

**ENVIRONMENTAL AND SOCIAL FACTORS
INFLUENCING ELDERLY'S SUBJECTIVE
WELL-BEING: LIVING ARRANGEMENT AS
MODERATOR**

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MODERATOR**

by

SARVARUBINI A/P NAINEE

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LIST OF ABBREVIATIONS

CR	Co-reside with children
K-S	Kolmogorov- Smirnov
LLCI	Lower limit confidence interval
Max.	Maximum
Min.	Minimum
NCR	Non co-reside with children
Q-Q	Quantile-quantile
SD	Standard Deviation
SRT	Stress Recovery Theory
SST	Socioemotional selectivity theory
S-W	Shapiro-Wilk
SWB	Subjective Well-being
ULCI	Upper limit confidence interval

**PENGARUH FAKTOR PERSEKITARAN DAN SOSIAL KEPADA
KESEJAHTERAAN SUBJEKTIF WARGA EMAS: SUSUNAN TEMPAT
TINGGAL SEBAGAI MODERATOR**

ABSTRAK

Populasi warga emas secara keseluruhan semakin meningkat di seluruh dunia dan membawa kepada tsunami perak yang mana jumlah populasi warga emas melebihi populasi warga muda. Adalah penting bukan sahaja untuk mengkaji umur yang panjang tetapi juga bagaimana orang boleh kekal makmur dengan kesejahteraan subjektif yang lebih tinggi pada tahun-tahun akhir mereka. Penyelidikan ini bertujuan untuk mengkaji sejauh mana faktor persekitaran fizikal (keterkaitan dengan alam semula jadi dan persepsi kehijauan) dan faktor sosial (persepsi ketaatan anak kepada ibu bapa, persepsi sokongan sosial dan generativiti) berkait dengan kesejahteraan subjektif warga emas di Malaysia. Kajian ini juga melihat kesan susunan tempat tinggal sebagai moderator untuk hubungan antara faktor persekitaran dan sosial dengan kesejahteraan subjektif ini. Peserta kajian merupakan 441 warga emas di Ipoh yang mempunyai keupayaan kognitif yang baik dan bebas dari penyakit serius. Proses saringan dilakukan dengan menggunakan soal selidik piawai ‘*Short Portable Mental Status Questionnaire*’ untuk menguji kebolehan mental dan kognitif peserta. Kajian ini merupakan kajian rentas dan menggunakan pendekatan kuantitatif. Data dikumpul dengan menggunakan tujuh soal selidik piawai yang sah iaitu *Perceived Greenness Scale*, *Nature Relatedness Scale*, *Perceived Filial Piety Scale*, *Multidimensional Scale of Perceived Social Support*, *Reduced Loyola Generativity Short Scale*, *Satisfaction with Life Scale* dan *International Positive and Negative Affect Schedule*

Short Form. Ujian korelasi Pearson menunjukkan semua pemboleh ubah bebas yang dikaji mempunyai korelasi yang signifikan dengan kesejahteraan subjektif warga emas. Faktor persekitaran fizikal (keterkaitan dengan alam semula jadi dan persepsi kehijauan) dan faktor sosial (persepsi ketaatan anak kepada ibu bapa, persepsi sokongan sosial dan generativiti) berkait secara signifikan dengan kesejahteraan subjektif warga emas Malaysia. Keputusan kajian juga mendapati warga emas yang tinggal bersama anak melaporkan tahap kesejahteraan subjektif yang lebih tinggi. Analisa moderasi mendapati persepsi kehijauan dan generativiti mempunyai kesan ke atas kesejahteraan subjektif peserta; namun, kesan interaksi ini berbeza mengikut susunan tempat tinggal peserta. Keputusan kajian memberi bukti yang menyokong kepentingan faktor persekitaran dan sosial kepada kesejahteraan warga emas dan seterusnya menyokong teori *bottom-up*, *socioemotional selectivity theory* dan *stress recovery theory*. Dapatan keseluruhan kajian ini juga memberikan pengetahuan kepada orang awam dan pihak berkepentingan (contohnya, perancang bandar dan penggubal dasar kerajaan) dalam proses formulasi dasar dan program yang berkaitan dengan kesejahteraan warga emas di Malaysia. Oleh kerana susunan tempat tinggal memainkan peranan penting dalam menentukan kesejahteraan subjektif, reka bentuk komuniti dan dasar perumahan boleh dipertingkatkan untuk menggalakkan interaksi sosial dan semangat kemasyarakatan terutamanya untuk warga emas yang tinggal bersendirian. Inisiatif yang menggalakkan hubungan antara generasi dan inisiatif ruang hijau di kawasan kediaman boleh member manfaat. Kajian ini menekankan kepentingan untuk meneliti lebih lanjut impak faktor persekitaran dan sosial ke atas kesejahteraan, khususnya golongan rentan seperti warga emas.

