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Active Engagement and Health Status of Older Malaysians: Evidence from a Household Survey

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ABSTRACT

Malaysia is undergoing rapid age structural shift to becoming an ageing nation by 2030 when 14% of its population will be aged 60 and over. Population ageing strains the healthcare system due to the rapid rise in non-communicable diseases and poses enormous challenges in providing social protection. Health promotion can ameliorate these twin problems through the active engagement of older adults in the labour force and social activities. This paper used data from the 2014 Malaysian Population and Family Survey (MPFS) to study the factors associated with active engagement in social and economic activities, and the health status of older adults. The survey covered a nationally representative sample of 4,039 older Malaysians aged 60 and over. SPSS was used to perform bivariate and multivariate analyses. About one-quarter of older Malaysians are still working, and three-quarters participate in religious activities, but a small proportion is involved in NGO/community activities and regular exercise. Males are more active than females in all these activities. The majority perceived themselves to be in good or moderately good health. Active participation in social, economic, religious, and physical activities was positively associated with health. Given the relatively low level of labour force participation and social activities among older Malaysians, there is a need

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for intervention strategies to encourage and facilitate the active engagement of older adults to reduce their health problems and increase self-reliance for a better quality of life.

Keywords: Active engagement, ageing, exercise, religious and community activities, self-rated health

INTRODUCTION

Malaysia is turning into an ageing nation by 2030 when 14% of its population will be aged 60 and over. In 2020, the older population aged 60 and older made up 10.7% of the Malaysian population and was projected to increase to 23% by 2050 (Department of Statistics Malaysia [DOSM], 2016; Department of Economic and Social Affairs of United Nations, 2019). The life expectancy at age 60 is 18.4 years for males and 21.2 years for females (DOSM, 2020). The ageing population is accompanied by a rise in non-communicable diseases (NCDs). The mounting burden of NCDs alongside a fast-growing older population strains the healthcare infrastructure and social protection systems (Mohd Tobi et al., 2017). The Pension (for civil servants) and Employee Provident Fund (EPF) cover less than two-thirds of adults aged 60 and older. These schemes are inadequate to meet older adults' financial needs, especially considering the erosion of family support due to the shrinking family size (Mohd Jaafar et al., 2021). Most older Malaysians depend on their adult children for care and support (Evans et al., 2018). However, as the fertility rate has declined to less than two children per woman since 2013, from more than four children in the previous generations (DOSM, 2021), older adults will have fewer children to depend on. The inadequate financial resources force some older adults to continue working to support themselves and their dependents. All stakeholders need to address the challenges population ageing brings to foster healthy ageing and improve the lives of older adults and their families (World Health Organization, 2020).

The Malaysian Government adopted the National Policy for the Elderly in 1995 and revised it as the National Policy for Older Persons in 2011. The Tenth Malaysia Plan (2011–2015) emphasised ensuring the health and well-being of older adults to age with dignity and lead independent and fulfilling lives as integral members of society. Furthermore, to improve employment opportunities for older adults, the Government provided a 100% tax rebate on costs to retain older adults (*Tenth Malaysia Plan*, 2010).

Numerous studies on population ageing have shown that older adults' active engagement in work, exercise, and social and religious activities is strongly associated with good health (Celidoni et al., 2017; Dave et al., 2008; Hammerman-Rozenberg et al., 2005; Hein et al., 1992; Shiba et al., 2017; Sun & Lyu, 2020). Social activities are also crucial for older adults' health and overall well-being. Social engagement and productive activity are significantly associated with self-rated health (Zhang & Wu, 2017). Participation in social activities, such as voluntary work and cultural activities, represents a significant part of older adults' social contacts and

social connectedness (Toepoel, 2013). These social activities and regular contact with friends can lead to greater life satisfaction and well-being among older adults (Amati et al., 2018; Dupuis & Smale, 1995). Older adults' participation in religious activities is associated with longer life and better physical and mental health (Koenig, 2012; Lucchetti et al., 2011; Saffari et al., 2013; Zimmer et al., 2016). In addition, studies have shown that being active is positively associated with greater happiness and well-being (Menec, 2003; Winstead et al., 2014) and better cognitive functioning among older adults (Bourassa et al., 2017).

Regular physical activity, especially exercise, keeps the body healthy and energetic. In addition, higher physical activity levels can slow down the age-related decline in physical ability, especially among those aged 55 and above (Landi et al., 2018). Regular physical exercise contributes to better cognitive functioning and mental well-being, reducing stress, anxiety, and depression and improving sleep quality (Elmagd, 2016; Kadariya et al., 2019).

The Activity Theory of Aging posits that older adults who stay active and maintain social interactions are ageing more successfully than their inactive counterparts (Bengtson & Putney, 2009; Schulz, 2006). Active engagement enhances the quality of life and delays the ageing process. Furthermore, social relationships, consisting of family and friendship ties, promote social activities and provide access to social support (Cornwell et al., 2009). All these, in turn, positively impact health outcomes (Uchino, 2004; Uchino et al., 1999) and lower the risk for morbidity and mortality (Holt-Lunstad, 2018; Reblin & Uchino, 2008). This theory provides a conceptual framework for examining older adults active and healthy ageing factors.

