Healthy Ageing and Its Determinants among Community-Dwelling Older Persons in East Coast, Malaysia: A Multidimensional Assessment

Suriawati Ghazali¹* and Aniza Abd Aziz²

¹School of Nursing Science, Faculty of Medicine, Universiti Sultan Zainal Abidin, Terengganu, Malaysia
²Faculty of Medicine, Universiti Sultan Zainal Abidin, Terengganu, Malaysia

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*Corresponding author: suriawati@unisza.edu.my
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Abstract

Objectives: The possibility that older persons can nonetheless age healthily is essential to be explored. The current assessment meets the public health goal of optimal health for the growing older population. This study aims to determine the prevalence, pattern and determinants of healthy ageing among older persons in Terengganu, Malaysia.

Methods: A community-based cross-sectional study was undertaken involving older persons aged 60 years and over. An interviewer-guided questionnaire, anthropometric measurements, and physical assessments were applied. Healthy ageing was operationalised based on a multidimensional concept.

Results: Overall, 14.1% (CI: 11.6-16.6) of older persons (n=765) were classified as healthy agers. The Multiple logistic regression analysis showed that superior intrinsic religiosity (OR 3.4, 95% CI: 1.34, 8.73), higher social interaction (OR 2.8, 95% CI: 1.32, 6.04), larger calf circumference (OR 2.1, 95% CI: 1.24, 3.38), taking water intake ≥ 5 cups per day (OR 2.0, 95% CI: 1.23, 3.30), better gait speed (OR 1.7, 95% CI: 1.04, 2.80), having savings (OR 1.7, 95% CI: 1.10, 2.66), and normal waist circumference (OR 1.6, 95% CI: 1.04, 2.55), were found positively related to healthy ageing.

Conclusions: Only one in ten older persons in the state met all the criteria for healthy ageing. Specific aspects of religious status, social interaction, socioeconomic, behavioural, physical, and nutritional, have predicted healthy ageing in this population. These important determinants should be considered for a well-defined and comprehensive public health policy towards a healthy ageing nation.

Keywords: healthy ageing; prevalence; predictors; determinants; older person

Introduction

The world demography is shifting to an era of population ageing, and it has been identified as one of the five global "megatrends"¹. An increase in the average life expectancy worldwide and a continuous decline in fertility and mortality rates caused a significant shift in the global ageing population.²³ Without exception, Malaysia has transitioned into an ageing society⁴ and is forecasted to be an aged nation by 2030. Indeed, older persons are the most vulnerable groups to disease and disability⁵ which leads to an increased disease burden⁶ as well as higher demand for health services.⁷ The care for the aged population also produces a great and critical challenge to the family and society at large.⁸⁹ Thus, promoting the health and
well-being of older persons is highly relevant. The forefront of efforts is to improve their quality of life even at a late age.

The prevalence and definitions of successful or healthy ageing varied between studies. The concept of healthy ageing has moved from a classic definition that focuses on a biomedical approach to multidimensional models. Based on the classic model, people who aged successfully score positively on three indicators, including, being free of illness or disability (and having no risk factors), possess a high degree of physical and cognitive functioning and active engagement in social and productive activities.

Nevertheless, it has been emphasised that being free of diseases was not the most important component in the concept of healthy ageing as ageing was the cause of age-related chronic diseases and people with chronic illnesses also can be aged healthily. It was indicated that many older persons have one or more health conditions that are well controlled and have no effect on their ability to function, and this confirms that healthy ageing does not mean "without disease". Several domains have been considered to qualify the older person as a healthy ager. The most studied domains are whether the older persons have major diseases and their ability in physical function, cognitive function, emotional function and social or productive engagement.

Various variables have been studied as predictors of successful or healthy ageing including demographic factors such as age, gender, educational level, and marital status, behavioural factors including physical activity, smoking status and dietary habit, economic factors such as income, social factors including social connectedness, community activity, religious activity, strong religious belief, independence and positive self-perception of health as well as life satisfaction. Studies on healthy ageing have been conducted in a variety of settings, and the findings suggest that cultural background, age, and gender influence the prevalence and predictors of healthy ageing. Thus, it is essential to examine the factors that contribute to healthy ageing in local cultural or social contexts.