ENVIRONMENTAL AND SOCIAL FACTORS INFLUENCING ELDERLY'S SUBJECTIVE WELL-BEING: LIVING ARRANGEMENT AS MODERATOR

ABSTRACT

The overall population of the elderly is growing worldwide, leading to a silver tsunami whereby the elderly population outweighs the young population. It is not only important to study longevity but also on how people flourish with higher subjective well-being in their later years. This research examines the extent of how physical environmental factors (connectedness to nature and perceived greenness) and social factors (perceived filial piety, perceived social support and generativity) relates to the Malaysian elderly's subjective well-being. This study also looks at the moderating effect of living arrangements on the relationship between these environmental and social factors and subjective well-being. Participants in this study were 441 elderly living in Ipoh with good cognitive ability and no serious illness. Prescreening procedures were conducted with Short Portable Mental Status Questionnaire to test participants' mental and cognitive abilities. This study employed a cross-sectional design and a quantitative approach. Data were collected using seven validated self-report questionnaires namely Perceived Greenness Scale, Nature Relatedness Scale, Perceived Filial Piety, Multidimensional Scale of Perceived Social Support, Reduced Loyola Generativity Short Scale, Satisfaction with Life Scale and International Positive and Negative Affect Schedule Short Form. The Pearson correlation analysis revealed that all the independent variables had a significant correlation with subjective well-being. Physical environmental factors (connectedness to

nature and perceived greenness) and social factors (perceived filial piety, perceived social support and generativity) are significantly related to the Malaysian elderly's subjective well-being. The results also showed that the elderly who co-resided with their children reported a higher level of subjective well-being. Moderation analysis showed that the interaction between participants' perceived greenness and their sense of generativity has an impact on their SWB; however, the effect of this interaction varies by their living arrangements. The finding provides evidence for the important role of environmental and social factors on elderly's subjective well-being, further supporting the bottom-up, socioemotional selectivity, and stress recovery theories. The overall finding of this study also provides some insights for the public and stakeholders (e.g., town planners and governmental policy-makers) in formulating policies and programs relevant to the subjective well-being of the elderly in Malaysia. As living arrangements play important role in determining the SWB, community design and housing policy could be improved to promote social interactions and sense of community especially for elderly living alone. Initiatives that promote intergenerational connections and enhancing green space in residential area can be beneficial. This study highlights the need to further investigate on the impact of environmental and social factors on subjective well-being, particularly of a vulnerable group such as elderly.

Chapter 1

Introduction

1.1 Overview

This chapter begins with the background and rationale of this study on the subjective well-being of elderly Malaysians. The research objectives, the problem statement and significance of this study will then be laid out and discussed. All the variables in the study are defined in both conceptual and operational terms.

1.2 Background of Study

As medical advances have extended people's lives, the concern over issues related to older adults has increased. In 2020, the population of people over 65 years old surpassed the population of children under 5 years old (World Health Organization, 2022). It is expected that the population of older adults will increase from 810 million in 2012 to 2 billion in 2050 (United Nations, 2015). This scenario of a rapidly aging population termed a "silver tsunami" is what Malaysia also faces. Generally, this silver tsunami is catalysed by advances in medicine (Anderson & Hussey, 2000). The elderly population is likely to double from 3.1 million in 2017 to 5.8 million in 2030 in Malaysia (Shurentheran, 2017).

Coulmas (2007) categorized three types of nations based on the population of the elderly, namely "Aging nation" if 7- 13% of the population are 65 years or older, "Aged nation" if 14 - 20% of the population are 65 years or older and "Hyper-aged nation" if more than 21 % of the population are 65 years or older. As such, Malaysia is reported to

be at risk of becoming an "aging nation" based on the definition agreed upon by the World Health Organization ("Malaysia to be", 2018). The significant increase in the elderly population is indeed alarming as it will alter the social demographic and impact the economic growth of a nation. It has become one of the biggest challenges for many developing nations (Cruz et al., 2016). Census data clarifies that low and middle-income countries are highly populated with elderly groups (World Health Organisation, 2015). The central focus of this study is on the elderly population.

Although ageing is a process that cannot be avoided, it can be turned gracious by using effective strategies to ameliorate age-related struggles and health issues. Major ideological changes in the field of gerontology have been observed as old age is no longer synonymous with disease, idleness, or other negative terms. A more positive perspective has been introduced for older adults to maintain their personal well-being and quality of life (Milfont & Schultz, 2016). Researchers nowadays are not only interested in longevity but also in how people can flourish in old age with better subjective well-being (SWB) in their later years. The upturn of human lifespans has brought about increased attention to what factors contribute to the SWB of the growing aging population. This study is part of the attempt to understand the factors that can potentially contribute to the SWB of the elderly.

