

# IMPACTS OF LIVING PLACE TO THE QUALITY OF LIFE OF THE ELDERLY IN KELANTAN MALAYSIA

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## Abstract

The Malaysian population is aging, and the elderly are less healthy than the young. The majority of the elderly remain in their own home, although some choose to live in a *pondok* and others are institutionalized. The main concern in the care of the elderly is maintaining the quality of life (QOL) up to the last moment. The aim of this study is to determine the effect of living place (home, *pondok*, or old folks' home) on QOL of the elderly in Kelantan, Malaysia. Four-hundred seventy-one respondents participated in this cross-sectional study. Participants age 60 years old and above were selected conveniently and the WHOQOL-BREF questionnaire was administered by face to face interview to measure quality of life. Multivariate analysis of variance was applied to detect the impacts and p-value < 0.05 was considered significant. Significant differences in mean score of physical (p = 0.011), psychological (p < 0.001), social (p < 0.001), and environmental (p = 0.001) aspects of QOL were detected among participants living at home, in a *pondok*, and in an old folks' home. The elderly living in their own home had the highest scores in the physical, social, and environmental domains. Those living in a *pondok* scored highest in the psychological domain. The elderly living in an old folks' home had the lowest scores in all domains. A significant effect of living place on QOL of the elderly was detected (p < 0.001) and there was a significant effect of living place on QOL after medical illness and age were controlled (p < 0.001). Conclusion: Living place had a significant effect on QOL of the elderly, with best QOL for own home living elderly. We recommend elderly should remain in their own home till the end of their life.

**Keywords:** Elderly, Quality of life, Own home, *Pondok*, Old folks' home

## Introduction

The percentage of the world population aged 65 and older increased from 5.2% in 1950 to 6.9% in 2000, and it is projected to increase to 15.9% by 2050 (1). The majority of developed nations recognise the age of 65 as the criteria of an older or "elderly" individual. However, the older population was referred to as being "60 years and more" during the United Nations World Assembly on Aging, which was convened in Vienna in 1982. In Malaysia, policy makers adopted '60 years and above'

when formulating and implementing plans for elderly (2).

The care of the old in Malaysia has changed due to changes in demographics, social structure, and economic standing, and nursing homes and institutions for the elderly are now a prominent care alternative (3). However, these facilities have a detrimental impact on residents' health and well-being since the institutional setting fosters emotions of dependency and perpetuates the idea that they are "ill". Many older people prefer to live in a *pondok*, which is a neighbourhood of homes built

around a mosque, while others prefer to stay in their own homes with their families. Many old individuals reside in pondoks because they wish to spend their final years in a devout way, and pondoks are for Muslims who want to increase their religious knowledge (4).

Due to the demographic change that has caused the population to age more slowly, the quality of life (QOL) of the elderly has become a crucial concern (5). In recent years, the idea of quality of life (QOL) has gained vital importance for the field of health care, and it is now taken into account when making decisions about one's health and as a measure of how well a therapy is working (6). The World Health Organization defined QOL as an individual's view of their place in life in relation to their objectives, expectations, standards, and worries, as well as the culture and value systems in which they live. Thus, the primary goal of aged care is to sustain QOL by assisting seniors in leading as full a life as they can for as long as feasible. The objective of the study was to determine the effect of living place (home, pondok, or old folks' home) on QOL of the elderly living in Kelantan, Malaysia. Living place define as the place at which a person lives. In this study the elderly was selected from three living places. Previous study showed that housing type was identified as a significant predictor of the mental health of the elderly and the difference of QOL among respondents was significantly due to the contrast in living environment (7).

## **Materials and Methods**

### **Study design and study population**

This was a cross-sectional study involving 471 elderly people from Kelantan, Malaysia. The reference population was the elderly in Kelantan. The source population was elderly people living in the districts of Pasir Mas, Rantau Panjang, Bachok, Kota Bharu, Pasir Puteh, and Machang. The sampling frame was elderly people living in either their own home, a pondok, or an old folks' home in these districts. The inclusion criteria for this study were being age 60 and older and giving consent to participate. The exclusion criteria for this study were those who were unable to understand or speak Malay or English. Elderly people who were deaf and mute or who exhibited aggressive behaviour also were excluded from this study.

### **Sample size determination**

The sample size was calculated using the two means formula (8) with standard deviation of 8.69 (9),  $z\alpha = 1.96$ ,  $z\beta = 0.84$ , precision = 3. After estimating a 20% drop out rate, the total sample size required was 157 per group. As this study consisted of three groups, the overall sample size required was 471.

