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# FACTORS INFLUENCING THE DECISION TO RESIDE IN A RETIREMENT VILLAGE: AN APPROACH USING THE FUZZY DELPHI METHOD

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**Abstract:** *This study addresses the imperative of implementing retirement villages across Malaysia due to the increasing ageing population. It aims to revalidate indicators for the intention to reside in retirement villages and gather consensus and expert opinions on this scale, considering Malaysia's distinct cultures, traditions, and values. The Fuzzy Delphi method, employing a seven-point Likert scale, was utilized to collect data from ten experts across diverse disciplines. Through the analysis of a 23-item questionnaire using triangular fuzzy numbering and the "defuzzification" method, the study determined the ranking of each variable. The findings demonstrated a good level of expert consensus on the indicators for the intention to reside in retirement villages, with an overall agreement exceeding 75%, a threshold value (d) < 0.2, and an α-cut > 0.5. Based on experts' recommendations, priority guidelines were refined by adding or removing items. The findings of this study offer prioritized guidelines, incorporating experts' recommendations by modifying the scale's items. This research holds significant value, contributing to the development of a comprehensive strategy for elderly care and the establishment of retirement villages in Malaysia. Furthermore, it provides crucial insights for non-governmental organizations (NGOs) and the private sector, enabling the facilitation of retirement village development with essential facilities to ensure a favourable and healthy old age for residents. The originality of this study lies in its contextual focus on revalidating indicators tailored to the intention of residing in*

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*retirement villages, accounting for Malaysia's cultural intricacies and the relative novelty of retirement village concepts within the country.*

**Keywords:** *Expert agreement; factors discouraging; factors encouraging; Fuzzy Delphi; retirement village*

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## Introduction

The elderly population in Malaysia had reached an estimated 3.6 million by 2022. The annual increase in this figure makes it reasonable for Malaysia to adapt the concept of retirement villages (RV) practised in other countries, like Australia (Hu et al., 2017; Xia et al., 2015; Xia et al., 2021a; Xia et al., 2021b), New Zealand (Boyd et al., 2021; Nielson et al., 2019), and the United Kingdom (Ball & Nanda, 2013; Chandler & Robinson, 2014). A retirement village is a type of lodging that offers housing exclusively for the elderly (Buys, 2001). In Australia, a "retirement village" is typically referred to as a complex or community with residential properties inhabited primarily or exclusively by retirees (Md. Yassin et al., 2018; Xia et al., 2021a). For those aged at least 55, this type of village is typically a gated, age-segregated community that offers a variety of amenities and services to support the residents in their later life (Hu et al., 2017).

Living in a retirement village has become commonplace for older Australians, with over 2,300 retirement villages for 184,000 seniors operating in 2014 (Xia et al., 2021b). Since the retirement village concept is still new in Malaysia, a valid measurement tool is needed to indicate which factors may influence the intention to live in such a village from a Malaysian perspective. Adopting the existing instruments used in Western countries may not be suitable for measuring the factors affecting the intention of Malaysian elderly people to reside in retirement villages due to Malaysia’s particular cultures, traditions, and values. Hence, this study aimed to develop indicators for the intention to reside in retirement villages based on Malaysian expert consensus using the Fuzzy Delphi method.

This paper is divided into six sections. The next section presents a review of previous research related to retirement villages in Malaysia and outlines the encouraging and discouraging factors that may influence the intention to live in such villages. Section 3 explains the methodology employed in the study. Data analysis using the Fuzzy Delphi method is presented in Section 4, while Section 5 concerns the results and discussion. The last section concludes the paper, describes its limitations, and makes recommendations for future research.