A paradigm shift in viewing older people's health is essentially required. While many definitions of healthy ageing have been developed, to date, there is no established definition or specific criteria to define and measure determinants for healthy ageing for non-western countries in the current literature. There remains a need for a consensus of concise indicators for a universal healthy ageing concept and its factors. Therefore, the present study aims to determine the prevalence and the determinants of healthy ageing using a multidimensional construct among older persons who are not completely free of disease.

**Methods**

A cross-sectional survey was conducted among 765 Malaysian community-dwelling older persons aged 60 years either with or without comorbidities. Nonetheless, those who were dependent such as older persons who were severely frail, had severe cognitive impairment, were mentally disabled, had a severe sensory impairment, and were bedridden were excluded. Older persons who were living in institutions were also excluded. A two-stage cluster random sampling method was applied. Initially, all eight districts in the state were chosen. Subsequently, we randomly chose a sub-district from each district. At the final stage, all individuals who fulfilled the inclusion and exclusion criteria within each selected sub-district and were available during the data collection period were included in the study.

The sample size was calculated using the single proportion formula assumes the nearest estimation proportion of healthy older persons in Malaysia and two proportion formulas using the PS software considering variables that were found to be important and documented as significant determinants with available reference parameters in the literature which is physical activity. The final calculated sample size was 765 based on the latter objective after considering the cluster effect.

Health programs involving community-dwelling older persons were conducted as platforms to gather the data in the selected sub-districts between October 2019 and February 2020. Participants who consented to participate in this study were screened for mood and cognitive status, followed by an interview, anthropometric measurement and physical assessment. The interviewer-guided session was conducted using a standardised questionnaire by trained enumerators. The respondents' comorbidities of chronic illnesses were self-reported and verified with either their relative and/or medical card.
The tools used in this study comprised questionnaires, anthropometric measurements and physical assessments. In the first section, all the explanatory variables, including sociodemographic characteristics, economic characteristics, physical and social living support, and behavioural status were obtained using questionnaires. In addition, the nutritional status was assessed by Mini Nutritional Assessment (MNA)®, religious status was obtained using Duke University Religion Index (DUREL), and social status was obtained by nine items on social and community involvement.

Meanwhile, the second section covers items assessing the dependent variable. The healthy ageing status was operationalised based on the multidimensional criteria set by previous scholars. The participants were classified as healthy agers (HA) and usual agers (UA). Healthy agers are those participants who fulfilled all five criteria: 1) Presence of optimal health of common comorbidities such as controlled and stable hypertension, diabetes, heart disease, stroke, cancer and chronic lung disease; 2) Satisfactory physical functioning; 3) Satisfactory cognitive functioning; 4) good mood status; and 5) well social functioning. Meanwhile, usual agers (UA) refers to participants who are able to meet less than five criteria. Usual agers reflect older persons with common or ordinary status or having typical physical, emotional, cognitive, and social function. Table 1 describes the tool and criteria of healthy ageing.

All these tools in the Malay version were pre-tested and validated by previous researchers, while nine items on social function and community involvement which consists of membership, activity involvement and social interaction, were newly developed and validated. The nutritional and physical status of the participants including waist circumference, calf circumference, gait speed, and handgrip strength were also obtained. Anthropometric measurements and physical assessments were carried out by trained researchers and personnel using standardised protocols.

Table 1: Description of healthy ageing criteria.

<table>
<thead>
<tr>
<th>TOOL &amp; INDICATOR</th>
<th>Optimal health</th>
<th>Physical function</th>
<th>Mood status</th>
<th>Cognitive function</th>
<th>Social function</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>DOMAIN</strong></td>
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</tr>
<tr>
<td><strong>TOOL &amp; INDICATOR</strong></td>
<td><strong>Optimal health</strong></td>
<td><strong>Physical function</strong></td>
<td><strong>Mood status</strong></td>
<td><strong>Cognitive function</strong></td>
<td><strong>Social function</strong></td>
</tr>
<tr>
<td><strong>a.</strong> Mean systolic blood pressure &lt;140 mmHg and mean diastolic blood pressure &lt;90 mmHg**</td>
<td>Malay Katz ADL with score of 5 to 6**[44]** and Lawton Instrumental Daily Living Activity with a score of 5 in men or 8 in women**[45]**</td>
<td>Malay Geriatric Depression Scale (GDS) of &lt;5**[46]**</td>
<td>Malay Elderly Cognitive Assessment Questionnaire (ECAQ) score of ≥4**[47,48]**</td>
<td>Medical Operating System Social Support Survey (MOSSS) score of ≥62**[49]**</td>
<td></td>
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<tr>
<td><strong>b.</strong> Fasting capillary glucose level of ≤7.0 mmol/L or postprandial ≤8.5 mmol/L**</td>
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<td></td>
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<tr>
<td><strong>c.</strong> No self-reported of compromised functions due to underlying chronic diseases* and its complications.**</td>
<td></td>
<td></td>
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<td></td>
<td></td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>CRITERIA*</th>
<th>Controlled comorbidities' status</th>
<th>Satisfactory physical function in activity daily living.</th>
<th>No depression</th>
<th>No cognitive disability</th>
<th>Satisfactory social function</th>
</tr>
</thead>
</table>