Using a national survey, the present study examines the association between active engagement (in terms of religious, social, economic, and physical activities), health status, and background characteristics among older Malaysians. The association between active engagement and health may be bi-directional. Given that the data used in this study is cross-sectional, the findings do not imply any causality of the variables. The study seeks to reconfirm past findings of higher activity levels among older males than older females (Boerma et al., 2016; Carmel, 2019; Verbrugge, 1985, 1989; Waldron, 1983). It also tested the hypothesis that active ageing is positively associated with health, as evidenced in the literature reviewed above.

METHODS

The data for this study was drawn from the 2014 Malaysian Population and Family Survey (MPFS) conducted by the National Population and Family Development Board, Malaysia. The DOSM assisted in sample selection based on enumeration blocks (EBs) for the 2010 population and housing census. The sample was selected using a two-stage stratified sampling design. In the first stage, 2,889 EBs were selected, and 23,112 living quarters (LQs) were selected in the second stage for the survey.

Trained interviewers conducted personal interviews between September 1, 2014, to January 31, 2015. The published survey report provides a detailed description of the methodology (National Population and Family Development Board, 2016).

This study utilised data from 4,039 older adults aged 60 years and above in 2014 MPFS. The survey elicited information on socio-demographic characteristics, migration, marriage, work, income sources, financial management, and health status of older adults. The variables in this study included socio-demographic characteristics and factors related to active and healthy ageing in Malaysia. Active engagement is represented by current work status and engagement in religious activities, *Rukun Tetangga* (neighbourhood association or organisation), non-governmental organisation (NGO)/community activities, and exercise.

Current work status is a dichotomous variable indicating whether one is working or otherwise. Measurements of engagement in religious activities, *Rukun Tetangga,* NGO / community activities and exercise were coded into four levels of frequency: 1=Daily; 2=Weekly; 3=Monthly or less often; and 4=Never. These variables were presented in percentage distribution in Figure 1.

The measurements of engagement were also recoded into dichotomous variables, 0=Never and 1=Otherwise (including daily, weekly, monthly, or less often), and analysed as a proportion (percentage engaged in specific activity in cross-tabulations; Table 4) and binary logistic regression (Table 5). This study examined socio-demographic factors associated with participation in these activities, as opposed to never participating.

In addition, self-rated health was used to measure the health status of older adults. As this study tested the hypothesis that active ageing is positively associated with health, the self-rated health variable was coded into three levels: 1=Good; 2=Fair; and 3=Poor, to differentiate between the different levels of self-rated health (Tables 6 and 7). The socio-demographic variables in the analysis included gender, age, marital status, ethnicity, place of residence, and educational level. Measurements of engagement in religious activities, *Rukun Tetangga*, NGO/ community activities, and exercise were also included. Engagement measurements in four frequency levels were used to examine the effects of different frequency levels on self-rated health.

Self-rated health is a valid measure of health status and measures health in different socio-cultural research settings (Jylha, 2009; Teh et al., 2014). This single-item measure is inherently a multidimensional concept capturing dimensions of physical, functional, coping, and well-being, and can be a strong predictor of mortality (Cheng et al., 2002; DeSalvo et al., 2006; Jylha, 2009; Lee & Shinkai, 2003; Månsson & Råstam, 2001; Nishi et al., 2012; Simon et al., 2005; Su & Ferraro, 1997; Zajacova & Dowd, 2011).

All analyses were performed using SPSS version 26. Cross-tabulations with Chi-square tests were run to assess the significance of the bivariate association between the dependent variables and

independent variables. In addition, binary logistic and ordinal regressions were used to examine the factors associated with older adults active engagement and health status in the multivariate context. The cut-off level for statistical significance was set at $\alpha = .05$.

RESULTS

Respondents' Profiles

Table 1 shows the socio-demographic profiles of respondents by selected variables. Nearly two-thirds of the respondents were in their 60's, and most were still fit to continue working. About two-thirds of the older adults were married, and the rest were mainly widowed (28.4%). Due to the small proportion of never married, separated, and divorced, the marital status variable was regrouped into currently married and currently not married. The ethnic distribution corresponded closely with that of the population census. Slightly more than half of the respondents resided in urban areas. Nearly half of the older adults attained

Table 1
Respondents' profiles by gender

Variables	Both sexes		Male		Female	
	n	%	n	%	n	%
Total	4,039	100.0	1,825	100.0	2,214	100.0
Age group (years)						
60–64	1,575	39.0	687	37.6	888	40.1
65–69	1,121	27.8	536	29.4	585	26.4
70–74	703	17.4	331	18.1	372	16.8
75+	640	15.8	271	14.8	369	16.7
Marital status						
Never married	100	2.5	36	2.0	64	2.9
Married	2,713	67.2	1,616	88.5	1,097	49.5
Widowed	1,146	28.4	161	8.8	985	44.5
Divorced	65	1.6	9	0.5	56	2.5
Separated	15	0.4	3	0.2	12	0.5
Ethnic group						
Malay	2,614	64.7	1,154	63.2	1,460	65.9
Other Bumiputera	411	10.2	180	9.9	231	10.4
Chinese	732	18.1	373	20.4	359	16.2
Indian	282	7.0	118	6.5	164	7.4
Place of residence						
Urban	2,214	54.8	1,026	56.2	1,188	53.7
Rural	1,825	45.2	799	43.8	1,026	46.3
Educational level						
No formal education	829	20.5	157	8.6	672	30.4
Primary	1,995	49.4	938	51.4	1,057	47.7
Lower secondary	517	12.8	306	16.8	211	9.5
Upper secondary and above	698	17.3	424	23.2	274	12.4

primary education, and only about 17% had at least upper secondary education. A higher proportion of males attained at least upper secondary education than females (23.2% versus 12.4%).