### Retirement Villages In Malaysia

The retirement village concept aligns with the increase in the global ageing population (Xia et al., 2015). For instance, between 2020 and 2022, the proportion of people in Malaysia aged 60 and above rose from 10.3% to 11.1% of the total population (Estimated Current Population of Malaysia, Department of Statistics Malaysia, 2022). According to Sulaiman et al. (2006), three major providers offer nursing homes for the elderly in Malaysia: (1) public sector service providers, namely the Department of Social Welfare (DSW); (2) government-supported NGOs catering to the needs of the elderly (both these types of providers are non-profit-oriented); and (3) the private sector, which is profit-oriented and considers people's ability to pay for the services they receive. Currently, three types of official institutional care homes for the elderly are available: (1) residential care homes for the elderly, (2) care homes

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for the elderly, and (3) daycare centres. The Ministry of Women, Family, and Community Development (MWFCD) oversees the provision of nursing homes for the elderly, while the Department of Social Welfare (DSW) oversees the running of these nursing homes in Malaysia under the MWFCD (Md. Yassin et al., 2018). Malaysia has at least seven retirement villages:

- Greenacres Retirement Village, Ipoh, Perak
- Iskandar Retirement Village, Johor Bahru
- Sri Seronok Retirement Village, Cheras, Kuala Lumpur
- Sunway Sanctuary, Bandar Sunway, Selangor
- Golden Heritage, Petaling Jaya, Selangor
- Aragreens Residence, Damansara, Selangor
- Eden on the Park, Kuching, Sarawak

### Factors Encouraging The Decision To Live In A Retirement Village

Some researchers (Boyd et al., 2021; Buys, 2001; Petersen et al., 2017) have found that older people move to retirement villages to gain more social connections. Retirement villages should provide good facilities that support the quality of life and lifestyles of their older residents (Xia et al., 2015). Facility providers should consider which amenities enable residents' individual and social activities, safety, home-based support services, and friendship while offering physical and health-related support (Boyd et al., 2021; Md. Yassin et al., 2018). Since older people have frequent health issues, an additional factor that may attract them to reside in retirement villages is the accessibility of amenities, security, and healthcare (Boyd et al., 2021; Md. Yassin et al., 2018; Petersen et al., 2017).

Another study suggested that important determinants of an effective retirement village were the provision of outdoor living areas and support for independent living in conjunction with assisted living facilities (Crisp et al., 2012). Living in congregate housing may be a viable option and have a positive impact on older people's well-being (Buys, 2001). Sustainability is the most desirable concept of retirement villages that focus on mother nature, as well as human and ecological health (Lim et al., 2020). Furthermore, residents can gain a sense of belonging through following an active lifestyle and participating in positive social experiences (Nielson et al., 2019).

### Factors Discouraging The Decision To Live In A Retirement Village

Some studies mentioned how residents of retirement villages may feel lonely (Boyd et al., 2021). The development of retirement villages involves services that emphasise lifestyle-focused services for the elderly, not solely those which emphasise healthcare (Zuo et al., 2014). The design of houses for old people should accommodate their unique needs, so fees and affordability have become concerns that might deter older people from living in retirement villages (Crisp et al., 2013; Petersen et al., 2017).

Retirement villages must address the negative perceptions about the lifestyles in such villages (e.g., the fear of losing independence and privacy), which may promote anxiety (Crisp et al. 2012). Some research indicates that for older people, moving to a retirement village can be stressful, frustrating, enraging, debilitating, and guilt-inducing for a period (McLaughlin & Mills, 2008). Younger old people were less discouraged by the prospect of losing neighbours and having to change doctors, yet the stigma that retirement villages are inhabited by old people is likely to discourage younger old people from moving there (Crisp et al. 2012). According to research findings, retirement village residents may not respect individual

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privacy (Graham & Tuffin, 2004). Other factors hindering the decision to move to retirement villages are health condition, financial capability, and the location of the facility (Yeung et al., 2017).

## Methodology

To revalidate the scale containing factors that encourage and discourage the elderly to reside in retirement villages, the researchers chose to adopt the Fuzzy Delphi Method (FDM). Through this method, expert consensus on the topic could be obtained, which was crucial to determining the applicability and significance of each element in the scale. The effectiveness of the Fuzzy Delphi method in the validation process, notably the expert validation process, cannot be refuted. This approach is also particularly beneficial since it promotes the use of experts' knowledge to assess the adequacy of each item. To ascertain their level of agreement with each item in the scale, the experts' opinions were obtained. As presented in the table below, all the processes involved in this study were streamlined to enable each method employed to be better understood.