* Six major diseases include hypertension, diabetes, heart disease, stroke, cancer and chronic lung disease
**Healthy agers = fulfil 5 criteria, Usual agers = fulfil 1, 2, 3 or 4 criteria only
All analyses were carried out using Statistical Package for Social Sciences (SPSS) software version 25.0. Descriptive statistics were used to describe the sociodemographics of the participants. Percentage and 95% CI were applied to estimate healthy agers’ prevalence. The determinants for healthy ageing status were initially screened using simple logistic regression with a significance value set at $p<0.25$ and later multivariable logistic regression, with a significance value at $p<0.05$.

A total of 41 independent variables under eight factors including demographic (i.e. age, gender, educational level, marital status, employment status, etc), economic (i.e. income, number of children, savings, property ownership etc), behavioural (i.e. diet consumption of protein, fruits and vegetable consumption, daily water intake, smoking habit, sleep duration, indoor activity and leisure activity etc), nutritional (i.e body mass index, calf circumference, waist circumference etc) and physical status (i.e. handgrip strength and walking speed), social (i.e. living arrangement, pet ownership, status of caregiver during ill, own bedroom etc) and physical living support (i.e. use of cell phone, use of computer, use of ICT application, safety living environment) and religiosity (organizational religious activity, non organizational religious activity, intrinsic religiosity) were tested as candidate predictors of healthy ageing.

Approval to conduct this study was obtained from the Terengganu State Government i.e., Institut Modal Insan Terengganu Sejahtera (i-MiTS) (i-MiTS.TR.450/10/2),(9) and the Human Ethics Committee of UniSZA.C/2/UHREC/628-2 Jld 2.11

Results

A total of 765 respondents were used in the final data analysis with a 100% response rate. Of the overall sample (n=765), there were much higher female respondents (64.1%) compared to their male counterparts. Their ages ranged from 60 to 88 years, with a mean age of 67.7 (SD=5.80) years old. The highest proportion (41.7%) were among the young-old age group (60 to 64 years), whilst only 0.3% of respondents were in the oldest-old group (85 years or over).

Based on the criteria and measures adopted, 14.1% (95% CI=11.64% to 16.59%) of the respondents were healthy agers. About 39.0%, 37.0% and 9.0% have met four, three and two out of five healthy ageing criteria, respectively (Figure 1), while only 1.0% met one criterion of healthy ageing. The healthy ageing status and corresponding detail percentages according to the criteria of healthy ageing are presented in Table 2.

Table 2: Prevalence of healthy ageing according to its multidimensional criteria (n = 765).

<table>
<thead>
<tr>
<th>Healthy ageing</th>
<th>n (%)</th>
<th>95% confidence interval</th>
</tr>
</thead>
<tbody>
<tr>
<td>The individual criterion of healthy ageing:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. Presence of optimal health of common comorbidities</td>
<td>240 (31.4)</td>
<td>28.08, 34.67</td>
</tr>
<tr>
<td>2. Satisfactory physical functioning (ADL/IADL)</td>
<td>548 (71.6)</td>
<td>68.43, 74.84</td>
</tr>
<tr>
<td>3. Good mood status (GDS)</td>
<td>684 (89.4)</td>
<td>87.23, 91.60</td>
</tr>
<tr>
<td>3.4. Satisfactory cognitive functioning (ECAQ)</td>
<td>765 (100.0)</td>
<td>100.0, 100.0</td>
</tr>
<tr>
<td>4. Well social functioning (MOSSSS)</td>
<td>500 (65.4)</td>
<td>61.98, 68.74</td>
</tr>
<tr>
<td>Healthy ageing status using all criteria:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Healthy agers (fulfil all 5 criteria)</td>
<td>108 (14.1)</td>
<td>11.64, 16.59</td>
</tr>
<tr>
<td>Usual agers (fulfil less than 5 criteria)</td>
<td>657 (85.9)</td>
<td>-</td>
</tr>
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</table>