Current Work Status

Table 2 shows the proportion of older adults currently working by selected variables. Overall, 23% of the older adults aged 60 and over were still working—13.7% among females and 34.0% among males.

Table 2
Percentage of older adults currently working by selected variables

Variables	Both sexes	Male	Female
Total	22.9	34.0	13.7
Age group (years)			
60–64	30.2	44.3	19.3
65–69	23.6	33.2	14.7
70–74	17.4	28.1	7.8
75+	10.0	17.0	4.9
Marital status			
Currently married	26.5	34.4	14.8
Currently not married	15.6	31.1	12.7
Ethnic group			
Malay	21.7	33.4	12.3
Other Bumiputera	33.8	42.8	26.8
Chinese	25.3	35.9	14.2
Indian	12.4	20.3	6.7
Place of residence			
Urban	18.1	25.6	11.6
Rural	28.7	44.8	16.2
Educational level			
No formal education	19.2	40.1	14.3
Primary	24.2	37.4	12.5
Lower secondary	28.8	34.6	20.4
Upper secondary and above	19.2	23.8	12.0

Among the males, the work rate declined from 44.3% among those aged 60-64 to 17.0% among those aged 75 and over. The corresponding figures for the females were 19.3% to 4.9%. Married individuals were likelier to continue working in old age than those not married. This differential may be explained by the older age structure of those not currently married (mainly widowed), as confirmed by the binary logistic regression results (Table 3). Across the ethnic groups, other Bumiputera males and females were more likely to continue working than others, while older Indians were least likely to work. Older adults in rural areas were more likely to be in the labour force than their urban counterparts, and the differential was more pronounced among males. The proportion currently working was inversely related to education for the males, but the pattern was somewhat erratic for the females. Older females with lower secondary education had a higher work rate than those from other educational categories.

The binary logistic regression (Table 3) shows that older females were 75% less likely to work than older males, even after all other variables were controlled in the model. The odds of working decreased sharply with age. Older adults who were not married were less likely to work than those who were married, but the relationship became insignificant after controlling other variables. This finding could be explained by the fact that the former (mainly the widowed) was older than the latter. Compared to the Malays,

Table 3
Binary logistic regression of current employment

Variables	Unadj. OR	95% CI	Adj. OR	95% CI
Gender	***		***	
Male (ref)	1		1	
Female	0.309***	(0.264, 0.360)	0.251***	(0.208, 0.302)
Age group (years)	***		***	
60–64 (ref)	1		1	
65–69	0.713***	(0.599, 0.850)	0.614***	(0.508, 0.741)
70–74	0.486***	(0.389, 0.608)	0.375***	(0.294, 0.477)
75+	0.257***	(0.195, 0.340)	0.192***	(0.142, 0.261)
Marital status	***			
Currently married (ref)	1		1	
Currently not married	0.514***	(0.433, 0.610)	1.055	(0.861, 1.291)
Ethnic group	***		***	
Malay (ref)	1		1	
Other Bumiputera	1.849***	(1.477, 2.315)	1.696***	(1.319, 2.182)
Chinese	1.224*	(1.011, 1.481)	1.537***	(1.242, 1.903)
Indian	0.513***	(0.356, 0.739)	0.626*	(0.424, 0.923)
Place of residence	***		***	
Urban (ref)	1		1	
Rural	1.821***	(1.570, 2.112)	1.835***	(1.541, 2.184)
Educational level	***		***	
No formal education (ref)	1		1	
Primary	1.346**	(1.101, 1.646)	0.828	(0.654, 1.048)
Lower secondary	1.706***	(1.319, 2.206)	0.835	(0.614, 1.136)
Upper secondary and above	1.001	(0.775, 1.293)	0.490***	(0.359, 0.670)
Constant	-		0.768	

Note. OR: odds ratio; CI: confidence interval; Wald test significance – ***p< .001, **p< .01, *p< .05