### Fuzzy Delphi Steps

#### Step 1: Expert Selection

In the first step, a panel of experts is carefully selected to participate in the study. The selection process involves identifying individuals who possess significant knowledge and expertise in the field under investigation. These experts are chosen based on their qualifications, experience, and reputation. The aim is to assemble a diverse group that can provide valuable insights and perspectives on the topic.

#### Step 2: Determining The Linguistic Scale.

Once the expert panel is formed, the next step is to establish a linguistic scale for the variables being considered. This involves translating the linguistic variables into fuzzy numbers, specifically triangular fuzzy numbers (Hsieh et al., 2004). A triangular fuzzy number consists of three values: m1, m2, and m3. The value m1 represents the lowest possible value, m2 represents a middle or typical value, and m3 represents the highest possible value. By employing fuzzy numbers, the inherent uncertainties and imprecisions associated with linguistic expressions are effectively addressed.

#### Step 3: Determining The Linguistic Variables And Average Responses.

Once the researcher has gained input from the specified experts, their responses are converted into fuzzy scales, which reflect the average opinions of the experts. This step recognizes and incorporates the individual inputs received from each expert, resulting in a comprehensive and collective evaluation (Benitez et al., 2007).

#### Step 4: Determining Threshold Value "D".

The fuzzy Delphi method involves determining the threshold value "d," which plays a crucial role in assessing the degree of agreement among the experts. The distances between fuzzy integers, denoted as m = (m1, m2, m3), and n = (m1, m2, m3), are calculated using the following formula:

$$d(\overline{m},\overline{n}) = \sqrt{\frac{1}{3}[(m1 - n1)^2 + (m2 - n2)^2 + (m3 - n3)^2]}$$

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This distance measure helps quantify the dissimilarity between fuzzy numbers, enabling the identification of consensus or disagreement among experts based on their responses. By analyzing the calculated distances, the researcher can assess the level of agreement among the experts (Thomaidis et al., Year).

**Step 5: Identifying The α-cut Aggregate Level Of Fuzzy Assessment.**

The fuzzy Delphi method aims to identify the α-cut aggregate level of fuzzy assessment when expert consensus is achieved. In this step, each item or variable is assigned a fuzzy number. The calculation and measurement of fuzzy values follow a specific approach, which involves the formula: (1) 4 (m1 + 2m2 + m3) Amax.

The resulting score number, within the range of 0 to 1, provides an indication of the expert consensus level. To determine the α-cut aggregate level, the median value for '0' and '1' is used. By setting α-cut as the average value of 0 and 1 (α-cut = (0 + 1) / 2 = 0.5), the resulting A value is compared with the α-cut value. If the calculated A value is less than 0.5, it implies a lack of expert agreement, and the respective item is rejected. According to Bojdanova (2006), an α-cut value exceeding 0.5 is desirable, a viewpoint supported by Tang and Wu (Year), who recommend a value higher than 0.5 for α-cut (Mustapha & Darussalam, 2010).

**Step 6: Defuzzification Process**

Step 6 of the fuzzy Delphi method involves the defuzzification process. Defuzzification refers to the conversion of fuzzy numbers into crisp values or scores. This process aims to obtain a clear and quantifiable measure based on the aggregated fuzzy assessments from the previous steps. The resulting score number falls within the range of 0 to 1 and provides a meaningful representation of the expert opinions. There are three common formulas used in the defuzzification process, depending on the specific requirements of the study:

i. A = 1/3 * (m1 + m2 + m3)
ii. A = 1/4 * (m1 + 2m2 + m3)
iii. A = 1/6 * (m1 + 4m2 + m3)

These formulas calculate the average or weighted average of the three values of the fuzzy number (m1, m2, and m3) to obtain the defuzzified score. The choice of formula depends on the particular context and considerations of the research (Ridhuan et al., 2014).