### **Participants recruitment**

Elderly participants living at own home were recruited

from four villages ( Kampung Baung Bayam Kota Bharu, , Kampung Padang Luas Bachok, Kampung Batu Enam Kota Bharu, and Kampung Mukim Seri Pulau Kota Bharu). Elderly people living in a pondok were recruited from three pondoks (Pondok Pasir Tumbuh Kota Bharu, Pondok Mahligai Bachok, and Pondok Daril Naim Bachok). Elderly participants living in an old folks' home were recruited from Rumah Seri Kenangan Kemumin Pengkalan Chepa Kota Bharu and Rumah Sejahtera (Rumah Sejahtera Machang, Rumah Sejahtera Rantau Panjang, Rumah Sejahtera Pasir Puteh, Rumah Sejahtera Tok Uban Pasir Mas, and Rumah Sejahtera Paya Ular Pasir Mas). Convenience sampling was used as the sampling method.

The identified villages, pondoks, and old folks' home were contacted and a letter of application to conduct research was sent to each location. Rumah Seri Kenangan Kemumin replied with an approval letter, and all other sites gave verbal permission. Two or three days before data collection, the village head or pondok management announced at the mosque the time and date of the study. On the day of data collection, village and pondok respondents assembled at the meeting place (hall or mosque). Data collection in old folks' home done in their dormitory. Participants were given a short briefing about the aims and procedures of the study and were given the chance to ask questions. Afterwards, written consent to participate was obtained from each participant (some used a thumb printed due to illiteracy). Each participant was interviewed face to face, and the interview included sociodemographic questions, medical background, and the WHOQOL- BREF (World Health Organisation Quality of Life-BREF).

### **Study materials**

The WHOQOL-100 measures people's opinions of their place in life in relation to their expectations, aspirations, standards, and worries as well as the value systems and society in which they live. The WHOQOL-BREF was validated in a medical and psychiatric clinic at Universiti Sains Malaysia Hospital and is a shorter version that is more practical for researchers performing large research projects or clinical trials (10-11). The urban and suburban portions of Kota Bharu and the surrounding region are served by this teaching hospital. The 200-person sample included both healthy and sick groups. The individuals had to be able to complete the questionnaire on their own, and recruitment was done using convenience sampling. The majority of responses were over 60 years old. The WHOQOL-BRIEF (Malay) had four domains: physical (0.80), psychological (0.64), social connections (0.64), and environmental (0.73). The domain scores were calculated using a possible range of 4–20, with a higher score indicating a better quality of life. All items were scored on a five-point scale. The WHOQOL-BRIEF was shown to have good psychometric qualities and is regarded as a legitimate and trustworthy substitute for

the WHOQOL-100.

We revalidated this questionnaire using older participants from Kampung Kubang Panjang Pasir Mas and Pondok Tunjung because it was intended to be utilised among the elderly. The sample had 84 responses in total. 39 senior citizens gathered in Madrasah Kampung Kubang Panjang in Kampung Kubang Panjang Pasir Mas, while 45 participants gathered in a venue in Pondok Tunjung. They underwent a face-to-face interview. By interviewing 10 chosen elderly participants in Pondok Tunjung, face validity was assessed. They were asked to rank the appropriateness of the questionnaire using three scales (1, not appropriate; 2, appropriate; 3, most appropriate). The questions received the highest ratings from all responders. The WHOQOL-four BREF's domains' internal coherence was also examined. The Cronbach's alpha coefficients for the physical domain were 0.77, psychological 0.74, social 0.68, and environmental 0.71. The questionnaire's total Cronbach alpha was 0.89. The final questionnaire utilised in this study has 26 questions: 2 for general evaluation, 7 for physical assessment, 6 for psychological assessment, 3 for social assessment, and 8 for environmental assessment.

### Data analysis

The Statistical Program for Social Sciences (SPSS) Version 20.0 software for Windows was used to enter all the data (12). The data set was updated, the data were reviewed and cleaned, and the preliminary data were checked for missing values. The data set was then checked for outliers and normalcy. Using a histogram and a box and whisker plot, normality was examined. Outliers were examined to see if they were genuine outliers or the result of data input or recording errors. Each participant's sociodemographic data was recorded for descriptive statistical analysis. For normally distributed data, continuous variables were described as mean and standard deviation (SD), or for skewed data, as median and interquartile range. The terms frequency and percentage were used to denote categorical data.