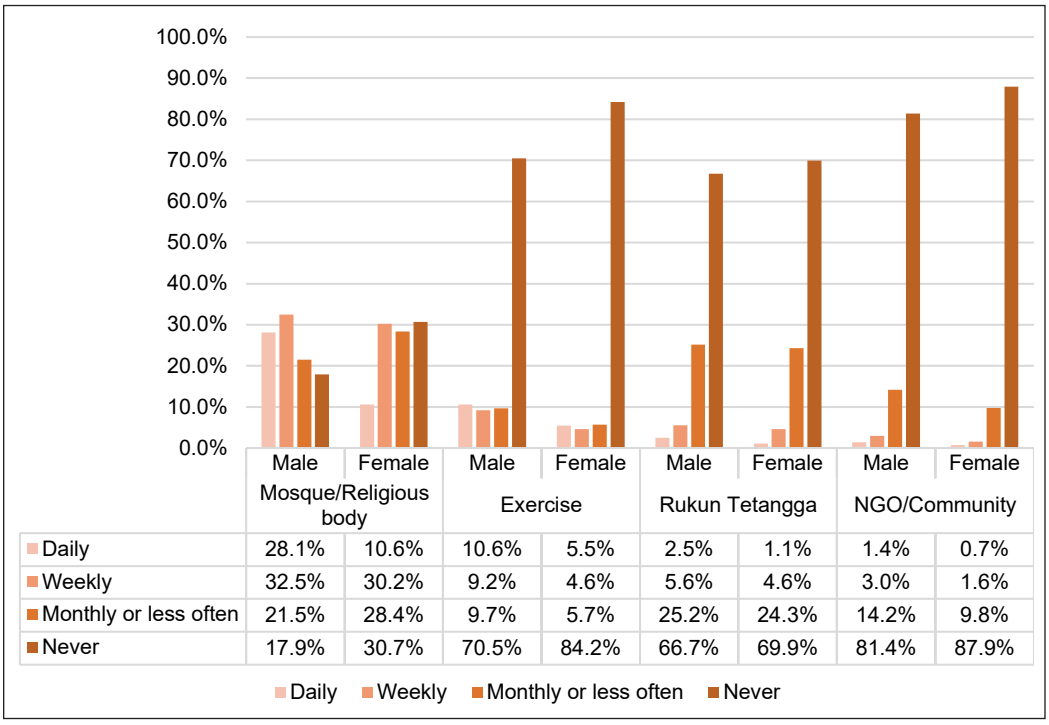
other Bumiputera and the Chinese were more likely to work, while the Indians were less likely to work. After adjusting for other variables, older adults in rural areas remained more likely to work than those in urban areas. However, the educational effect on the labour force participation of older adults changed from positive to negative when other variables in the model were accounted for.

Engagement in Social Activities and Exercise

Older adults were more likely to engage in religious activities than other activities. The males were generally more active than the females in religious and social activities and exercise. About 61% of the males and 41% of the females were involved in daily and weekly religious activities. Few older adults, especially women, were involved in

Rukun Tetangga (neighbourhood association or organisation) and NGO/community activities. About one in five older males and one in ten older females participated in NGO/community activities. As many as 84% of the older females and 71% of the older males reported not exercising (Figure 1).

Engagement in religious, social, and physical activities decreased sharply with age, especially among females (Table 4). The currently married older adults were more likely to be involved in these activities than their unmarried counterparts, partly because the latter (mainly widowed) was older than the former. Across the ethnic groups, a higher proportion of Malay men were involved in religious activities, while Indian women reported a slightly higher percentage of involvement in religious activities than others. Malay men and women were relatively less likely to exercise, while a smaller proportion of the Chinese were involved in community activities and *Rukun Tetangga* than other ethnic groups. A much higher proportion of urban men and women were engaged in exercise than their rural counterparts. However, the reverse was true for the engagement in religious, *Rukun Tetangga*, and NGO/community activities. The proportion of older men and women engaged in physical and NGO/community activities increased with educational level. However, a positive association between education and engagement in religious activities was found only among older women. Binary logistic regression



	Male	Female	Male	Female	Male	Female	Male	Female
	Mosque/Religious body		Exercise		Rukun Tetangga		NGO/Community	
Daily	28.1%	10.6%	10.6%	5.5%	2.5%	1.1%	1.4%	0.7%
Weekly	32.5%	30.2%	9.2%	4.6%	5.6%	4.6%	3.0%	1.6%
Monthly or less often	21.5%	28.4%	9.7%	5.7%	25.2%	24.3%	14.2%	9.8%
Never	17.9%	30.7%	70.5%	84.2%	66.7%	69.9%	81.4%	87.9%

Figure 1. Engagement in religious, social, and physical activities by gender

Table 4
Percentage of older adults engaged in religious, social, and physical activities by selected variables