To assess the defuzzified score, a cut-off value is determined. If the resulting defuzzified score (A) is lower than the α-cut value of 0.5, it indicates a lack of expert agreement on the item, leading to its rejection. Conversely, if the defuzzified score exceeds the α-cut value, it suggests a sufficient level of expert agreement, thus supporting the inclusion of the item in the final analysis (Bojdanova, 2006; Tang & Wu, 2010; Ridhuan et al., 2014).

**Step 7: Ranking Process**

Step 7 of the fuzzy Delphi method involves ranking the elements based on their defuzzified scores. The ranking process helps determine the relative importance or priority of the elements as perceived by the experts. The elements are sorted in descending order according to their defuzzified scores, with higher-ranked elements indicating greater importance (Fortemps & Roubens, Year). This ranking provides decision-makers with a clear hierarchy of the elements, enabling them to prioritize the factors that have been identified as more influential or critical by the expert panel (Fortemps & Roubens, Year).

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**Sampling Procedure and Expert Criteria**

In this study, ten experts were carefully selected using purposive sampling. This sampling method followed the view of Hasson et al. (2000), who stated that it is the most acceptable strategy when using the Fuzzy Delphi method. This strategy is highly suitable since the researcher must agree on something that has already been established. An expert panel was assembled to assess the importance of the evaluation parameters of the factors to be evaluated using linguistic variables. Selecting the expert group carefully is crucial to ensuring that the correct evaluation is provided in the context of the study (Chang & Wang, 2006). Whereas Berliner (2004) recommended asking experts with at least five years of experience, Gambatese et al. (2008) suggested that doctoral-level experts on the subject matter would be more suitable. In this study, the professionals were also carefully selected to cover a range of academic backgrounds and specialities. According to a set of highly rigorous measures, the researchers chose experts aged between 45 and 55 years old, all of whom had attained the academic level of at least a master's degree in their respective fields. All ten experts came from the same public university in Malaysia.

**Instrumentation And Procedures**

In the context of this study, the aim was to revalidate the existing items of established scales that had been used in numerous previous studies (see Tables 1 and 2). Therefore, published work and literature were used to compile factors that might encourage or discourage elderly people to live in a retirement village.

**Table 1: Factors Encouraging Intention to Live in a Retirement Village**

| No | Item |
|---|---|
| 1. | Communal/supportive living environment. |
| 2. | Being around people own age. |
| 3. | Greater social life. |
| 4. | Opportunities for keeping active. |
| 5. | Less stress. |
| 6. | Inbuilt facilities. |
| 7. | Convenient location to facilities. |
| 8. | Family doesn't have to look after you. |
| 9. | Improved security. |
| 10. | Assistance in case of declining health. |
| 11. | Assistance with household/gardening chores. |

**Table 2: Factors Discouraging Intention to Live in a Retirement Village**

| No | Item |
|---|---|
| 1. | Loss of independence. |
| 2. | Lack of privacy. |
| 3. | Would not want to move away from friends and family. |
| 4. | Do not want to lose current neighbours. |
| 5. | Do not want to leave family home. |
| 6. | Have to change doctor. |
| 7. | Just for older people. |
| 8. | Too expensive. |

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| | |
|---|---|
| 9. | Limited space, garden. |
| 10. | Want to bequeath something. |
| 11. | Lack of respect for older people in some institutions. |
| 12. | Just don't want to/don't like the idea. |

A list of specialist questions was created using a seven-point scale. This type of scale was utilised since the results are more accurate and precise when a scale with more options/a greater range is employed (Chen et al., 2011). The fuzzy values were changed to a scale with values from 1 to 7, as illustrated in Table 3, to assist the specialists to complete the questionnaire.

