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Social Support Among Older Persons and Its Association With Smoking and Associated Factors: Findings From the National Health and Morbidity Survey 2018

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Abstract: Background: Globally the average age of the worlds' population of older persons continues to upsurge and social support becomes increasingly relevant. Overall, in Malaysia, social support and networking prevalence was found to be lower among older persons at 30.76%. In view of the scarce data on social support and its association with smoking status and its associated factors among the older Malaysian population this study was conducted. **Methods:** Data from the National Health and Morbidity (NHMS) 2018 survey on health of older Malaysian adults was analyzed. This was a cross sectional population-based study using a two-stage stratified random sampling design. Elderly population aged 60 years and above was selected. Data were collected were sociodemographic characteristics, smoking status, and social support. A validated Malay language, interviewer-administered questionnaire of 11-item Duke Social Support Index was applied for assessing social support among the elderly. A complex sampling design analysis was used for the descriptive statistics. The associated risk factors for social support were identified using Multiple Logistic Regression analysis. **Results:** A total of 3923 elderly respondents participated in the study. The prevalence of good social support was significantly higher among the 60-69 years old respondents compared to the > 80 years old (73.1%, 95% CI :69.3% -76.5% vs 50.1 %, 95% CI:41.7 %- 58.6%).Multivariate logistic regression analysis showed that the odds of poor social support were 1.7 times (aOR: 1.72 % ,95%CI: 1.19 -2.48) higher for the respondents aged > 80 years old, than those aged 60-69 years. Respondents with no formal education were 1.93 higher odds of poor social support than the respondents with tertiary education (aOR: 1.93%, 95%CI: 1.13,3.30). Respondents with income < RM 1000 were 1.94 times more likely to have poor social support compared to respondents with income > RM 3000 (aOR: 1.94, 95% CI : 1.21 -3.13). Former smokers have good social support compared to current smokers (73.6% ,95% CI: 67.7-78.7 vs 65.1 %, 95%CI:58.4 -71.2). For current smokers, the odds of poor social support were 42.0% higher than for non-smokers (aOR: 1.42, 95% CI: 1.05 -1.91. **Conclusion:** There is poor social support among the older persons who are current smokers, advancing age, no formal education and low income However, further longitudinal studies are needed to determine the exact effects of the studied variables. These findings could assist the policymakers to develop strategies at the national level to enhance social support among the older smokers to ensure cessation of smoking.

Keywords: social support; older persons; smokers; NHMS 2018; community survey

Introduction

Globally the average age of the worlds' population of older persons continues to upsurge. Two thirds of older persons live in developing regions, whereby their numbers are rising faster than in the developed regions (1). Similarly, a rapid growth spurt is occurring in the middle-income countries like Malaysia. It has a population of 32.7 million currently and 7% of this population consists of older persons aged above 65 years old (2). As population ages social support becomes increasingly relevant to support this vulnerable group.

An exchange of resources between two individuals either the provider or recipient with an aim to enhance the well-being of the recipient is defined as social support (3). It moderates the effects of health-related strain on mental health in older persons.   In–addition, it may buffer against the ill effects of stress on mental and physical health. The literature shows that social support is associated with mortality, depression and well-being (4,5,6,7,8).

Overall, in Malaysia, social support and networking prevalence was found to be lower among older persons at 30.76% (9). Correspondingly, having low income, being single, no depression, absence of activities of daily living and dependency in instrumental activities of daily living were important factors related to perceived social support (10). It is therefore important to increase social support and networking among older persons by providing avenues for them to actively participate and engage with the community.

Social support is also extremely vital in the tobacco cessation planning among current smokers. Cigarette smoke contains many perilous compounds that can cause morbidity (11). In Malaysia, very few studies have examined the prevalence of smoking in the older population, with most studies focusing on smoking among adolescents. The prevalence rate for current older smokers in Malaysia in 2015 was 11.9% (12). Tobacco usage is recognized as one of the primary causes of non-communicable diseases and premature deaths in low and middle-income countries worldwide (13). An estimated 71% of lung cancers, 42% of chronic respiratory diseases and nearly 10% of cardiovascular diseases are caused by tobacco smoking (14). The risk of communicable diseases such as tuberculosis and lower tract respiratory infections and decreasing life expectancy (15,16) are also attributed to smoking. Smoking is also associated with divorce, depression, and anxiety (17). With relevance to this good social support is essential during quit smoking efforts by the relevant authorities. Additionally, in view of the scarce data on social support and its association with smoking status and its associated factors among the older Malaysian population this study was conducted.