One-way analysis of variance (ANOVA) was used to

compare the effect of living place on the mean difference of QOL. One-way ANOVA is used to analyze the difference among means between more than two groups of samples, and the variables should be one numerical dependent variable and one categorical independent variable with more than two levels (13). In this study, the dependent variable was the QOL score (physical, psychological, social, and environmental) and the independent variable was living place, which had three levels (own home, pondok, and old folks' home). Four one-way ANOVAs were carried out in this study for each of the four QOL domains. Additionally, a one-way multivariate ANOVA (MANOVA) was carried out using the living place as the independent variable and the physical, psychological, social, and environmental domains as the dependent variables. The physical, psychological, social, and environmental domains were the dependent variables in a multi-way MANOVA, the living place was the independent variable, and the controlled variables were age category and medical sickness.

## Results

### Characteristics of respondents

The sociodemographic details of the respondents are shown in Table 1. This survey included 471 respondents in total, 157 of whom resided in each of the three place types: their own home, a pondok, and an old folks homes. 100% of people responded. Age was distributed with a mean (SD) of 70.64 (7.16) years. 70.3% of the responders were female. The majority of respondents (97.5%) were Malay, had odd jobs in the past (83.2%), were unemployed at the time of the survey (88.7%), had little education (95.1%), made less than the federal poverty line (94.5%), and did not smoke (87.0%). Participants living in their own homes, pondoks, and old folks' homes showed significant differences in age, gender, race, marital status, previous and present occupation, income level, number of children, living arrangement, and smoking status. The only factor that did not significantly differ across the three types of living place was education level.

**Table 1:** Sociodemographic characteristics of participants living in their own home, a pondok, or an old folks' home (n = 471)

Variable	Frequency (%)				p value
	Total (n = 471)	Own home (n = 157)	Pondok (n = 157)	Old folks' home (n = 157)	
Age (years)	70.64 (7.16) <sup>a</sup>	68.68 (6.99) <sup>a</sup>	71.27 (6.70) <sup>a</sup>	71.97 (7.40) <sup>a</sup>	< 0.001 <sup>b</sup>
Gender					< 0.001 <sup>c</sup>
Male	124 (26.3)	69 (43.9)	22 (14.0)	33 (21.0)	
Female	347 (73.7)	88 (56.1)	135 (86.0)	124 (79.0)	

Race					0.004 <sup>d</sup>
Malay	459 (97.5)	157 (100.0)	154 (98.1)	148 (94.3)	
Non-Malay	12 (2.5)	0	3 (1.9)	9 (5.7)	
Currently married					< 0.001 <sup>c</sup>
Yes	186 (39.5)	96 (61.1)	57 (36.3)	33 (21.0)	
No	285 (60.5)	61 (38.9)	100 (67.7)	124 (79.0)	
Education level					0.054 <sup>c</sup>
High	23 (4.9)	13 (8.3)	5 (3.2)	5 (3.2)	
Low	488 (95.1)	144 (91.7)	152 (96.8)	152 (96.8)	
Past occupation					< 0.001 <sup>c</sup>
Regular job	79 (16.8)	43 (27.4)	17 (10.8)	19 (12.1)	
Odd job	392(83.2)	114 (72.6)	140 (89.2)	138 (87.9)	
Current occupation					< 0.001 <sup>c</sup>
Employed/ Pensioner	53(11.3)	43 (27.4)	8 (5.1)	2 (1.3)	
Unemployed	418 (88.7)	114 (72.6)	149 (94.9)	15 5(98.7)	
Income (poverty level =RM830)					< 0.001 <sup>c</sup>
Above poverty	26 (5.5)	17 (10.8)	8 (5.1)	1 (0.6)	
Below poverty	445 (94.5)	140 (89.2)	149 (94.9)	156 (99.4)	
Number of children	4.99 (3.24) <sup>a</sup>	6.59 (3.04) <sup>a</sup>	4.75 (2.93) <sup>a</sup>	3.64 (3.05) <sup>a</sup>	< 0.001 <sup>b</sup>
Living arrangement					< 0.001 <sup>d</sup>
Alone	304 (64.5)	33 (21.0)	114 (72.6)	157 (100.0)	
With Family	167 (35.5)	124 (79.0)	43(27.4)	0	
Smoking status					0.039 <sup>c</sup>
No	410 (87.0)	128 (81.5)	142 (90.4)	140 (89.2)	
Yes	61 (13.0)	29 (18.5)	15 (9.6)	17 (10.8)	