**Table 3: Fuzzy scale**

| **Item** | **Fuzzy Number** |
|---|---|
| Strongly disagree | (0.0, 0.0, 0.1) |
| Disagree | (0.0, 0.1, 0.3) |
| Somewhat disagree | (0.1, 0.3, 0.5) |
| Neutral | (0,3, 0.5, 0.7) |
| Somewhat agree | (0.5, 0.7, 0.9) |
| Agree | (0.7, 0.9, 1.0) |
| Strongly agree | (0.9, 1.0, 1.0) |

**Result And Discussion**

The expert consensus on the instrument from 10 appointed professionals are then analyzing using the Fuzzy Delphi Method. All 10 questionnaires were successfully returned and validated. Based on the responses provided, the data was gathered and processed to test the level of their consensus. The following table 4 illustrates the results from the expert on the instrument of Encouraging Intention Factors to reside in retirement Village. Meanwhile Table 5 shows the result from the expert on the instrument of Discouraging Intentions Factors to Live in a Retirement Village.

In this study, the criterion that is used to evaluate the group consensus was based on the condition that the group agreement must be greater than 75% (Chu & Hwang, 2008). Other than, in order to estimate the group consensus, the deviation between the average of experts' evaluations should be equal to or less than .20.

According to the explanations provided in the fuzzy Delphi method algorithm, when the average difference between the experts' opinions on all instruments in the questionnaire becomes less than .20, the Delphi implementation could stop. The study also found that the difference in fuzzy values for most of items was less than 0.15, so it can be concluded that sufficient consensus has been reached among experts. Therefore, the implementation of the Delphi method is stopped, and the results are explained.

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**Table 4: Results for Encouraging Intention Factors to reside in retirement Villages.**

| Results | Item1 | Item2 | Item3 | Item4 | Item5 | Item6 | Item7 | Item8 | Item9 | Item10 | Item11 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Expert1 | 0.02309 | 0.10392 | 0.02887 | 0.04041 | 0.02309 | 0.02309 | 0.05774 | **0.31177** | 0.02887 | 0.04619 | 0.02309 |
| Expert2 | 0.02309 | 0.01155 | 0.02887 | 0.01732 | 0.03464 | 0.03464 | 0 | 0.15011 | 0.02887 | 0.01155 | 0.08083 |
| Expert3 | 0.02309 | 0.01155 | 0.02887 | 0.01732 | 0.03464 | 0.03464 | 0 | 0.15011 | 0.02887 | 0.01155 | 0.08083 |
| Expert4 | 0.02309 | 0.01155 | 0.02887 | 0.01732 | 0.02309 | 0.02309 | 0.11547 | 0.08083 | 0.02887 | 0.01155 | 0.02309 |
| Expert5 | 0.03464 | 0.01155 | 0.02887 | 0.01732 | 0.03464 | 0.03464 | 0.05774 | 0.03464 | 0.02887 | 0.04619 | 0.02309 |
| Expert6 | 0.02309 | 0.06928 | 0.02887 | 0.01732 | 0.02309 | 0.03464 | 0.05774 | **0.20785** | 0.02887 | 0.01155 | 0.08083 |
| Expert7 | 0.02309 | 0.06928 | 0.02887 | 0.01732 | 0.02309 | 0.03464 | 0.05774 | **0.20785** | 0.02887 | 0.01155 | **0.32332** |
| Expert8 | 0.03464 | 0.01155 | 0.02887 | 0.04041 | 0.03464 | 0.13856 | 0.11547 | 0.1963 | 0.02887 | 0.01155 | 0.02309 |
| Expert9 | 0.03464 | 0.01155 | 0.02887 | 0.01732 | 0.02309 | 0.02309 | 0 | 0.15011 | 0.02887 | 0.01155 | 0.09238 |
| Expert10 | 0.03464 | 0.10392 | 0.02887 | 0.04041 | 0.02309 | 0.03464 | 0 | **0.31177** | 0.02887 | 0.01155 | 0.08083 |