In positive psychology, SWB is an umbrella term used to describe the various dimensions that may impact the quality of life. SWB is one's reflection of one's living by evaluating what makes one's life good and desirable. Life is considered to be going well only if the person appraises it positively (Diener & Ryan, 2009). On the whole, SWB is a dual construct with cognitive and affective components. The cognitive part covers the

cognitive assessment of satisfaction and fulfillment in life, whereas the affective part refers to the feelings, moods, and emotions we experience (Diener & Ryan, 2009).

The bottom-up perspective assumes that a person's overall well-being depends on his or her satisfaction in many domains. Similarly, existing research work (Das et al., 2020; Xu et al., 2019) indicates that there are many contributing factors for a high SWB. However, the contributing factor to SWB for the elderly group has been still a vague subject. This study aims to examine how satisfaction in different domains of life can contribute to the SWB among elderly.

Perceived physical environment factors may be one of the indicators of SWB. Nowadays, people constantly live in a stressful environment where their home and some commonly visited place (e.g. restaurants) are surrounded with digital screens and electronics that either overwhelm their attention or mental space. It is a potentially distressing condition, as people do not receive any affective restoration from nature or a natural environment which can help relieve one's stress and promote well-being. There has been earlier research which have highlighted how exposure to a green or nature-filled environment is positively linked with better mental health (Sugiyama et al., 2018), lower stress levels (Lottrup et al., 2013) and improved general health (Dadvand et al., 2016). Perceived greenness of surrounding environment and being connected to nature are associated with well-being are extensively studied in several countries such as Australia (Ambrey, 2016) and the Netherlands (Ekkel & de Vries, 2017). It was found that there is a positive correlation between the effect of perceived greenness and well-being. An experimental study conducted among the elderly at care facilities found that visiting or seeing greenery was associated with better concentration ability and enhanced mood (Rappe et al., 2006). Exposure to natural settings also results in significant

positive health consequences, for instance, it promotes psychological well-being (Stigsdotter & Grahn, 2011) by reducing stress-related disorders and lifestyle-related problems. Research indicates that close contact with green spaces brings benefits to one's health and well-being, especially for socially disadvantaged groups and the elderly (Andreucci et al., 2019; Nieuwenhuijsenn et al., 2014). Being aware of the positive side of the natural environment, many current town developers plan their future projects by emphasizing green spaces to attract buyers. This study intends to investigate the role of physical environment as contributing to SWB.

Further, besides the perceived physical environment, social factors also play a vital role in determining the elderly' SWB. Family-related aspects could also contribute to one's life satisfaction and happiness. The basic perception patterns of old adults are commonly shared across cultures, and cultural influence is regarded as a strong factor impacting the quality of life. For instance, Asians who practice collectivistic culture emphasize on the family institution as a vital source of identity and well-being. This is the reason why filial piety is given attention by the family elders. Filial piety is based on the principle of duty, respect, and care for one's parents and other elderly family members (Dong et al., 2014). Although filial piety originated from the Chinese culture through Confucius teachings, but it now adapted across the globe. In Malaysia, filial piety is widely practiced by majority of ethnics. Filial piety has been part of the lifestyle and could be seen in common habits of people from various ethnics such as bowing, "salam" and greetings with both hands held together, as a gesture of being respectful toward the elderly (Tan et al., 2018). Generally, the family is the most intimate social group that contributes to life satisfaction of the elderly. The relationship with family and perceived filial piety play a great role in determining one's self-identity and self-

perception of ageing. Researchers have indicated that older adults who have a good relationship with their younger family members (Lamont et al., 2017) feel more optimistic about themselves which in turn makes them experience better well-being. However, another researcher argued and indicated that one's quality of life was unrelated to the closeness and care of the family (Cheng, 2017). Therefore, the inconclusive findings about the relationship between perceived filial piety and well-being warrants further investigation.

On the other hand, numerous studies have confirmed that social support acts as a significant precursor that leads to better SWB (Hsu, 2012; Lamont et al., 2017). The influence of social support is more strongly felt among the elderly compared to other age groups. This is because the elderly gradually experience a decline in their support system as their social circle gets smaller due to mortality and weakening of health (Lamont et al., 2017). A study among older residents in Oslo, Norway, also justified the importance of social support as they reported a strong correlation between a lack of social support and depression among old adults (Bøen et al., 2012). Several researchers have focused on the association between social support and SWB among the elderly population and highlighted that increased social support enhances elderly SWB, which enhances cognitive functioning, improves sleep, and promotes healthy aging (Resnick et al., 2010; Troxel et al., 2010). These associations are examined further in this study.

Moreover, contribution to another individual, group or society largely known as generativity also may impact one's SWB. Erik Erikson in his theory regards generativity as an important life goal in middle age. Generativity refers to the concern for nurturing and guiding the younger generation (Van de Water & McAdams, 1989). The improved life expectancy has made it possible for the elderly to live many more good years and

contribute their knowledge or experiences to the younger generation (Tabuchi et al., 2015). Once a senior citizen educates and transfers their knowledge to the young, it becomes a generative process that keeps being passed on to others. The literature review of the theory points to how it gives a sense of purpose for the elderly, adding them a renewed meaning in life in their silver years (Black & Rubinstein, 2009).