<sup>a</sup>mean (sd), <sup>b</sup> one- way ANOVA, <sup>c</sup> Pearson chi square test, <sup>d</sup> Fisher exact test

### **Respondents' self-reported medical conditions**

Table 2 presents the respondents' self-reported medical. Over half (66.9%) of the respondents said they had a medical condition. They were all overweight (50.5%), 23.6% had diabetes, 6.2% had ischemic heart disease, and 3.0% had had a stroke. Nobody who took part had

cancer. More than half of participants (66.9%) wore dentures and 67.1% of them had dental issues. Between respondents who lived at home, in a pondok, and in an old folks' home, there were discernible disparities in the prevalence of medical conditions, diabetes mellitus, the usage of dentures, and dental issues.

**Table 2:** Respondents' self-reported medical conditions at home, in a pondok, and in an old folks's home (n = 471).

Variable	Frequency (%)				p value <sup>a</sup>
	Total (n=471)	Own home (n=157)	Pondok (n=157)	Old folks' home (n=157)	
Medical illness	315 (66.9)	90 (57.3)	118 (75.2)	107 (68.2)	0.003
Diabetes mellitus	111 (23.6)	28 (17.8)	48 (30.6)	35 (22.3)	0.026
Hypertension	233 (49.5)	66 (42.0)	86 (54.8)	81 (51.6)	0.063
Ischaemic heart disease	29 (6.2)	9 (5.7)	12 (7.6)	8 (5.1)	0.620
Stroke	14 (3.0)	7 (4.5)	1 (0.6)	6 (3.8)	0.102
Dementia	3 (0.6)	0	0	3(1.9)	0.110 <sup>b</sup>
Cancer	0	0	0	0	–
Use dentures	315 (66.9)	95 (60.5)	123 (78.3)	97 (61.8)	0.001
Dentition problem	316 (67.1)	118 (75.2)	98 (62.4)	100 (63.7)	0.030

<sup>a</sup>Pearson chi square test, <sup>b</sup>Fisher exact test

Table 3 shows the QOL score results. Own home respondents scored the highest in three of the four QOL domains assessed: physical, 61.06 (10.86); social, 78.93 (11.41); and environmental, 70.30 (10.23). Respondents who lived in a pondok scored highest in the psychological domain (77.07 (11.79)). Those living in an old folks' home had the lowest scores for all domains: physical, 57.44 (12.90); psychological, 64.48 (15.29); social, 67.13 (14.19); and environmental, 65.11 (14.84). Table 3 shows the comparison of QOL scores among the three groups in terms of the four QOL domains.

#### Physical QOL

Between the three places of residence, a statistically significant variation in the mean of physical QOL was found. The mean physical QOL score for respondents who resided in an elderly folks' home was substantially lower than that of those who lived at home [61.06 (10.86)  $p = 0.030$ ] and in a pondok [60.96 (12.45)  $p = 0.037$ ] according to a post hoc comparisons test. However, the mean physical QOL for pondok respondents was not significantly different from that of respondents who lived at home ( $p = 0.997$ ).

#### Psychological QOL

Psychological QOL score also differed significantly among the three types of living place. Post hoc comparisons test indicated that the mean psychological QOL for old folks'

home respondents [64.48 (15.29)] was significantly lower than that of those who lived in their own home [71.60 (8.04),  $p < 0.001$ ] or in a pondok [77.07 (11.79),  $p < 0.001$ ]. The mean psychological QOL for pondok participants was also significantly higher than that of the own home respondents ( $p < 0.001$ )

#### Social QOL

For each of the three living place, there was a statistically significant difference in social QOL. According to a post hoc comparisons test, the mean social QOL of respondents from old folks' homes [67.13 (14.19)] was substantially lower than that of respondents from own homes [78.93 (11.41),  $p 0.001$ ] and pondok [76.55 (9.15),  $p 0.001$ ]. However, there was no discernible difference in the mean social QOL between those in pondok and those living at home.

#### Environmental QOL

Environmental QOL also differed significantly among the three types of living place. Post hoc comparisons test indicated that the mean environmental QOL for those who lived at home [70.30 (10.23)] was significantly higher than that of respondents living in an old folks' home [65.11 (14.84)  $p = 0.001$ ] and a pondok [66.86 (12.70)  $p = 0.026$ ]. However, the mean environmental QOL did not differ significantly between the latter two groups.

**Table 3:** Comparison of QOL scores among respondents who lived at home, in a pondok, and in an old folks’s home (n = 471).