Variables	Mosque/religious body activities			Exercise			*Rukun Tetangga*			NGO/community activities		
	Overall	Male	Female	Overall	Male	Female	Overall	Male	Female	Overall	Male	Female
Total	75.0	82.1	69.3	22.0	29.5	15.8	31.5	33.3	30.1	15.1	18.6	12.1
Age group (years)												
60–64	78.5	83.9	74.3	24.9	34.2	17.7	35.4	35.9	35.0	17.9	22.5	14.3
65–69	77.3	84.3	70.9	24.0	31.3	17.4	32.4	35.2	29.8	17.1	20.6	13.9
70–74	70.8	77.6	64.8	19.2	26.1	13.2	27.1	27.3	26.9	10.8	13.9	8.1
75+	67.3	78.5	59.1	14.1	18.1	11.1	25.4	30.0	22.0	9.1	10.7	7.9
Marital status												
Currently married	78.6	82.4	73.0	24.9	30.2	17.1	32.6	33.4	31.6	16.8	19.3	13.3
Currently not married	67.8	79.4	65.6	15.9	23.4	14.4	29.3	32.5	28.6	11.4	13.9	10.9
Ethnic group												
Malay	79.3	89.7	71.0	16.6	23.8	10.9	36.2	37.3	35.4	16.4	20.4	13.3
Other Bumiputera	73.2	81.7	66.5	26.3	34.4	20.0	33.4	41.1	27.4	16.1	20.6	12.6
Chinese	61.1	60.3	61.9	34.5	38.3	30.5	16.9	18.6	15.1	9.1	10.5	7.6
Indian	74.7	76.9	73.2	32.7	49.6	20.7	22.8	28.2	18.9	16.1	24.1	10.4
Place of residence												
Urban	74.0	80.3	68.6	26.8	35.5	19.4	27.1	29.9	24.7	14.6	18.6	11.2
Rural	76.3	84.3	70.0	16.0	21.8	11.5	36.9	37.6	36.3	15.5	18.7	13.1
Educational level												
No formal education	65.1	75.0	62.8	13.6	20.6	11.9	28.3	39.4	25.8	10.2	14.2	9.2
Primary	75.8	83.3	69.1	17.3	21.7	13.4	33.3	33.9	32.7	12.9	15.1	11.0
Lower secondary	78.8	82.3	73.8	27.1	33.3	18.1	30.4	31.0	29.5	17.1	18.3	15.2
Upper secondary and above	81.9	81.8	82.1	41.3	46.9	32.5	31.1	31.1	31.0	25.4	28.3	20.8

Table 5
Binary logistic regression of engagement in religious, social and physical activities

Variables	**Mosque/religious body activities**		**Exercise**		***Rukun Tetangga***		**NGO/community activities**	
	Adj. OR	95% CI	Adj. OR	95% CI	Adj. OR	95% CI	Adj. OR	95% CI
Gender	***		***				***	
Male (ref)	1		1		1		1	
Female	0.556***	(0.467, 0.661)	0.518***	(0.433, 0.619)	0.858	(0.734, 1.002)	0.680***	(0.556, 0.830)
Age group (years)	**		***		***		***	
60–64 (ref)	1		1		1		1	
65–69	0.984	(0.813, 1.191)	0.972	(0.804, 1.175)	0.896	(0.758, 1.059)	1.032	(0.838, 1.270)
70–74	0.772*	(0.622, 0.957)	0.786*	(0.620, 0.997)	0.702***	(0.572, 0.863)	0.676**	(0.509, 0.896)
75+	0.713**	(0.568, 0.895)	0.593***	(0.450, 0.781)	0.644***	(0.515, 0.806)	0.586**	(0.426, 0.806)
Marital status	*							
Currently married (ref)	1		1		1		1	
Currently not married	0.822*	(0.692, 0.977)	0.982	(0.803, 1.200)	0.981	(0.831, 1.158)	0.937	(0.748, 1.174)
Ethnic group	***		***		***		***	
Malay (ref)	1		1		1		1	
Other Bumiputera	0.799	(0.620, 1.030)	2.257***	(1.733, 2.941)	0.883	(0.701, 1.112)	1.072	(0.795, 1.447)
Chinese	0.361***	(0.298, 0.437)	2.235***	(1.831, 2.727)	0.390***	(0.314, 0.484)	0.463***	(0.348, 0.615)
Indian	0.748	(0.554, 1.008)	2.167***	(1.625, 2.889)	0.575***	(0.427, 0.774)	0.957	(0.674, 1.358)
Place of residence			**		***			
Urban (ref)	1		1		1		1	
Rural	1.047	(0.888, 1.234)	0.757**	(0.632, 0.907)	1.351***	(1.165, 1.566)	1.213	(0.996, 1.476)
Educational level	***		***				***	
No formal education (ref)	1		1		1		1	
Primary	1.311**	(1.076, 1.598)	1.102	(0.853, 1.423)	1.165	(0.957, 1.418)	1.106	(0.833, 1.468)
Lower secondary	1.558**	(1.165, 2.084)	1.484*	(1.081, 2.037)	1.096	(0.834, 1.440)	1.493*	(1.041, 2.140)
Upper secondary and above	1.925***	(1.454, 2.550)	2.845***	(2.120, 3.819)	1.183	(0.912, 1.533)	2.608***	(1.871, 3.636)
Constant	4.846***		0.257***		0.549***		0.186***	

Note. OR: odds ratio; CI: confidence interval; ***p< .001, **p< .01, *p< .05

was performed to assess the significant socio-demographic factors associated with engagement in social activities. Females were significantly less likely than males to participate in religious activities, community activities, and exercise (Table 5). Exercise and social engagement decreased with age, and the differential across age groups was more pronounced in the community than in religious activities. Married older adults were more likely than those not currently married to participate in religious activities. The Chinese were significantly less likely than the Malays to engage in religious activities, *Rukun Tetangga*, and community activities. However, the non-Malays were more than two times more likely to exercise than the Malays. Older adults residing in rural areas were less likely to exercise but were more likely than those living in urban areas to be engaged in *Rukun Tetangga* activities. This finding suggests that rural residents tended to be more likely than urban residents to interact with their neighbours. The better-educated older adults were more likely than those with lower education to participate in religious and community activities and exercise.