Besides that, living arrangement also may contribute to SWB. Elderlies living with their adult children in an intergenerational co-residence has been the social norm in Asian countries for many years. But due to modernization, this practice has been on the decline, as adult children tend to move out from home, seeking better jobs and settling down in another town or city, with their own nuclear family. Numerous studies indicate that intergenerational co-residence is beneficial when the elderly receive the physical and emotional support from their family, hence their SWB is high (Ye & Chen, 2014; Zhang, 2015). In contrast, elderly groups in Western culture prefer to live independently on their own. Research conducted in Western countries point out that the elderly living with their extended family often end up having to tolerate the stress, conflicts and negative interactions that might affect their well-being (Krause & Liang, 1993). In Malaysia, the likelihood of parent-adult child co-residence might be influenced by ethnics, income and lifestyles. For instance, classic study reported that Malays were least likely opt for co-resident due to higher incidence of remarriage and lower housing cost for bumiputeras. On the other hand, the study also reported high occurrence of co-residence for Indian community due to their relatively poorer health compared to other ethnic groups (Ngin & DeVanzo, 1990).

The growing population of the elderly makes it important to identify the factors that may affect their SWB. It is, therefore, necessary for the researchers to continue

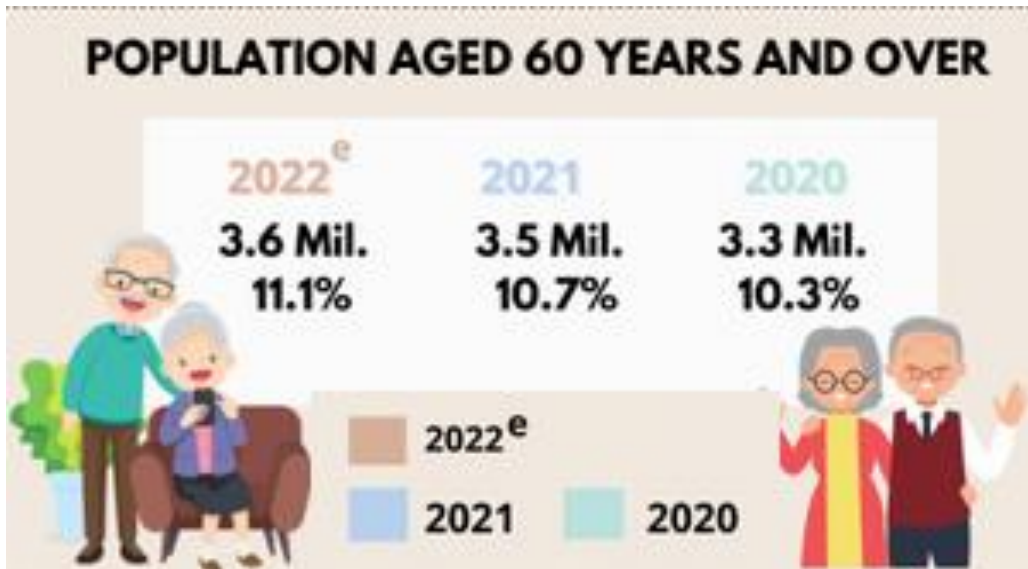
examining the effects of environmental and social factors on the elderly' SWB. Hence, this study aimed to examine the moderating effect of living arrangements on the role of the perceived physical environment (perceived greenness, connectedness to nature) and social factors (perceived filial piety, perceived social support, generativity) on SWB and the level of SWB among elderly in Malaysia.

1.3 Problem Statement

The advancement of medical technology has prolonged the human lifespan. World Health Organization (WHO) has predicted average life expectancy worldwide has risen to 72 years old in the absence of any serious illness. However, certain countries are expected to have even higher life expectancies, for instance, Japan (age 85), Italy (age 83) and Hong Kong (age 81-87) (Roser et al., 2013). In Malaysia, Dr Tengku Aizan Hamid, the director of the MyAgeing Project stated that the elderly population will make up 15% of the overall national population in the years to come (Suhairi et al., 2017). Figure 1.1 and 1.2 illustrate the growth of the elderly population in Malaysia from 2020 to 2022 and the distribution of the population by age category. The growth of elderly population steadily increased which makes Malaysia to be one of the upcoming ageing nations.