Variables	Mean (SD)			F statistic (df)	p value*
	Own home n = 157	Pondok n = 157	Old folks’ home n = 157		
Physical	61.06 (10.86)	60.96 (12.45)	57.44 (12.90)	4.559 (2)	0.011 <sup>a</sup>
Psychological	71.60 (8.04)	77.07 (11.79)	64.48 (15.29)	42.937 (2)	< 0.001 <sup>b</sup>
Social	78.93 (11.41)	76.55 (9.15)	67.13 (14.19)	44.129 (2)	< 0.001 <sup>c</sup>
Environmental	70.30 (10.23)	66.86 (12.70)	65.11 (14.84)	6.746 (2)	0.001 <sup>d</sup>

\*One-way ANOVA. Post hoc analysis: <sup>a</sup>own home vs. old folks’ home, p = 0.030; pondok vs. old folks’ home, p = 0.037; pondok vs. own home, p = 0.997; <sup>b</sup>own home vs. old folks’ home, p < 0.001; own home vs. pondok, p < 0.001; pondok vs. old folks’s home, p < 0.001; <sup>c</sup>old folks’ home vs. own home, p < 0.001; old folks’s home vs. pondok, p < 0.001; pondok vs. own home, p = 0.123; <sup>d</sup>own home vs. old folks’ home, p = 0.001; own home vs. pondok, p = 0.026; pondok vs. old folks’s home, p = 0.600

**Exploration of the effect of living place, medical illness, and age on the QOL of the elderly**

An independent t-test for medical illness showed that respondents who had no medical illness scored significantly higher in the physical (p < 0.001), psychological (p = 0.017), and environmental (p = 0.003) QOL domains compared to their counterparts (Table 4). However, no significant difference in social domain (p = 0.194) QOL score was detected.

An independent t-test for age category showed that respondents between 60 to 79 years old scored significantly higher than respondents age 80 and above in the physical (p = 0.014) QOL domain. No significant differences in psychological (p = 0.982), social (p = 0.203), and environmental (p = 0.795) QOL scores were detected

between the two age groups.

Multivariable exploration of the effect of living place on the QOL with adjustment for medical illness and age category revealed a significant effect of living place (p = 0.014), medical illness (p < 0.001), and age category (p = 0.025) on the physical QOL. Living place (p < 0.001) and medical illness (p = 0.002) had a significant effect on the psychology QOL, but age category (p = 0.415) did not. Only the living place had a significant impact (p 0.001) on social QOL; medical illness and age category had no discernible effects (p = 0.333 and p = 0.663, respectively). Finally, although age category did not significantly affect environmental QOL (p = 0.951), living place and medical condition did (p = 0.004 and 0.010, respectively).

**Table 4:** Bivariable multivariate exploration of the association of living place, medical illness, and age on the quality of life of the elderly.

Factor	Quality of life mean (SD)			
	Physical	Psychological	Social	Environmental
Living place				
Own home	61.06 (10.86)	71.60 (8.04)	78.93 (11.41)	70.30 (10.23)
Pondok	60.96 (12.45)	77.07 (11.79)	76.55 (9.15)	66.86 (12.70)
Old folks’ home	57.44 (12.90)	64.48 (15.29)	67.13 (14.19)	65.11 (14.84)
p value <sup>a</sup>	0.001	< 0.001	< 0.001	0.001
p value <sup>c</sup>	0.014	< 0.001	< 0.001	0.004
Medical illness				
No	64.56 (10.72)	73.10 (10.92)	75.29 (10.40)	69.90 (12.55)
Yes	57.47 (12.21)	70.03 (13.97)	73.67 (13.82)	66.20 (12.89)
p value <sup>b</sup>	< 0.001	0.017	0.194	0.003

p value <sup>c</sup>	< 0.001	0.002	0.333	0.010
Age Category				
Young older old (60-79)	60.34 (12.03)	71.04 (12.59)	74.49 (12.82)	67.48 (12.84)
Oldest old (≥80)	56.19 (12.80)	71.08 (16.40)	72.22 (12.61)	67.02 (13.31)
p value <sup>b</sup>	0.014	0.982	0.203	0.795
p value <sup>c</sup>	0.025	0.415	0.663	0.951

<sup>a</sup>One-way ANOVA; <sup>b</sup>Independent t-test; <sup>c</sup>multi-way ANOVA MANOVA results

Physical, psychological, social, and environmental QOL were the dependent variables, while living place was the independent variable, in a one-way MANOVA. Next, a multi-way MANOVA was carried out using living place as the independent variable, medical condition and age category as confounders, and physical, psychological, social, and environmental QOL as dependent variable.

