for them to age in place. Therefore, the following section will be divided into three sub-sections (Figure 8.1) to discuss each internal housing attributes, external housing attributes and technology attributes.

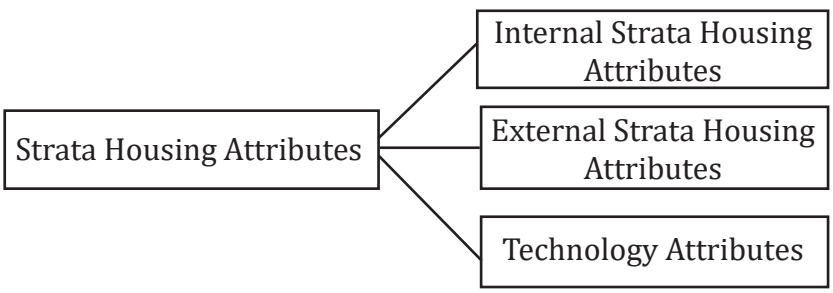
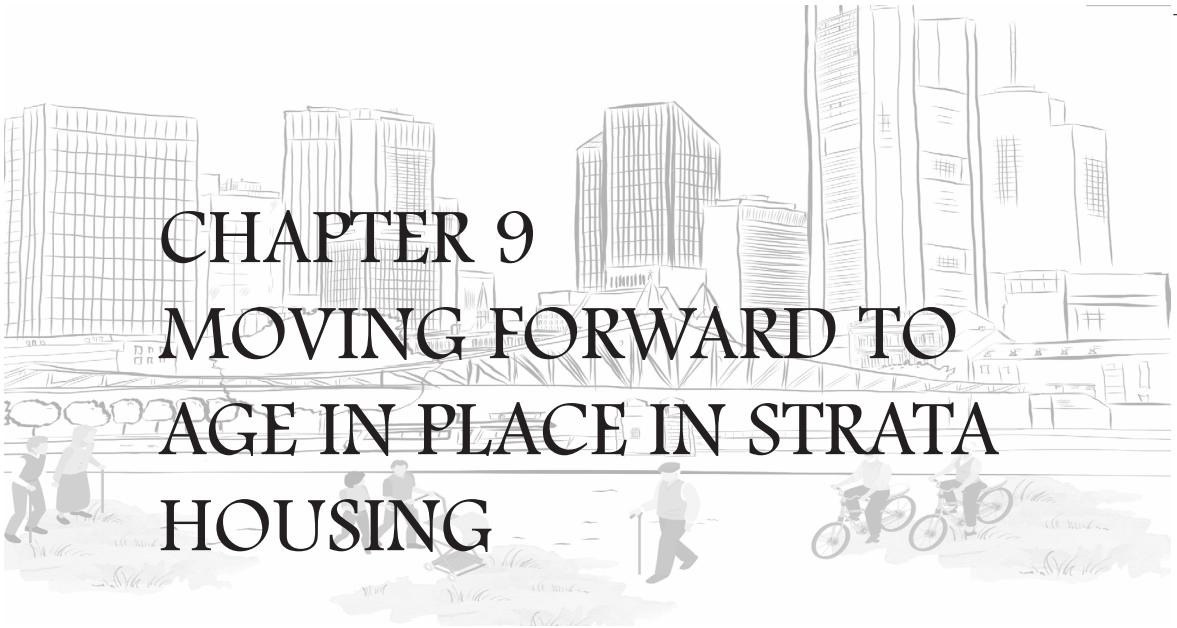


Figure 8.1: Strata Housing Attributes



CHAPTER 9 MOVING FORWARD TO AGE IN PLACE IN STRATA HOUSING

9.1 Introduction

The aim of this study is to assess the strata housing attributes for elderly to age in place in order to propose suitable mechanism to help them to age in place. As showed in Chapter 4, although Malaysia is becoming an ageing nation by 2030 and most of the elderly prefers to age in place, the ageing in place in strata housing phenomenon remains somewhat under researched and under theorized area. In particular, this study attempts (1) to identify the important strata housing for elderly to age in place, (2) to determine the relationship between impairments and suitable housing attributes for elderly to age in place. Ultimately, this study hope (3) to shed some light on the necessary improvements in the existing guidelines that would be beneficial for the elderly to age in place in strata housing. Suffice to claim, that, perhaps this is the first study in Malaysia which explores the relationship of elderly's impairments and strata housing attributes for them to age in place-to be specific in Selangor.

As explained in Chapter 4, as the number of elderlies in Malaysia is burgeoning, they also persistence in ageing place. Moreover, due to several factors such as urbanization, land scarcity, higher price for landed property have motivated the elderly to age in place in strata housing such as condominiums and apartments especially in Klang Valley. Thus, on an important note, there is a growing need to take into account the suitable strata housing attributes for elderly to age in place. Hence, this chapter will

REFERENCES

Aarts, Mariëlle P. J., Janny C. Stapel, Toine A. M. C. Schoutens, and Joost van Hoof. 2018. "Exploring the Impact of Natural Light Exposure on Sleep of Healthy Older Adults: A Field Study." Journal of Daylighting 5(1):14–20.