| Statistics | Item 1 | Item 2 | Item 3 | Item 4 | Item 5 | Item 6 | Item 7 | Item 8 | Item 9 | Item 10 | Item 11 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Value of the *item* | **0.02771** | **0.04157** | **0.02887** | **0.02425** | **0.02771** | **0.04157** | **0.04619** | **0.18013** | **0.02887** | **0.01848** | **0.08314** |
| *Value of the construct* *0.04986* | | | | | | | | | | | |
| Item < 0.2 | **10** | **10** | **10** | **10** | **10** | **10** | **10** | **6** | **10** | **10** | **9** |
| % of *item* < 0.2 | **100 %** | **100 %** | **100 %** | **100 %** | **100 %** | **100 %** | **100 %** | **60%** | **100 %** | **100 %** | **90%** |
| *Average of % consensus* *95* | | | | | | | | | | | |
| *Defuzzification* | **0.96** | **0.88** | **0.95** | **0.97** | **0.96** | **0.94** | **0.9** | **0.64** | **0.95** | **0.98** | **0.86** |
| *Ranking* | **3** | **7** | **4** | **2** | **3** | **5** | **6** | **9** | **4** | **1** | **8** |
| *Status* | **Accept** | **Accept** | **Accept** | **Accept** | **Accept** | **Accept** | **Accept** | **Accept** | **Accept** | **Accept** | **Accept** |

Referring to the findings shown in Table 4, all data recorded shows the value of threshold (d) ≤ 0.2, except those presented in bold font. The disagreement mainly comes from the expert for the items number 8, which may indicate some confusion in the way the instrument being utilized. However, based on the average result calculated, the overall threshold value (d) = 0.04986, shows satisfactory consensus on all items in the instrument, as shown in the table above. The expert agreement percentage shows that all the items scored 95% which is more than 75% and all defuzzification values for the items also exceeded the value of α - cut = 0.5. Overall, this demonstrates that the experts reached a consensus with respect to the encouraging factors to live in a retirement village.

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**Table 5: Results for Discouraging Intentions Factors to Live in a Retirement Village.**

| Results | Item 1 | Item 2 | Item 3 | Item 4 | Item 5 | Item 6 | Item 7 | Item 8 | Item 9 | Item 10 | Item 11 | Item 12 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Expert 1 | 0.15588 | **0.20785** | 0.04619 | 0.06928 | 0.02887 | 0.16743 | 0.19053 | 0.04619 | 0.13856 | 0.06351 | 0.1097 | 0.16166 |
| Expert 2 | 0.15588 | 0.15011 | 0.01155 | 0.01155 | 0.02887 | 0.16743 | 0.19053 | 0.01155 | 0.13856 | 0.06351 | 0.12124 | 0.10392 |
| Expert 3 | 0.04041 | 0.03464 | 0.12702 | 0.10392 | 0.14434 | 0.05196 | 0.19053 | 0.12702 | 0.03464 | **0.2829** | 0.1097 | 0.12702 |
| Expert 4 | **0.306** | **0.31177** | 0.01155 | 0.01155 | 0.02887 | 0.06351 | **0.27135** | 0.04619 | 0.08083 | 0.06351 | 0.1097 | 0.10392 |
| Expert 5 | **0.306** | **0.31177** | 0.01155 | 0.01155 | 0.02887 | 0.06351 | **0.27135** | 0.04619 | 0.08083 | 0.06351 | 0.1097 | 0.10392 |
| Expert 6 | 0.07506 | 0.08083 | 0.04619 | 0.01155 | 0.02887 | 0.06351 | 0.19053 | 0.04619 | 0.03464 | 0.06351 | 0.00577 | 0.01155 |
| Expert 7 | 0.15588 | 0.15011 | 0.01155 | 0.01155 | 0.02887 | 0.16743 | 0.19053 | 0.01155 | 0.08083 | 0.06351 | 0.12124 | 0.10392 |
| Expert 8 | 0.04041 | 0.03464 | 0.01155 | 0.01155 | 0.02887 | 0.05196 | 0.07506 | 0.04619 | 0.13856 | 0.16743 | 0.00577 | 0.10392 |
| Expert 9 | 0.07506 | 0.08083 | 0.04619 | 0.10392 | 0.02887 | 0.06351 | 0.15588 | 0.12702 | 0.15011 | 0.05196 | 0.00577 | 0.12702 |
| Expert 10 | **0.21362** | **0.20785** | 0.04619 | 0.06928 | 0.02887 | **0.35218** | **0.32909** | 0.04619 | **0.43879** | 0.12124 | 0.17898 | **0.41569** |