Figure 1.1

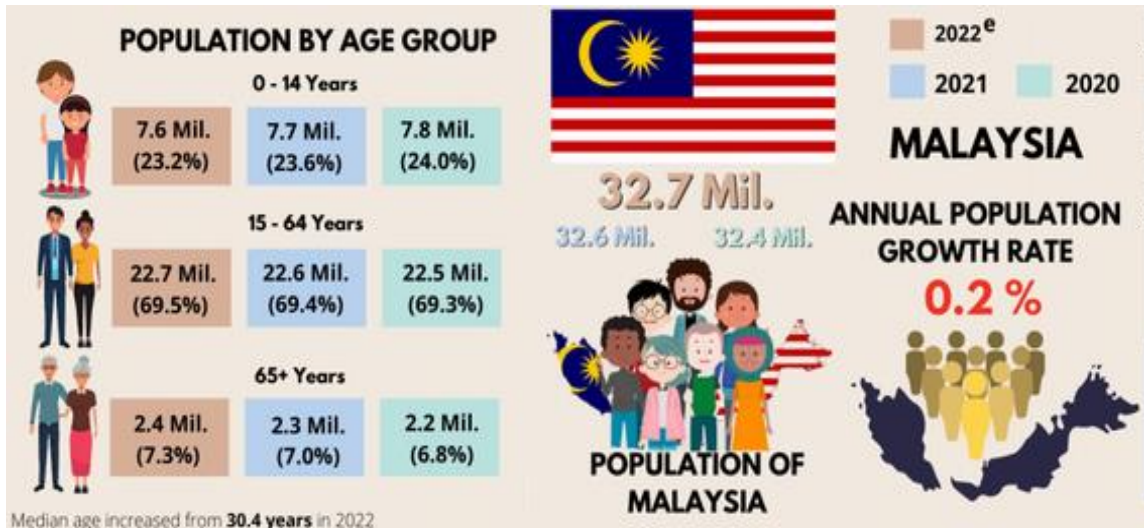
Malaysian population aged 60 years and above for the years 2020 -2022



Note. Source extracted from Department of Statistics Malaysia (2022)

Figure 1.2

Percentage Share of Malaysians by Age Group in 2020, 2021 and 2022



Note. Source extracted from Department of Statistics Malaysia (2022)

As Malaysia moves towards becoming an ageing nation, the lack of preparation for maintaining the well-being of older adults could have adverse effects on the nation's economy, as predicted by Park and Shin (2011). In line with the third Sustainable

Development Goal (SDG) to ensure healthy lives and promote well-being for all regardless of age, this present study becomes significant and urgent, because, it is essential to identify potential factors that contribute to the well-being of the elderly which are often ‘forgotten’ or left out as a demographic group.

One critical issue faced by the elderly is the shrinking of their social circles with age, leading to feelings of vulnerability and loneliness (Bolina & Tavares, 2016; Kahn et al., 2003; Kemperman et al., 2019). Empirical evidence on the impact of living arrangement on elderly SWB is still insufficient, and the societal shift away from traditional family values adds the complication to the situation. Urbanization has brought fundamental changes that replaced the traditional extended family with the nuclear family (Ye & Chen, 2014). Extended family is a traditional family system widely practised by Asian community where different generations of the family, from the young to the old live in close contact and relationship with each other (Cheng & Chan, 2006). This is reflected in Malaysian idioms describing family members living under the same roof. For instance, “*Seberkas lidi kuat kudratnya berbanding sebatang lidi yang mudah dipatahkan*” (Malay), “*Chen huan xi xia*” (Chinese) and “*Suthrathirku azhagu soola irutthal*” (Tamil). The current generation of older adults have lived under the extended family system in their youth, where elderly parents live with their adult children. Presently, they are affected by differences in values and views among the younger generation, where the expectations to live together under one roof have declined. More studies are needed to examine the role of living arrangement in the well-being of the elderly.

As the living arrangement of the elderly carries health impact, so does the overall environment setting from the neighbourhood to the town in which the person resides.

Good town planning with easy access to health facilities and allocation for green spaces such as parks and gardens are important considerations. The majority of the studies pertaining to green space and well-being were conducted in Western countries, but there are limited studies in Asia countries (Nath et al., 2018). The impact of green spaces on the individual's well-being cannot be ascertained in a non-Western context. The available studies on western countries may not be generalized and extrapolated to Asia countries, as there are cultural differences in terms of attitudes and values towards nature (Milfont & Schultz, 2016). Moreover, existing studies have not explored the specific effects of green spaces on the well-being of different population groups, especially the elderly (Artmann et al., 2017). Clearly, more research needs to be conducted to provide a more comprehensive picture.

Moreover, older adults and the elderly may still lead active and independent lives. In Malaysia, Tun Dr Mahathir Mohamad broke a world record to be appointed as the seventh Prime Minister and made a comeback after 15 years of retirement. His extraordinary mental and physical vigour at the age of 93 has brought the attention of many to his secrets of SWB ("Mahathir makes a spectacular comeback", 2018). Similarly, Queen Elizabeth of the United Kingdom was active in attending all the official royal functions and customary duties - well into her 90s before her recent passing. Upon witnessing how an increasing number of people around the world who remain active and engaged into their 90s, it draws attention to the need to identify the factors that make it possible for the elderly to lead such good and healthy lives.