About a quarter (31.4%, CI: 28.1, 34.7) of respondents confirmed the presence of optimal health for six common major diseases. Of the six major diseases, 31.4% of the respondents had one disease, 31.0% had two to three diseases, and 0.5% had more than three diseases. The most prevalent major chronic diseases were uncontrolled high blood pressure (55.4%), followed by uncontrolled diabetes mellitus (31.6%), whilst 0.3% were suffering from cancer, respectively. A high percentage of respondents (89.4%, CI: 87.2, 91.6) met the criteria of good mood status and satisfactory physical functioning (71.6%, CI: 68.4, 74.8), respectively. All respondents reported having satisfactory cognitive functioning (100%). Almost two-thirds (65.4%, CI: 61.9, 68.7) of them met the social functioning criterion.
Variables were screened using simple logistic regression to identify potential predictors. 20 out of 41 variables were statistically significant and identified in the univariable analysis with a $p$-value less than 0.25. The variables were: sociodemographic characteristics (gender, marital status); socioeconomic factors (number of children, savings); physical living support characteristics (use of cell phone, use of ICT application); religiosity (organisational religious activity (ORA), non-organization@private religious activities (NORA), intrinsic religiosity (IR)), membership and social interaction, behavioural characteristic (daily water intake, protein intake, daily indoor activity, recreational leisure activity, sleep duration); nutritional status (body mass index (BMI), waist circumference (WC), calf circumference (CC)) and physical status (gait speed). These significant variables were then analysed by multivariable logistic regression analysis.

Initially, the forward logistic regression yielded eight significant potential predictive variables. However, in the backward elimination model, a total of seven out of eight predictor variables were found to be statistically significant, excluding body mass index. Finally, the significant variables for predicting healthy ageing status were savings, water intake, calf circumference, waist circumference, gait speed, social interaction, and intrinsic religiosity (Table 3).

**Table 3**: Associated factors for healthy ageing status using multiple logistic regression ($n = 765$).

<table>
<thead>
<tr>
<th>Variable</th>
<th>Crude OR$^a$ (95% CI)$^c$</th>
<th>Adj. OR$^b$ (95% CI)$^d$</th>
<th>Wald statistics (df $^e$)</th>
<th>$p$-value</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Savings</strong></td>
<td></td>
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<tr>
<td>· No</td>
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<td></td>
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<tr>
<td>· Yes</td>
<td>1.69 (1.10, 2.58)</td>
<td>1.71 (1.10, 2.66)</td>
<td>5.561 (1)</td>
<td>0.018</td>
</tr>
<tr>
<td><strong>Water intake</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>· &lt; 5 cups per day</td>
<td></td>
<td></td>
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<td></td>
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<tr>
<td>· ≥ 5 cups per day</td>
<td>1.78 (1.11, 2.86)</td>
<td>2.01 (1.23, 3.30)</td>
<td>7.671 (1)</td>
<td>0.006</td>
</tr>
<tr>
<td><strong>Calf circumference</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>· At risk</td>
<td>1.80 (1.16, 2.79)</td>
<td>2.05 (1.24, 3.38)</td>
<td>7.875 (1)</td>
<td>0.005</td>
</tr>
<tr>
<td>· Not at risk</td>
<td></td>
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</tbody>
</table>
### Waist circumference (cm)

- **At risk**: 1.77 (1.17, 2.68)
- **Not at risk**: 1.63 (1.04, 2.55)

### Gait Speed

- **At risk**: 1.66 (1.04, 2.64)
- **Not at risk**: 1.71 (1.04, 2.80)

### Social interaction

- **Unsatisfactory**: 3.00 (1.42, 6.31)
- **Satisfactory**: 2.82 (1.32, 6.04)

### Intrinsic religiosity

- **Unsatisfactory**: 3.57 (1.42, 8.98)
- **Satisfactory**: 3.42 (1.34, 8.73)

\*Odds ratio  \*Confidence interval  \*Simple logistic regression, \*Multiple logistic regression  \*Degree of freedom

The model reasonably fits well. Model assumptions are met. There was no significant interaction, multicollinearity problem and outliers detected.