Living place significantly affected the QOL domains, according to a one-way MANOVA [Pillai's trace F statistic (df) = 21.402(8,932), p 0.001]. When medical condition and age category were taken into account, the results of the multi-way MANOVA also indicated a significant influence of living place [Pillai's trace F statistic (df) = 21.364 (8,928), p 0.001].

After Bonferroni correction, the univariate ANOVAs revealed a significant relationship between living place and psychological, social, and environmental quality of life (F(2,466) = 45.479, p 0.001, and F(2,466) = 5.688, p = 0.004, respectively).

**Post hoc tests**

Living in one's own home was associated with a higher mean score on the post hoc Tukey HSD test for physical QOL [mean difference 3.62 (95% confidence interval (CI): 0.55, 6.70), p = 0.016] than living in an old folks' homes. Additionally, respondents who resided in pondoks had higher mean scores than those who did not [mean difference 3.52 (95% CI: 0.44, 6.59), p = 0.020]. There was no discernible difference in mean between those who

lived at home and those who did not (p = 0.996).

For psychological QOL, those living in their own home had a higher mean score than those living in an old folks' home [mean difference 7.12 (95% CI: 3.95, 10.30), p < 0.001], own home respondents had a lower mean score than pondok respondents [mean difference -5.47 (95% CI: -8.65, -2.30), p < 0.001], and those residing in a pondok had a higher mean score than those living in an old folks' home [mean difference 12.59 (95% CI: 9.42, 15.77), p < 0.001].

For social QOL, own home respondents had a higher mean score than old folks' home respondents [mean difference 11.80 (95% CI: 8.67, 14.92), p < 0.001], and pondok respondents had a higher mean score than old folks' home respondents [mean difference 9.42 (95% CI: 6.29, 12.55), p < 0.001]. There was no significant mean difference between those living in their own home and in a pondok (p = 0.175).

For environment QOL, those residing in their own home had a higher mean score than those living in an old folks' home [mean difference 5.18 (95% CI: 1.82, 8.55), p = 0.001], and own home respondents had a higher mean score than pondok respondents [mean difference 3.44 (95% CI: 0.08, 6.80), p = 0.043]. There was no significant mean difference between those living in a pondok and an old folks' home (p = 0.441).

**Table 5:** Adjusted mean and 95% confidence interval of the effect of living place with and without adjustment for medical illness and age category on the QOL domains.

QOL	Living place	Without confounder		With confounder	
		Adjusted mean (95%CI)	p value	Adjusted mean (95%CI)	p value
Physical	Own home	61.06 (59.17, 62.96)	0.011	60.11 (57.88,62.35)	0.014
	Pondok	60.96 (59.06, 62.83)		61.33 (59.05,63.61)	
	Old folks' home	57.44 (55.54, 59.34)		57.54 (55.41,59.69)	
Psychological	Own home	71.60 (69.71, 73.49)	< 0.001	72.42 (70.12,74.73)	< 0.001
	Pondok	77.07 (75.18, 78.96)		78.54 (76.18,80.89)	
	Old folks' home	64.48 (62.58, 66.37)		65.60 (63.40,67.80)	

Social	Own home	78.93 (77.08, 80.78)	< 0.001	78.72(76.45,80.99)	< 0.001
	Pondok	76.55 (74.71, 78.40)		76.56 (74.24,78.88)	
	Old folks' home	67.13 (65.28, 68.98)		67.10 (64.93,69.28)	
Environmental	Own home	70.30 (68.30, 72.30)	0.001	70.58(68.14,73.02)	0.004
	Pondok	66.86(68.30, 72.30)		67.72(65.23,70.21)	
	Old folks' home	65.12 (63.12, 67.11)		65.74 (63.41,68.08)	