Self-Rated Health

The self-rated health measured the health status of the older adults in this study. As expected, the proportion of good health decreased with age (Table 6). However, a slightly higher proportion of the males reported having good health than the females (37.8% versus 31.7%). In addition, a slightly higher proportion of married older adults perceived themselves to have good health than those not currently married. Among the ethnic groups, the Chinese were more likely to report good health, while the Other Bumiputera had a higher proportion of poor health than others. The older adults in the urban areas were more likely to report good health than those in the rural areas. Good health was positively associated with education and work status. Older adults who exercised daily were more likely to be in good health than those who did not (more than half versus 31.4%). Participation in activities organised by the mosque/

Table 6
Percentage distribution of self-rated health by selected variables

Variables	Good health	Fair health	Poor health	Total	Chi-square test statistic	p-value
Total	34.5	52.3	13.3	100.0		
Gender					16.137	p< .001
Male	37.8	49.8	12.5	100.0		
Female	31.7	54.3	13.9	100.0		
Age group (years)					29.744	p< .001
60–64	37.9	51.4	10.7	100.0		
65–69	34.1	52.4	13.4	100.0		
70–74	31.8	53.3	15.0	100.0		
75+	29.6	52.9	17.5	100.0		

Table 6 *(continue)*

Variables	Good health	Fair health	Poor health	Total	Chi-square test statistic	p-value
Marital status					12.383	.002
Currently married	36.2	51.4	12.5	100.0		
Currently not married	31.0	54.1	15.0	100.0		
Ethnic group					58.906	p< .001
Malay	32.2	55.4	12.4	100.0		
Other Bumiputera	32.0	48.8	19.3	100.0		
Chinese	44.4	44.1	11.5	100.0		
Indian	33.1	49.5	17.4	100.0		
Place of residence					13.482	.001
Urban	36.9	50.7	12.4	100.0		
Rural	31.5	54.2	14.3	100.0		
Educational level					104.194	p< .001
No formal education	29.1	52.5	18.4	100.0		
Primary	30.6	55.3	14.1	100.0		
Lower secondary	41.2	48.5	10.3	100.0		
Upper secondary and above	46.8	46.0	7.2	100.0		
Current work status					28.199	p< .001
No	32.6	52.9	14.5	100.0		
Yes	40.6	50.1	9.3	100.0		
Mosque/religious body activities					58.659	p< .001
Daily	37.4	53.4	9.3	100.0		
Weekly	35.9	52.6	11.4	100.0		
Monthly or less often	35.4	52.8	11.8	100.0		
Never	29.5	50.5	20.0	100.0		
Exercise					88.460	p< .001
Daily	51.8	39.0	9.3	100.0		
Weekly	45.6	47.8	6.7	100.0		
Monthly or less often	38.2	55.1	6.6	100.0		
Never	31.4	53.7	14.9	100.0		
Rukun Tetangga					43.518	p< .001
Daily	57.7	38.0	4.2	100.0		
Weekly	36.9	51.2	11.8	100.0		
Monthly or less often	36.4	54.6	9.0	100.0		
Never	33.0	51.9	15.1	100.0		
NGO/community activities					41.751	p< .001
Daily	51.2	41.5	7.3	100.0		
Weekly	56.7	40.0	3.3	100.0		
Monthly or less often	36.0	55.8	8.2	100.0		
Never	33.5	52.3	14.3	100.0		

religious body, *Rukun Tetangga*, and NGO/community were positively associated with health status.

Ordinal regression analysis vindicates that older adults were more likely to be in fair health than in good health but were less likely to be in poor health than in good health (Table 7). Females, older, and non-married individuals were less likely to have good health than males, younger, and married individuals. However, the other variables in the model accounted for some of the effects of gender, ageing, and marital status on health. The Chinese were more likely to report having good health than the Malays. Place of residence was not significantly associated with health once other variables were held constant. Those with lower secondary or higher education were more likely to report being in good health than their lower educated counterparts, and the differentials remain significant after adjusting other variables. Labour force participation, regular exercise (at least weekly) and engagement in religious, *Rukun Tetangga* and NGO/community activities were significantly associated with good health, even after adjusting other variables in the model. Notably, participation in religious activities was significantly associated with good health, regardless of the frequency of participation. In contrast, the frequency of involvement in other social activities showed a more erratic association with good health. For instance, it was only significant for those who participated weekly in NGO/community activities but not for those who participated daily or monthly and less often.