Despite the growth of research on gerontology and well-being, quite a few gaps in the literature persist. Firstly, although there are many studies on SWB, most of the predictors studied in the literature are focused on the individual's personal and social

factors. Little attention has been given to the effect of physical natural environment on the well-being of the elderly (Nath et al., 2018). Secondly, while there are many available SWB related studies conducted with elderly group, these are mostly done by researchers from Western countries. Local research among the Malaysian elderly, however, is limited. At the same time, the correlation between living arrangements, social support function, and life satisfaction have not been fully explored. Studies about SWB in a country may not always be suitable for resolving the problems faced in another country or region (Milfont & Schultz, 2016). Thirdly, living arrangement commonly tested as a predictor in available studies have scant literature that narrates its impact as a moderator. According to social integration theory, those who are socially integrated have higher levels of well-being. The living arrangement might be viewed as a factor determining the level of social integration. Individuals living alone, for example, may have distinct social dynamics than those living with family or in a communal context. The hypothesis can assist to explain why the link between environment and social elements and subjective well-being varies across different living situations. Clearly, these research gaps are important and need to be addressed.

Therefore, this study intends to examine the moderating effect of living arrangement on the perceived physical environment along with social factors on the SWB among the Malaysian elderly.

1.4 Research Objective

The main objective of this study is to examine the role of perceived physical environment (connectedness to nature, perceived greenness,) and social factors (perceived filial piety, perceived social support, generativity) on subjective well-being of elderly individuals in Malaysia. It also examines the moderating effect of living arrangement on these relationships.

The following research objective is proposed:

1. To determine the subjective well-being level among elderly individuals in Malaysia.
2. To determine the association between perceived physical environment factors (connectedness to nature and perceived greenness) and the subjective well-being of elderly individuals in Malaysia.
3. To determine the association between social factors (perceived filial piety, perceived social support, generativity) and the subjective well-being of elderly individuals in Malaysia.
4. To determine the differences in subjective well-being among Malaysian elderly individuals, comparing those who co-reside with children to those who do not co-reside with children.
5. To determine the moderating effect of living arrangements in the association between perceived physical environment factors (connectedness to nature and perceived greenness), social factors (perceived filial piety, perceived social support and generativity) and the subjective well-being of the elderly individuals in Malaysia with age and gender set as control variables.

1.5 Research Question

1. What is the subjective well-being level among elderly individuals in Malaysia?
2. Is there any association between perceived physical environment factors (connectedness to nature and perceived greenness) and the subjective well-being of elderly individuals in Malaysia?
3. Is there any association between social factors (perceived filial piety, perceived social support, generativity) and the subjective well-being of elderly individuals in Malaysia?
4. Is there any differences in subjective well-being among Malaysian elderly individuals, comparing those who co-reside with children to those who do not co-reside with children?
5. Does living arrangement moderate in the association between perceived physical environment factors (connectedness to nature and perceived greenness), social factors (perceived filial piety, perceived social support and generativity) and subjective well-being of the elderly individuals in Malaysia with age and gender set as control variables?

1.6 Hypothesis

- H₀1 There is no significant association between connectedness to nature and subjective well-being.
- H_a1 There is a significant association between connectedness to nature and subjective well-being.

- H₀2 There is no significant association between perceived greenness and subjective well-being.
- H_a2 There is a significant association between perceived greenness and subjective well-being.
- H₀3 There is no significant association between perceived filial piety and subjective well-being.
- H_a3 There is a significant association between perceived filial piety and subjective well-being.
- H₀4 There is no significant association between perceived social support (significant others) and subjective well-being.
- H_a4 There is a significant association between perceived social support (significant others) and subjective well-being.
- H₀5 There is no significant association between perceived social support (friends) and subjective well-being.
- H_a5 There is a significant association between perceived social support (friends) and subjective well-being.
- H₀6 There is no significant association between perceived social support (family) and subjective well-being.
- H_a6 There is a significant association between perceived social support (family) and subjective well-being.

- H₀7 There is no significant association between generativity and subjective well-being.
- H_a7 There is a significant association between generativity and subjective well-being.
- H₀8 There is no significant difference in subjective well-being among elderlies who are co-resident and non-co-resident with their children.
- H_a8 There is a significant difference in subjective well-being among elderlies who are co-resident and non-co-resident with their children.
- H₀9 There is no significant relationship between connectedness to nature and subjective well-being for elderly who co-resides with children by controlling the effect of age and gender.
- H_a9 There is a significant relationship between connectedness to nature and subjective well-being for elderly who co-resides with children by controlling the effect of age and gender.
- H₀10 There is no significant relationship between perceived greenness and subjective well-being for elderly who co-resides with children by controlling the effect of age and gender.
- H_a10 There is a significant relationship between perceived greenness and subjective well-being for elderly who co-resides with children by controlling the effect of age and gender.