One-way MANOVA, living place, Pillai's trace F statistic (df) = 21.402(8,932),  $p < 0.001$ , Multi-way MANOVA, living place with adjustment for medical illness and age category, Pillai's trace F statistic (df) = 21.364 (8,928),  $p < 0.001$ . Post hoc test: Physical: own home vs. old folks' home [mean difference 3.62 (95% CI: 0.55,6.70),  $p = 0.016$ ], pondok vs. old folks' home [mean difference 3.52 (95% CI: 0.44, 6.59),  $p = 0.020$ ]. Psychological: own home vs. old folks' home [mean difference 7.12 (95% CI: 3.95,10.30),  $p < 0.001$ ], pondok vs. old folks' home [mean difference 12.59 (95% CI: 9.42,15.77),  $p < 0.001$ ], and own home vs. pondok [mean difference -5.47 (95% CI: -8.65,-2.30),  $p < 0.001$ ], Social: own home vs. old folks' home [mean difference 11.80 (95% CI: 8.67,14.92),  $p < 0.001$ ], pondok vs. old folks' home [mean difference 9.42 (95% CI: 6.29, 12.55),  $p < 0.001$ ], Environmental: own home vs. old folks' home [mean difference 5.18 (95% CI: 1.82,8.55),  $p = 0.001$ ], own home vs. pondok [mean difference 3.44 (95% CI: 0.08,6.80),  $p = 0.043$ ]

## Discussion

The elderly required a safe and supportive atmosphere in their home for a high quality of life. The majority of older folks desire a calm life (14). They must feel comfortable there and have a sense of belonging. They also need to be allowed to move around and carry out their jobs. They require social, physical, and psychological congruence, in other words. A comfortable and functional home can offer all of these.

In this study, living place had a significant effect on the physical, psychological, social, and environmental QOL of the elderly participants, which emphasizes the importance of living place for good QOL. The elderly living in their own home had the highest scores for the physical, psychological, and environmental QOL domains because the home environment best met their needs.

The care of the elderly involves several elements, and it is crucial to be aware of their wants and expectations. Most adult children undertake the burden of caring for the elderly since it is seen as a natural obligation to do so (15). The family, and particularly adult children, have traditionally played a major role in providing old age care and support in Thailand and many other Asian nations, including Malaysia. This standard may be altered, though, by social, economic, and political changes, such as the expansion of the scope of pension and welfare programmes. A new tendency in the modern world is the diminution of the family's responsibility for caring for the elderly (14). To address the needs and concerns of the aged, government, non-governmental, and religious organisations have created programmes and services.

In this study, even after controlling for age and medical condition, multivariate analysis revealed that living place had a substantial impact on the physical, psychological, social, and environmental QOL of the elderly. Overall, the elderly living at home got the best ratings for their physical, social, and environmental QOL, while those

living in pondoks had the best ratings for their psychological QOL. The elderly residing in nursing homes received the lowest QOL domain scores.

Elderly who reside at home are more self-sufficient. The children's emotional support appears to be crucial for sustaining the elderly's physical and mental health (16). In elderly persons, loneliness increases the risk of physical inactivity, exhaustion, and cognitive decline (17). Elderly people need companionship, a safe and supportive environment, independence and freedom, affection and care with health changes, and assistance with financial necessities (14).

Getting old means that a person gradually is getting closer to death. An elderly person who chooses to live in a pondok begins to look forward and prepare him or herself for death with spiritual knowledge, and they learn to be content with what they have (18). This explains why pondok residents had the highest score in the psychological QOL domain, even though they had the highest prevalence of self-reported medical illness. Pondok respondents also had highest prevalence of fall, while own home respondents had highest prevalence of urinary incontinence (19). Pondok residents generally believe that life is predestined and that everyone must accept growing old. An elderly person can maintain good health by living in a pondok where group prayers are held.

Admission to a public old folks' home falls under the ministry of Social Welfare, and it is the last resort for elderly people who do not have heirs or their own home and those who are destitute. Living in an old folks' home had a significant negative effect on QOL, as these respondents had the lowest scores for all QOL domains. Old folks' home older people had the highest prevalence in three out of five Geriatric Giants. They had highest prevalence of dementia, instability and immobility (19). Admission into the old folks' home for the respondents



was not voluntary, as moving into such an institution meant loss of freedom and independence (14). Even while nursing care, housing, counselling, mentoring, occupational rehabilitation, devotional facilities, recreational activities, and medical care are provided by old folks' homes (20), these services did not translate to a high quality of life compared to other places to live.

In this study, the majority of the elderly in old folks' homes were female, currently not married, and had fewer children and a low education level. This finding was in line with results of a study of risk of institutionalization, in which less education, being single, and having fewer family members were significantly associated with long-term care (21). Furthermore, the elderly living in old folks' homes were unemployed and living under the poverty line, which contributed to low QOL. Another study reported that predictors for institutionalization were low education, low income status, and male gender (22).

### **Conclusion**

Living place had a significant effect on the QOL of the elderly in this study. Those living in their own home had the best QOL, followed by those living in a pondok. Elderly people living in an old folks' home had the worst QOL.