Table 7
Ordinal regression of self-rated health

Variables	Unadj. Proportional OR	95% CI	Adj. Proportional OR	95% CI
Fair health	-	-	3.570***	(2.709, 4.706)
Poor health	-	-	0.256***	(0.194, 0.338)
Gender				
Male (ref)	1		1	
Female	0.795***	(0.706, 0.896)	1.060	(0.916, 1.227)
Age group (years)				
60–64 (ref)	1		1	
65–69	0.831*	(0.717, 0.963)	0.873	(0.750, 1.016)
70–74	0.742***	(0.625, 0.881)	0.872	(0.728, 1.046)
75+	0.648***	(0.542, 0.773)	0.834	(0.685, 1.015)
Marital status				
Currently married (ref)	1		1	
Currently not married	0.797***	(0.702, 0.905)	1.013	(0.875, 1.172)
Ethnic group				
Malay (ref)	1		1	
Other Bumiputera	0.830	(0.679, 1.014)	0.855	(0.691, 1.059)
Chinese	1.518***	(1.296, 1.778)	1.466***	(1.228, 1.751)

Table 7 *(continue)*

Variables	Unadj. Proportional OR	95% CI	Adj. Proportional OR	95% CI
Indian	0.905	(0.714, 1.146)	0.842	(0.657, 1.080)
Place of residence				
Urban (ref)	1		1	
Rural	0.804***	(0.713, 0.905)	0.950	(0.830, 1.087)
Educational level				
No formal education (ref)	1		1	
Primary	1.177*	(1.006, 1.377)	1.024	(0.861, 1.217)
Lower secondary	1.820***	(1.472, 2.251)	1.407**	(1.108, 1.787)
Upper secondary and above	2.347***	(1.929, 2.856)	1.728***	(1.371, 2.179)
Current work status				
No (ref)	1		1	
Yes	1.457***	(1.265, 1.679)	1.419***	(1.216, 1.655)
Mosque/religious body activities				
Never (ref)	1		1	
Daily	1.685***	(1.403, 2.024)	1.445***	(1.179, 1.770)
Weekly	1.532***	(1.304, 1.798)	1.419***	(1.197, 1.683)
Monthly or less often	1.494***	(1.263, 1.769)	1.306**	(1.097, 1.556)
Exercise				
Never (ref)	1		1	
Daily	2.255***	(1.798, 2.828)	1.754***	(1.380, 2.229)
Weekly	1.912***	(1.503, 2.431)	1.373*	(1.063, 1.772)
Monthly or less often	1.504***	(1.198, 1.888)	1.209	(0.950, 1.537)
Rukun Tetangga				
Never (ref)	1		1	
Daily	2.924***	(1.828, 4.679)	2.263**	(1.355, 3.779)
Weekly	1.231	(0.936, 1.618)	0.989	(0.734, 1.331)
Monthly or less often	1.288***	(1.120, 1.480)	1.249**	(1.069, 1.459)
NGO/community activities				
Never (ref)	1		1	
Daily	2.110*	(1.159, 3.842)	0.975	(0.504, 1.887)
Weekly	2.750***	(1.813, 4.170)	1.956**	(1.238, 3.091)
Monthly or less often	1.249*	(1.039, 1.502)	0.939	(0.765, 1.153)

Note. OR: odds ratio; CI: confidence interval; Wald test significance – ***p< .001, **p< .01, *p< .05

DISCUSSION

Self-rated health is a subjective opinion about one's general health status. However, it is a valid measure of health status and is often used as a health indicator in research on older adults in different socio-cultural settings (Cislaghi & Cislaghi, 2019; Jylha, 2009; Lin et al., 2020; Minami et al., 2015). Despite its subjective nature, this single-item measure is a good correlate of mortality

(DeSalvo et al., 2006; Fan & He, 2022; Lorem et al., 2020; Wuorela et al., 2020) and active engagement (Kaleta et al., 2008; Makizako et al., 2021; Sewdas et al., 2018). In addition, this self-perceived measure is a multidimensional concept that captures dimensions of physical, functional, coping, and well-being (Cheng et al., 2002; Cislaghi & Cislaghi, 2019; Lee & Shinkai, 2003; Lorem et al., 2020; Nishi et al., 2012; Simon et al., 2005; Zajacova & Dowd, 2011).

This study shows that active engagement in work, involvement in religious and social activities such as participation in *Rukun Tetangga* and NGO/community activities, and physical activities are positively associated with older adults' perceived health. The positive correlation between older adults' active engagement and health status corroborates with findings from several studies (Celidoni et al., 2017; Dave et al., 2008; Kaleta et al., 2008; Minami et al., 2015; Shiba et al., 2017). For example, in their cross-sectional analysis based on the sample of older Japanese persons, Minami et al. (2015) showed that working beyond 65 years was associated with better self-rated health and mental health. The longitudinal analysis of the same study also revealed that active engagement in work is protective against functional and mental health deterioration. It is likely that through employment, older adults have access to more social relationships in society and can remain independent longer for their upkeep. Being an active and contributing member of society in old age bodes well for an older adult's overall well-being and quality of life (Min & Cho, 2018).

Findings show differentials in older adults' work status by place of residence and educational level. These differentials can be attributed partly to the difference in employment status. In Malaysia, self-employment and part-time work are relatively more common among older workers (World Bank, 2020). Moreover, most older adults from rural areas and with lower educational levels are engaged in the traditional or agriculture sector. Workers from this sector are usually self-employed and are not subject to mandatory retirement. They can continue to work for as long as they are able and willing to do so. It has been reported that the agriculture sector in Malaysia employs a high share of workers aged between 55 and 64 years, and the workers are also more likely to work in rural areas (World Bank, 2020).