- H₀11 There is no significant relationship between perceived filial piety and subjective well-being for elderly who co-resides with children by controlling the effect of age and gender.
- H_a11 There is a significant relationship between perceived filial piety and subjective well-being for elderly who co-resides with children by controlling the effect of age and gender.
- H₀12 There is no significant relationship between social support (significant other) and subjective well-being for elderly who co-resides with children by controlling the effect of age and gender.
- H_a12 There is a significant relationship between social support (significant other) and subjective well-being for elderly who co-resides with children by controlling the effect of age and gender.
- H₀13 There is no significant relationship between social support (friends) and subjective well-being for elderly who co-resides with children by controlling the effect of age and gender.
- H_a13 There is a significant relationship between social support (friends) and subjective well-being for elderly who co-resides with children by controlling the effect of age and gender.
- H₀14 There is no significant relationship between social support (family) and subjective well-being for elderly who co-resides with children by controlling the effect of age and gender.

- H_a14 There is a significant relationship between social support (family) and subjective well-being for elderly who co-resides with children by controlling the effect of age and gender.
- H_o15 There is no significant relationship between generativity and subjective well-being for elderly who co-resides with children by controlling the effect of age and gender.
- H_a15 There is a significant relationship between generativity and subjective well-being for elderly who co-resides with children by controlling the effect of age and gender.

1.7 Significance of Study

1.7.1 Theoretical Contribution

The need for a more comprehensive understanding of the present state of SWB among the elderly population was highlighted in the problem statement. This present study covers the research gap specifically in the local Malaysian context, exploring the correlation between physical natural environments, social factors, and living arrangements with the SWB. In line with that, this study provides insights into the application of bottom-up theory. Several earlier studies also used bottom-up theory as a basis and indicated that smaller factors contribute to the overall SWB. However, the contributing factors were not fully explored, as the impact of physical environmental factors was not included or understudied. Hence, this current study contributes to the

theoretical application of bottom-up theory by expanding on the impact of physical environment factors.

In addition to contributing to the theoretical framework of bottom-up theory, this study aimed to provide valuable support for the socio-emotional selectivity theory (SST). The anticipated results align with the core pre-emption of SST, affirming that the elderly prioritize family and social fulfilment goals over other goals. By empirically validating this theory, the study enhances our understanding of how the elderly shape their aspirations in alignment with socio-emotional priorities.

Besides that, the results of this study would serve as additional evidence for the stress recovery theory (SRT). While SRT is widely applied to describe how natural environments contribute to overall psychological and physiological health, this study uniquely focusses on the elderly population. The consistent results demonstrate that exposure to natural environments not only helps in health restoration, but also significantly contributes to the SWB of the elderly. Through these findings, the study strengthens the idea of SRT, emphasizing the specific relevance of natural environments in promoting the SWB of the elderly.

Lastly, a prominent aspect of this study is its exploration of both cognitive and affective components of SWB. While many previous studies focused solely on a single dimension of SWB, this research aligns with Skevington and Böhnke (2018) conceptualization of SWB. Thus, this study provides a more detailed understanding of SWB, differentiating between cognitive and affective evaluation among participants.

In conclusion, this study addresses the need for a better understanding of SWB among the elderly in Malaysian context, specifically exploring the impact of physical natural environments, social factors, and living arrangements. This study provides

distinct theoretical contributions by ensuring clarity and coherence in the presentation of the study's objectives and anticipated outcomes.

1.7.2 Practical Contribution

As discussed in the problem statement, SWB of senior citizens has become a key topic of concern, especially with the United Nations' Sustainable Development Goals that set out a holistic vision of shared prosperity and health for all people across generations and age groups. Given the anticipated transition of Malaysia into an aging nation in the coming years, it becomes important to assess the SWB of the elderly population. The results of this study can be useful for the evaluation of policies in many sectors, including public health, social service, family, and the environment.

Secondly, the findings of this study contribute to the scholarly work on SWB. This study's findings will be beneficial to everyone regardless of age, as SWB is essential to maintain a healthy and productive society (Das et al., 2020). More specifically, this study highlights the factors for the SWB of the aged, making it a focus of an emerging research agenda in Malaysia. Additionally, it addresses environmental and social variables, thus providing a broader outlook on SWB.

Thirdly, the findings of this study seek to prove the potential influence of the physical environment on the elderly' SWB. Hence, the results indicate the need for a natural environment or green spaces for personal well-being. The findings provide some indications that the provision of natural environments in neighbourhoods may be an effective public health intervention in maintaining the good mental health of the elderly.

Urban planners stand to benefit significantly from this study, as it offers guidelines emphasizing the importance of incorporating green spaces in residential area design.

Lastly, it is important to highlight the significance of this study within the context of existing research trends. While many of the available studies on SWB originate from Western countries, there is a scarcity of precise research focusing on the SWB of the Malaysian elderly. The study addresses this gap by exploring the links between living arrangements, social factors, environmental factors and SWB specific to Malaysian context. Knowing the subjective nature of wellbeing, this study underlines its vital role in identifying influencing factors for elderly's SWB.