| Statistics | *Item 1* | *Item 2* | *Item 3* | *Item 4* | *Item 5* | *Item 6* | *Item 7* | *Item 8* | *Item 9* | *Item 10* | *Item 11* | *Item 12* |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Value of the item | **0.15242** | **0.15704** | **0.03695** | **0.04157** | **0.04042** | **0.12124** | **0.20554** | **0.05543** | **0.13164** | **0.10046** | **0.08776** | **0.13625** |
| *Value of the construct 0.10556* | | | | | | | | | | | | |
| Item < 0.2 | **7** | **6** | **10** | **10** | **10** | **9** | **7** | **10** | **9** | **9** | **10** | **9** |
| % of item < 0.2 | **70%** | **60%** | **100%** | **100%** | **100%** | **90%** | **70%** | **100%** | **90%** | **90%** | **100%** | **90%** |
| *Average of % consensus 88* | | | | | | | | | | | | |
| Defuzzification | **0.63** | **0.64** | **0.92** | **0.88** | **0.95** | **0.61** | **0.57** | **0.92** | **0.76** | **0.79** | **0.69** | **0.72** |
| Ranking | **9** | **8** | **2** | **3** | **1** | **10** | **11** | **2** | **5** | **4** | **7** | **6** |
| Status | **Accept** | **Accept** | **Accept** | **Accept** | **Accept** | **Accept** | **Accept** | **Accept** | **Accept** | **Accept** | **Accept** | **Accept** |

Meanwhile, for the second set of the instrument, as the findings shown in Table 5, all data recorded shows the value of threshold (d) is equal to or less than 0.2, except those presented in bold font. The disagreement for this set was scattered to a few items. However, based on the average result calculated, the overall threshold value (d) = 0.10556, shows satisfactory consensus on all items in the instrument, as shown in the table above. The expert agreement percentage shows that all the items scored 88% which is more than 75% and all defuzzification values for the items also exceeded the value of α - cut = 0.5. Overall, this demonstrates that the experts reached a consensus with respect to the discouraging factors to live in a retirement village. The assessment of all these factors was conducted by defuzzifying the fuzzy evaluation to find out the order of its priority. The items were then arranged based

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on their priority according to their score rankings, as suggested by the findings (refer to Tables 6 and 7).

**Table 6: Factors Encouraging Intention to Live in a Retirement Village**

| No. | Item | Priority Rank |
|---|---|---|
| 10 | Assistance in case of declining health. | 1 |
| 4 | Opportunities for keeping active. | 2 |
| 1 | Communal/supportive living environment. | 3 |
| 5 | Less stress. | 3 |
| 3 | Greater social life. | 4 |
| 9 | Improved security. | 4 |
| 6 | Inbuilt facilities. | 5 |
| 7 | Convenient location to facilities. | 6 |
| 2 | Being around people own age. | 7 |
| 11 | Assistance with household/gardening chores. | 8 |
| 8 | Family doesn't have to look after you. | 9 |

The significance of the selection of encouraging factors for prospective residents in a retirement village cannot be overstated, as it profoundly influences the overall quality of life and well-being of elderly individuals. Chief among these factors is "Assistance in case of declining health," which claims the utmost priority in the provided list. This priority designation stems from its pivotal role in addressing the inevitable health challenges that accompany the aging process, ensuring that residents have prompt access to essential medical support and care. The absence of this crucial assistance could expose individuals to substantial health risks and a diminished quality of life. Furthermore, giving precedence to this factor not only safeguards the health of residents but also aligns with the tenth factor, "Family doesn't have to look after you." This underscores the interconnected nature of these factors and the positive ripple effects of a deliberate prioritization strategy. Ultimately, by conscientiously selecting and prioritizing these encouraging factors, prospective retirees can make informed choices that enhance their long-term well-being and provide reassurance during their stay in a retirement village.