Abd-Wahab, S., A. Sairi, A. I. Che-Ani, N. M. Tawil, and S. Johar. 2015. "Building Maintenance Issues: A Malaysian Scenario for High-Rise Residential Buildings." International Journal of Applied Engineering Research 10(6):15759–76.

Abdel Salam, Mahmoud, and Amal Shams El-din. 2019. "Developing Smarter Bathrooms for Elderly and Disabled People." Journal of Al-Azhar University Engineering Sector 14(52):1024–35.

Abdul Kadir, Syazwani, Mariam Jamaludin, and Asiah Abdul Rahim. 2012. "Building Managers' Perception in Regards to Accessibility and Universal Design Implementation in Public Buildings: Putrajaya Case Studies." Procedia - Social and Behavioral Sciences 35(December 2011):129–36.

Abd Malik, Sofianiza and Azuddin Muna. 2013. "Qualitative Findings on the Use of Mobile Phones by Malaysian Older People." Pp. 435–39 in Proceedings - 2013 International Conference on Advanced Computer Science Applications and Technologies, ACSAT 2013.

Abdul Manaf, M. Rizal, Madihah Mustafa, Mohd Rizam Abdul Rahman, Khairul Hazdi Yusof, and Noor Azah Abd Aziz. 2016. "Factors Influencing the Prevalence of Mental Health Problems among Malay Elderly Residing in a Rural Community: A Cross-Sectional Study." PLoS ONE 11(6):1–12.

Abdul Rahim, Asiah, and Nur Amirah Abd Samad. 2010. "Accessible Built Environment for the Elderly and Disabled in Malaysia : Hotels as Case Studies Accessible Built Environment for the Elderly and Disabled in Malaysia : Hotels as Case Studies * Asiah." Journal of Construction in Developing Countries (February 2016).

Abdul Wahab, Siti Rashidah Hanum, Adi Irfan Che Ani, Ahmad Sairi, Norngainy Mohd Tawil, and Mohd Zulhanif Abd Razak. 2016. "Classification of High-Rise Residential Building Facilities : A Descriptive Survey on 170 Housing Scheme in Klang Valley." P. 00103 in MATEC Web of Confrence. Vol. 66.

Abramsson, Marianne, and Eva Andersson. 2016. "Changing Preferences with Ageing – Housing Choices and Housing Plans of Older People." Housing, Theory and Society 33(2):217–41.

Abulaiti, B., Zhang, X., Guan, T., Wang, M., Jia, S., & Wang, A. (2022). The dyadic care experiences of elderly individuals with disabilities and caregivers in the home setting from the perspective of family resilience: A qualitative study. Frontiers in psychiatry, 13, 963101. https://doi.org/10.3389/fpsyt.2022.963101

Aceros, Juan C., Jeannette Pols, and Miquel Domènech. 2015. "Where Is Grandma? Home Telecare, Good Aging and the Domestication of Later Life." Technological Forecasting and Social Change 93:102–11.

Addae-Dapaah, Kwame, and Quah Shu Juan. 2014. "Life Satisfaction among Elderly Households in Public Rental Housing in Singapore." Health 06(10):1057–76.

Addae-Dapaah, Kwame, and Grace Khei Mie Wong. 2001. "Housing and the Elderly in Singapore – Financial and Quality of Life Implications of Ageing in Place." Journal of Housing and the Built Environment 16(2):153–78.

Addada, N. (2019). RETHINK Aging in Place: An Integrated Indoor Domestic Waste Management System.

Afifi, M., M. Al-Hussein, and A. Bouferguene. 2015. "Geriatric Bathroom Design to Minimize Risk of Falling for Older Adults- A Systematic Review." European Geriatric Medicine 6(6):598–603.

Ahmad, Noor Ani, Noraida Mohamad Kasim, Nur Azna Mahmud, Yusniza Mohd Yusof, Salimah Othman, Ying Ying Chan, Mohamad Aznuddin Abd Razak, Muslimah Yusof, Maisarah Omar, Fazly Azry Abdul Aziz, Rasidah Jamaluddin, Norazizah Ibrahim Wong, and Aris Tahir. 2017. "Prevalence and Determinants of Disability among Adults in Malaysia: Results from the National Health and Morbidity Survey (NHMS) 2015." BMC Public Health 17(1):1–10.

Ahn, Mira. 2017. "Introduction to Special Issue: Aging in Place." Housing and Society 44(1–2):1–3.

Ahn, Mira, Hyun Joo Kwon, and Jiyun Kang. 2017. "Supporting Aging-in- Place Well : Findings From a Cluster Analysis of the Reasons for Aging- in-Place and Perceptions of Well-Being." Journal of Applied Gerontology.

Ak, Rosdina, Leelavathi M, Zaitun A, Lee Vkm, Azimah Mn, Majmin Sh, and Mohd Ka. 2010. "Self Reported Hearing Loss Among Elderly Malaysians." Malaysian Family Physician 2010 5(2):91–94.

Akbar, Muhammad Fathoni, Nur A'yuni Ramadhani, and Riris Aulya Putri. 2018. "Assistive and Wearable Technology for Elderly." Bulletin of Social Informatics Theory and Application 2(1):8–14.

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ISBN 978-629-490-158-2

9 786294 901582

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