### **Recommendation**

We recommend elderly should stay at their own home environment to maintain their quality of life. Developer for old folks' home facilities should take the home environment to be consider in their development. The hostel type old folks' home is not suitable anymore for elderly to maintain their quality of life to the end. Further study needs to be done to explore more details on the specific environment that will give good quality of life for the elderly.

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### **Competing interests**

The authors declared no conflict of interest.

### **Ethical Clearance**

The Human Research Ethics Committee of Universiti Sains Malaysia gave its approval (Ref: USMKK/PPP/JEPeM[264.3(6)]). Respondents were informed about the study's methodology and offered the

choice to participate after receiving the necessary information. All participants received written consent forms once the respondents gave their approval to participate. All information was kept private, and no third parties would ever receive access to personal information. In this study, only group data will be published. Prior to gathering data, permission from the institutions taking part in this study was acquired.

### **References**

1. Department of Economic and Social Affairs, Population Division United Nations. World Populations to 2300. Report. 2004.
2. Conference RM-21st PC, Kyoto. Socio-economic characteristics of elderly in Malaysia. 2003.
3. Dahlan A, Nicol M, Maciver D. Elements of Life Satisfaction amongst Elderly People Living in Institutions in Malaysia: A Mixed Methodology Approach. Hong Kong J Occup Ther HKJOT. 2010;20(2):71-9.
4. Seman K, Abdul Manaf H, Ismail A. Dental caries experience of elderly people living in Pondok in Kelantan. Arch Orofac Sci. 2007;2(2014):20-5.
5. Netuveli G, Blane D. Quality of life in older ages. 2008.
6. Judith M, Brian J. 2000. Quality of life in assisted living homes: A multidimensional analysis. 2002.
7. Ng SL, Zhang Y, Ng KH, Wong H, Lee JWY. Living environment and quality of life in Hong Kong. Asian Geogr. 2018;35(1):35-51.
8. Rosner B. Fundamentals of Biostatistics. 8<sup>th</sup>ed. USA: Cengage Learning. 2016.
9. Chan SWC, Chiu HFK, Chien WT, Thompson DR, Lam L. Quality of life in Chinese elderly people with depression. Int J Geriatr Psychiatry. 2006;21(4):312-8.
10. Yao G, Chung C, Yu C. Development and verification of validity and reliability of the WHOQOL-BREF Taiwan version. 2013.
11. Hasanah CI, Naing L, Rahman ARA. World Health Organization Quality of Life Assessment: Brief version in Bahasa Malaysia. Med J Malaysia. 2003;58(1):79-88.
12. IBM Corp. Released 2011. IBM SPSS Statistics for Windows. 2011.
13. Norsa'adah B. Analysis of Variance. 1<sup>st</sup> Ed. Kota Bharu Kelantan, Malaysia: Pustaka Aman Press Sdn Bhd. 2011.
14. Akil SS, Abdullah S. Developing quality care facilities and programs for elderly people: a Malaysian experience. 2013.
15. Knodel J, Kespichayawattana J, Wivatvanit S, Saengtienchai C. The future of family support for Thai elderly: Views of the populace. J Popul Soc Stud. 2013;21(2):110-32.

16. Zunzunegui MV, Béland F, Otero A. Support from children, living arrangements, self-rated health and depressive symptoms of older people in Spain. *Int J Epidemiol.* 2001;30(5):1090-9.
17. Gine GM, Jerez RJ, Coll PL, Laura S, Dawn AI, Marco B, et al. Is loneliness a predictor of the modern geriatric giants? Analysis from the survey of health, ageing, and retirement in Europe. *Maturitas.* 2021;144:93-101.
18. Riji HM, Older persons in pondok and community: keeping positive and healthy the Kelantanese way. 2008.
19. Hami R, Hashim MH, Abdul Kadir A, Che Ismail H, Bachok N. Prevalence of Geriatric Giants Among Older People in Kelantan Malaysia. *Malaysian J Med Heal Sci.* 2019;15(2):2636-9346.
20. Sim OF. Ageing in Malaysia: National Policy and Future Direction. 2001.
21. Wu CY, Hu HY, Huang N, Fang YT, Chou YJ, Li CP. Determinants of long-term care services among the elderly: A population-based study in Taiwan. *PLoS One.* 2014;9(2). e89213.
22. Luppá M, Luck T, Weyerer S, König HH, Brähler E, Riedel-Heller SG. Prediction of institutionalization in the elderly. A systematic review. *Age Ageing.* 2009;39(1):31-8.