### Discussion

With a growing older population, interest in and importance of ageing research is increasing and healthy ageing has become an important theme for the world. The phrase is frequently interchanged with concepts such as “active,” “successful,” and “productive” ageing. In contrast to “successful ageing” or “anti-ageing” discourses, which focus on the prevention of disease or the ageing process, healthy ageing captures the essence of physical and cognitive functional preservation despite the presence of health problems. It has been highlighted that applying multidimensional criteria to identify the older ageing population in a better condition could be more informative than focusing on unidimensional health outcomes.

This study was conducted to identify the determinants associated with healthy ageing among community-dwelling older persons in east-coast Malaysia, Terengganu, from a multidimensional approach. To our knowledge, this is a pioneer study to consider the presence of major diseases with optimal health to be qualified as healthy, whilst others excluded them or included them based on the number of major diseases they have suffered. The current strategy tried to move away from highlighting multimorbidity but focused on how elders function in their surroundings while managing their illnesses.

The current findings among community-dwelling elderly are comparable to the results of successful ageing among Norwegians (14.5%) but slightly higher than those studies on older Koreans (13.3%) and Americans, which accounted for 11.9%. Nevertheless, it was lower compared to senior Singaporean citizens' healthy ageing status (25.4%; 28.6%). As opposed to other local studies, which also applied multidimensional criteria for successful ageing reported healthy ageing prevalence at 11% and 13.8% respectively, the present prevalence was slightly higher. Likewise, the results of this study seemed to be higher than older Nigerians, who make up 7.5%, Taiwanese (10.4%), Iranians (11.2%), and Dutch older persons (10.0%) that employed criteria that were more subjective and focused on psychosocial aspects.

It was discovered that substantial variability in successful and healthy ageing prevalence has been reported mostly depending on the criteria/indicator used to define healthy ageing. Most studies using restrictive criteria excluding major diseases as indicators for identifying healthy ageing status have shown a lower prevalence. The result seems possible due to the multidimensional criteria applied to describe the healthy ageing status. Another possible explanation for the low prevalence of healthy ageing findings is that it seems commensurate with the fact that the prevalence of disease and disability is higher among older persons, as the majority (62.9%) of the participants suffered from at least one chronic disease. Additionally, there may be a discrepancy due to different response of study population based on their cultures and value systems of what constitutes healthy ageing.
In the absence of a single gold standard for the measurement of healthy ageing, this study has constructed a solid assessment comprising multidimensional criteria, namely physical, including health diseases and activities of daily living, mood status, cognitive and social components as evidenced by the previous researchers for defining an accurate healthy ageing status in this study. A multidimensional concept applied to define healthy ageing in the present study is consistent with the World Health Organization's (WHO) definition of healthy ageing as "the process of promoting and maintaining functional capacity that allows well-being in old age". Functional ability refers to having the mental and physical capacities that allow older persons to function i.e., meet basic needs, make a decision, build and maintain relationships and make contributions.

The results of the present study indicated that intrinsic religiosity contributed the most towards healthy ageing than other factors (OR=3.57). Previous studies supported the favourable impact of spirituality and religiosity on the well-being and coping of patients with chronic diseases. Majority of existing participants were Malay Muslims, apt to be more religious and engaged in religious activities as they get older. Muslims normally endure diseases by praying, meditating and being patient which results in positive thinking and resilience. The Muslim respondents considered illness, suffering, pain and death as tests from God and regarded illness as a means of expunging one's sins.

Furthermore, the participants in this study with satisfactory social contact were found to be healthier as compared to their counterparts. Older persons who have continuous interaction with others will have more positive health indices associated with healthy ageing as well as enhanced their level of health-related quality of life. In addition, the present study revealed that savings were significantly associated with healthy ageing status. It was found that financial issues can affect older persons' mental health and become a significant source of stress for many older persons. Furthermore, financial constraints have a significant impact on psychological health and well-being and may contribute to poor nutrition, mobility, functional status, and cognitive status. The importance of financial security in later life is underscored by the fact that older persons are more susceptible to morbidities, with some having neither a pension nor passive income. Older persons with more financial resources can access to better preventive and tertiary care.