1.8 Conceptual Definition

1.8.1 Elderly

The national policy for older people classifies those aged 60 and above as elderly in the Malaysian context (Department of Social Welfare, n.d.). Similarly, the United Nations has declared that the standard age for people to be described as older people is 60 years old (World Health Organization, 2002)

1.8.2 Subjective Well-being (SWB)

It is a concept used to describe a person's cognitive and affective assessment of his or her life. The cognitive domain includes satisfaction with life, whereas the affective domain includes positive affect and negative affect. A decent SWB is a combination of high life satisfaction, high experience of positive affect, and lower experience of negative affect (Diener et al., 2002).

1.8.3 Connectedness to Nature

Connectedness to nature describes the relatedness to nature or the way an individual views their relationship with the natural world (Nisbet et al., 2011).

1.8.4 Perceived Greenness

Perceived greenness is the extent of an individual's perception of their connection with the green living spaces of natural environments (e.g., trees and leaves) (Kemperman & Timmermans, 2014).

1.8.5 Perceived Filial Piety

Perceived filial piety refers to the perception of a parent on the way their children show care, respect and obedience as well as maintain contact with them (Liu et al., 2000).

1.8.6 Perceived Social Support

Perceived social support refers to how individuals perceive their friends, family members, and others as available resources to provide functional and overall support when needed (Cahuas et al., 2023).

1.8.7 Generativity

This concern that develops during middle age is a desire to nurture, guide, and ensure the well-being of future generations, ultimately leaving a lasting legacy (Villar & Celdrán, 2012). The term was first coined by Erik Erikson to describe a personal need to

contribute something to the next generation, which occurs once an individual reaches middle age (Østbye, et al., 2018).

1.8.8 Living Arrangement

The way in which a person is settled down in a household. It refers to whether a person lives with another person and, if so, whether or not they are related (Bolina & Tavares, 2016).

1.9 Operational Definition

1.9.1 Elderly

The term ‘elderly’ in this study refers to older adults aged 60 years and above with good mental ability.

1.9.2 Subjective Well-being (SWB)

In this study, subjective well-being refers to how the elderly evaluate their lives based on cognitive and affective domains. The cognitive domain of subjective well-being is denoted by the respondent's score on the 5-item Satisfaction with Life Scale (SWLS; Diener et al., 1985). The affective domain (balance between positive and negative affect) of subjective well-being is measured by the 10-item scale that constructs the Scale of Positive and Negative Effect (I-PANAS; Thompson, 2007). Overall subjective well-being is measured by standardizing the score, obtained by subtracting the mean score in SWLS and I-PANAS and dividing that by the standard deviation. The SWB score was obtained by using the formula: $SWB = SWLS + PA - NA$. This formula

has been previously used as a reliable measure of SWB in past studies (Chan et al., 2018; Haslam et al., 2009; Whillans et al., 2017).

1.9.3 Connectedness to Nature

Connectedness to nature in this study explains the extent to which respondents feel emotionally connected to the natural environment. The 6-item Nature Relatedness Scale (Nisbet & Zelenski, 2013) was used to evaluate this connection. A high mean score indicates a stronger connectedness to nature.

1.9.4 Perceived Greenness

Perceived greenness explains how much respondents feel the greenness in their surrounding environment. The Perceived Greenness Scale (Sugiyama et al., 2008) was used to measure the respondent's perceptions of the physical natural environment. A higher total score indicates a greater perception of having a green environment.

1.9.5 Perceived Filial Piety

Perceived filial piety in the present study explains the extent of care, respect, greeting, happiness, obedience, and monetary support that respondents received from their adult children. Perceived filial piety was measured using the Perceived Filial Piety Scale (Chang et al., 2014), and a higher score reflects a higher perceived filial piety.

1.9.6 Perceived Social Support

Perceived social support refers to how the respondents perceive the people available to assist them in times of need. In this study, social support is measured from three sources namely family, friends and significant others. Perceived social support was measured by using Multidimensional Scale of Perceived Social Support (Zimet et al., 1988). Higher score in each subscale indicates higher social support from that particular group.

1.9.7 Generativity

Generativity in this study context explains the participant's concerns and contribution to other people. Generativity was measured using the Reduced Loyola Generativity Scale (Keyes & Ryff, 1998). Participants were required to respond to the six statements on how well they described them. A higher sum of scores indicates higher levels of generativity.

1.9.8 Living Arrangement

In this study, living arrangement refers to the participant's responses regarding whether they lived with their children in the same house. However, in the survey form, three options are provided to prevent respondents being confused and misinterpreting 'regular contacts with children' as 'live with children'. The three category options given are 'Living with children' if the respondent shares a home with their children (including biological, adopted, and stepchildren). On the other hand, the next category is 'Live independently but have frequent contact with children' if the respondent is not living in