**Table 7: Factors Discouraging Intention to Live in a Retirement Village**

| No | Item | Priority Rank |
|---|---|---|
| 5 | Do not want to leave family home. | 1 |
| 3 | Would not want to move away from friends and family. | 2 |
| 8 | Too expensive. | 2 |
| 4 | Do not want to lose current neighbours. | 3 |
| 10 | Want to bequeath something. | 4 |
| 9 | Limited space, garden. | 5 |
| 12 | Just don't want to/don't like the idea. | 6 |
| 11 | Lack of respect for older people in some institutions. | 7 |
| 2 | Lack of privacy. | 8 |
| 1 | Loss of independence. | 9 |
| 6 | Have to change doctor. | 10 |
| 7 | Just for older people. | 11 |

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The precedence accorded to specific discouraging factors when contemplating residency in a retirement village holds substantial sway over the decision-making process concerning senior living arrangements. Foremost among these factors is the sentiment "Resisting the relocation from one's family home," which emerges as the predominant deterrent within the provided list. This factor encapsulates a profound emotional attachment to one's long-standing abode, signifying a deep-seated reluctance to sever ties with cherished memories and a familiar domestic milieu. In addition, the factor occupying the second rank, "Unwillingness to depart from one's social and familial network," accentuates the pivotal role of maintaining interpersonal relationships and kinship bonds, both of which are instrumental in preserving emotional equilibrium during the later stages of life. The financial constraint, identified as "Perceived costliness," closely follows in priority, exemplifying the pragmatic considerations that bear substantial weight in the deliberation process. These economic limitations can potentially hinder the feasibility of transitioning to a retirement village. By diligently recognizing and evaluating these priority-driven discouraging factors, individuals can make informed decisions concerning their retirement living arrangements, aligning these choices with their deeply held values and personal preferences.

**Conclusion**

This study aimed to revalidate a decision-making scale specifically designed for retirement villages. To achieve this, the researchers utilized the Fuzzy Delphi method, which enabled the revalidation of factors influencing the decision-making process of Malaysian retirees contemplating a move to a retirement village. Notably, all the items included in the scale demonstrated defuzzification values exceeding the predetermined threshold of $\alpha$-cut = 0.5. Furthermore, the expert agreement percentage for each item surpassed 75%, indicating a consensus among the experts regarding the factors that either encourage or discourage individuals from choosing to reside in retirement villages.

Throughout the research process, strict adherence to the principles of the Fuzzy Delphi technique was maintained, ensuring the methodological integrity of the study's findings. The outcomes of the investigation provided robust evidence supporting the adequacy of the validated items in all aspects. Among the identified factors, "assistance in case of declining health" emerged as the most influential element encouraging individuals to consider living in a retirement village, whereas the factor of "not wanting to leave the family home" was identified as the most discouraging aspect. These findings contribute novel insights to the validation procedure, expanding the existing knowledge base within this domain.

It is worth noting that although factor analysis is widely employed by researchers during item validation, alternative approaches can be utilized to further enhance the body of knowledge, particularly regarding the validation process. Each of these diverse approaches has the potential to make unique contributions in this area of study.

However, this study encountered certain limitations, primarily due to the restriction of expert participation solely to individuals from Malaysia. To obtain a more comprehensive understanding, future researchers are encouraged to involve experts from a variety of professional contexts, including social welfare officers, psychologists, counsellors, and administrators of institutional care homes for the elderly. Additionally, while the Fuzzy Delphi method utilized in this study specializes in expert consensus, alternative methods could be employed in future investigations to obtain more generalized results.

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Given the demographic trend indicating an ageing population, the validated decision-making scale developed through this research holds the potential as a valuable instrument for governmental agencies, particularly the Ministry of Women, Family, and Community Development. This tool can aid in formulating comprehensive policies pertaining to elderly care, especially in the establishment of retirement communities. Furthermore, non-governmental organizations (NGOs) receiving financial support from the government and private sector to operate care homes for the elderly can benefit from the scale's ability to provide informative insights during the preparation of retirement villages. Such insights can ensure that these communities are equipped with adequate facilities, promoting the well-being, comfort, and overall quality of life for elderly residents.

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