Besides, a positive and significant relationship between gait speed and healthy ageing status signified that older persons who are physically competent have a better chance of being healthy than their at-risk counterparts. Older persons with delayed gait speed are at risk for physical frailty. Walking and physical activity is highly promoted among older persons as it is positively associated with good physical and functional well-being, as well as enhanced mood, better mental health and proprioception preservation. In addition, gait speed has been proven reliable and sensitive in detecting frailty status and sarcopenia. Calf circumference was highly associated with nutrition status, diagnosis of sarcopenia and frailty. The present results found that older persons who are not at risk for malnutrition have a better chance of being healthy than their at-risk counterparts. It reinforced research findings that a smaller calf circumference is linked to poor physical function while a larger calf circumference is associated with better skeletal muscle mass, physical performance and strength. Muscle mass plays a big role in musculoskeletal strength and mobility in maintaining independence in older age.

Consistent with other studies, the present study found a positive relationship between normal waist circumference and healthy ageing status. The support results of other studies that discovered waist circumference was an accurate method for predicting general health, and those with abdominal obesity are more likely to score lower healthy ageing score. The elderly with high waist circumference or obesity were more likely to suffer multimorbidity. Cardiovascular diseases such as diabetes, osteoporosis, arthritis and mortality. Hence, it can be concluded that both nutritional indicators i.e. normal calf and waist circumference were positively associated with healthy ageing status.

Fluid intake is rarely considered in the evaluation of dietary intake, even though it is a critical component of optimal metabolic function and nutritional status. There has been minimal research addressed fluid intake among older persons and most studies are focused on adolescents or children and adults. To our
knowledge, no other studies have included measures on water intake towards healthy ageing, thus, limiting comparisons across populations. This study acknowledges the importance of daily fluid consumption for the elderly. Adequate hydration ensures the appropriate function of the kidney, brain and mood. Hence, this study is presumably the first to suggest that adequate daily water intake predicts the healthy ageing status of the older person.

The main strength of this study is the multidimensional criteria used to define healthy ageing, which offers a holistic approach to healthy ageing. Furthermore, the predictors associated with healthy ageing revealed include components such as water intake, savings, and intrinsic religiosity, which have not previously been addressed. The existing local studies have included retrospective data from a national survey and a longitudinal study, while the present study used a community-based cross-sectional study to determine the prevalence and associated factors of healthy ageing. This study adds valuable data on participants in Terengganu, mainly for community settings. In addition, the large study sample and the recruitment of participants from eight districts within one locality contribute to a better representation of the population and perhaps provide more accurate results.

This study excluded fragility from the concept of healthy ageing assessment because healthy ageing seeks to optimise health and independence among older persons, and almost all successful or healthy ageing studies exclude frailty status in their criteria. Frailty is a condition that impairs older persons functioning, where they presented with low grip strength, low walking speed, low level of physical activity, self-reported exhaustion and unintentional weight loss. It is characterised by loss of muscle mass, reduced functional capacities and increased vulnerability to stressors.

In addition to health aspects, the major aspects of social, religious, economic, behavioural, physical, and nutritional status were found to be the most significant in determining the health status of older persons. Healthy ageing policy should consider a wider multidimensional health outcome approach to optimize opportunities for older person's health, social participation and security.

Strengthening existing prevention initiatives for older persons is vital to support successful, healthy, and active ageing. Health promotions on active lifestyles are highly recommended, especially during the International Day of Older Persons celebration on the first of October each year to honour the nation's elders.

It is suggested that policies and rules for retirement, continued paid work, pensions and other income to support older age be considered. Malaysian policymakers and authorities should consider active ageing policies that employ older persons into the workforce because this group has significant experience and expertise and can contribute ideas and guidance for future generations. Policy to support older adults to remain in the workforce, specifically with reduced working hours, part-time work, job-sharing, and working from home, can benefit from flexible working practices.

Conclusion

In conclusion, older persons who consistently demonstrate high motivation and commitment towards religion, maintain access to others within their environment, practice good nutritional status, consume adequate water intake, preservation of good physical status, have secured savings and maintain a healthy weight, are much more likely to be ageing healthily as defined by this study concept. Identifying the predictors for healthy ageing among Malay older persons will enhance understanding of the differences in the health and healthy ageing of older persons with a Malay cultural background. These study findings may guide local healthcare providers in helping Malaysian older persons to build up positive attitudes and promote greater adaptability towards ageing despite the challenges of old age. It also will further shape the intervention programmes for healthy ageing. Future studies should replicate the study with diverse populations to continue to refine a definition of healthy ageing that could influence program development and intervention approaches in health and social services.
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