The labour force participation rate (LFPR) among older Malaysians is lower than in its neighbouring countries. The International Labour Organization (ILO, 2020) database shows that in 2019, the LFPR of older Malaysian males and females aged 65 and over was 39.9% and 12.0%, respectively, compared to 43.6% and 23.4% for Southeast Asia as a whole. The decreasing share in agricultural employment can partly explain the low LFPR among older Malaysians and the shift from informal to formal sector employment because the latter is subject to mandatory retirement age. Given the health benefits of work for older adults, efforts should be made to encourage and facilitate them to continue working past retirement age if they are healthy and willing to do so. Malaysia's

retirement age, at 60 years, is lower than that of many developed countries. With rising life expectancy, a male and female retiree at age 60 can expect to live 18.4 years and 21.2 years, respectively (DOSM, 2020). Therefore, the Government should consider policy options such as raising the retirement age, re-employment, and flexible wage and work arrangements to increase the LFPR of older adults. Besides, increasing the number of older workers would help to ameliorate the labour shortage and allow those with inadequate retirement funds to support themselves and their families. Also, there is evidence that the labour force participation of older adults can mitigate the negative impacts of population ageing on the economy (Bloom et al., 2010; Lai & Yip, 2022; Vogel et al., 2017). It can also create opportunities for a silver economy that serves the needs and demands of older adults (World Bank, 2020).

In the analysis of current employment, it is interesting to note that after controlling for other variables, the effects of education level have shifted from positive to negative. The shift in the direction is due to the inclusion of the age and gender variables in the logistic regression. Work participation rate and educational attainment are inversely related to age; hence, controlling for age has explained away the educational effect on employment. Furthermore, as shown by the characteristics of older adults in this study, older females with lower labour force participation than older males are more likely to have no formal education than older males. Hence, controlling for gender would also reduce the effect of education. Age and gender have also been found to have a moderating effect in other studies (Lisha et al., 2011; Murphy et al., 2007; Noone et al., 2018).

In reviewing past studies, Taylor (2014) concluded that few older adults achieved the level of physical exercise that accompanies health improvement. The present analysis shows that most older Malaysians do not exercise, which is consistent with the 2019 National Health and Morbidity Survey (NHMS; Institute for Public Health, 2020). The NHMS report states that a sedentary lifestyle is a leading cause of chronic diseases. Hence, policymakers must formulate evidence-based guidelines to increase physical activity for older adults, provide support mechanisms to encourage habitual physical activity behaviours, and launch educational campaigns to promote physical activity levels among older Malaysians.

Findings show that older Malaysians are more likely to engage in religious activities than other social activities. Furthermore, engagement in religious activities, no matter how frequent, is associated with good self-rated health. It corroborates several studies which support the association between religiousness and health (Koenig, 2012; Saffari et al., 2013; Zimmer et al., 2016). Previous studies have also indicated that, as religious attendance is associated with higher levels of social integration and social support, religiousness can moderate physical health conditions and depression through social support and coping mechanisms

(Holt-Lunstad, 2018; Lucchetti et al., 2011; Rote et al., 2013). Within the Malaysian context, it has also been reported that religiosity is positively associated with older Malaysians' quality of life (M. M. Tan et al., 2022). Hence, promoting more religious activities for older Malaysians would benefit their overall well-being.

Although this study indicates that participation in *Rukun Tetangga* and NGO/community services are associated with good self-rated health among older Malaysians, the participation rates are rather low. Few older Malaysians are engaged in these activities compared to religious ones, especially among older females. Therefore, more can be done to encourage more social activities and community participation tailored specifically for older Malaysians. A few community centres that have successfully provided a platform for inter-generational community participation can serve as models for other communities to replicate (P. C. Tan & Tey, 2005). The Government can promote community participation by recognising the best neighbourhood with awards and financial assistance.

CONCLUSION

In keeping with the theory and concepts of active ageing, this study shows that being active benefits health. However, because of the low participation rate in social and economic activities among older adults, various innovative programmes should be designed to encourage and facilitate active ageing. Furthermore, with the erosion of family support in physical and health care in old age, Malaysians must maintain an active lifestyle to remain independent and enjoy a good quality of life in the later stages. Given the close association between active engagement and health status, all stakeholders must promote active and healthy ageing to overcome the twin burden of healthcare and social protection of a rapidly ageing population. Promoting active and healthy ageing is in line with the goals of the National Policy for Older Persons to create opportunities for them to live independently and to enhance the potential of older adults so that they remain active and productive in national development.

Unlike longitudinal studies, the cross-sectional data used in this analysis cannot establish the causal effects of active engagement on health because the causation can run both ways. On the one hand, active engagement can lead to better health. However, on the other hand, poor health may deter older adults from participating in social and economic activities.

The present study is based on the data from the 2014 MPFS. Given the changes in the social and economic conditions over the last decade and the hardships caused by the COVID-19 pandemic, the findings from this analysis may not reflect the contemporary situation. An update of this analysis will be conducted to shed new insights into the older adults' active engagement and health status in Malaysia once the data from the 2020 population and housing census is made available.

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