Methods

Data source and study population

We analyzed data from the National Health and Morbidity (NHMS) 2018 survey on health of older Malaysian adults. The NHMS 2018 was a cross-sectional, population-based, nationally representative survey conducted by the Institute for Public Health, National Institutes of Health, Ministry of Health Malaysia. This study was funded by the Ministry of Health, Malaysia in which data collection was conducted between August 2018 and October 2018.   The target population of this survey was pre-elderly aged between 50 years and 59 years and older persons aged 60 years and above. There were 3,959 older people recruited into the survey. We included only the 3929 older people aged 60 years and above in the final analysis after excluding non-citizens and missing data The Medical Research and Ethics Committee of the Ministry of Health Malaysia had approved this study (NMRR-17-2655-39047)

Sampling method

The sampling frame of the survey was provided by Department of Statistics of Malaysia, which was updated in 2017. Malaysia is geographically divided into about 83, 000 enumeration blocks (EBs). In each EBs, there were approximately 80 to 120 living quarters (LQs) with average household size

of 4. This survey applied multiple-stage cluster sampling. First, Malaysia was stratified into states (primary stratum). Second, each state was further stratified into urban and rural areas (secondary stratum). The total number of EBs selected were proportionate to the population size. A total of 60 EBs from urban areas and 50 EBs from rural areas were randomly selected, which consisted of 5,636 LQs. All the household members aged 50 years and above were recruited into the study. The detailed methodology for this survey was reported elsewhere (9)

Data extraction

The data that was extracted from the NHMS 2018 were respondents' sociodemographic characteristics, smoking status, and social support. The sociodemographic characteristics collected were respondent's current residential area, sex, age, ethnicity, marital status, employment status, monthly income, and education level. We classified smoking status as current smokers (currently using any smoked tobacco products daily or less than daily), former smoker (a person who used tobacco products in the past) and non-smokers (those never smoked in the past). A validated Malay language, interviewer-administered questionnaire of 11-item Duke Social Support Index (M-DSSI) was applied for assessing social support among the elderly (18,19). The 11-item DSSI consisted of 4 questions which measure the size and structure of social network (social interaction) and 7 questions which assess respondent's perceived satisfaction with the behavioral or emotional support obtained from their social network (subjective support).   A respondent was identified as having poor social support if his/her scored less than 27 scores (20).

Statistical analysis

A weighting factor was applied to each individual data to adjust for non-response and probability of selection to account for the complex samples design to ensure sufficient representative of the elderly population in Malaysia. The sociodemographic information (residential area, gender, age, ethnicity, marital status, education level, employment status and monthly individual Income received), social support, smoking status (non-smoker, former smoker and current smoker) were presented in frequencies and percentages. Univariable logistic regression was conducted to determine the associations between sociodemographic characteristics, smoking status, and risk of having poor social support. The variables with significant level less than 0.25 were entered into multiple variable logistic regression analysis. Multiple variable logistic regression analysis was applied to determine the association between smoking status and risk of having poor social support among the elderly, while adjusting for other confounders in the logistic regression model. Hosmer Lemeshow test was used to examine the goodness of fit of the model and also there were no significant 2-way interactions or multicollinearity found between the variables.   All statistical analyses were carried out at 95% significance level using IBM SPSS statistics for Window version 26.

Results

A total of 3923 elderly respondents participated in the study with majority in the   60-69 years age group (66.5%), females (51.2%), Malays following the general Malaysian population (58.1 %), married (67.8%),from urban areas (73.2%), had primary education (43.6 %), unemployed (75.8%), with income less than RM1000 (58.2%), non-smokers (74.3%) and not living alone (93.7%), (Table 1).

The prevalence of good social support was significantly higher among the 60-69 years old respondents compared to the > 80 years old (73.1%, 95% CI :69.3% -76.5% vs 50.1 %, 95% CI:41.7 %-58.6%).   Multivariate logistic regression analysis showed that the odds of poor social support were 1.7 times (aOR: 1.72 % ,95%CI: 1.19 -2.48) higher for the respondents aged > 80 years old, than those aged 60-69 years, after controlling for the other predictors in the model. Respondents with no formal education were 1.93 higher odds of poor social support than the respondents with tertiary education (aOR: 1.93%, 95%CI: 1.13,3.30). Respondents with income < RM 1000 were 1.94 times more likely to have poor social support compared to respondents with income > RM 3000 (aOR: 1.94, 95% CI : 1.21 -3.13). Former smokers have good social support compared to current smokers (73.6% ,95% CI: 67.7-

78.7 vs 65.1 %, 95%CI:58.4 -71.2).For current smokers, the odds of poor social support were 42.0% higher than for non-smokers (aOR: 1.42, 95% CI: 1.05 -1.91), holding the other predictors constant.

Table 1. Sociodemographic characteristics of the participants (N=3923).

Characteristics of Respondents	Total (n)	% (95%CI)
Age		
60-69 years	2523	66.5 (63.4,69.2)
70-79 years	1095	26.0 (23.7,28.4)
≥80 years	305	7.6 (6.4,9.0)
Gender		
Male	1840	48.8 (47.1,50.5)
Female	2083	51.2 (49.5,52.9)
Ethnicity		
Malay	2580	58.1 (49.0,66.6)
Chinese	705	26.6 (19.8,34.7)
Indian	124	6.5 (4.0,10.2)
Others	79	1.3 (0.6,3.0)
Bumiputra Sabah & Sarawak	435	7.6 (4.3,12.9)
Marital status		
Single/widow/widower/divorcee	1329	32.2 (29.6,34.9)
Married	2591	67.8 (65.1,70.4)
Strata		
Urban	1674	73.2(69.1,77.0)
Rural	2249	26.8 (23.0,30.9)
Education Level		
No formal education	788	14.4 (12.3,16.8)
Primary education	1910	43.6 (39.3,48.0)
Secondary education	961	32.4 (28.9,36.0)
Tertiary education	264	9.7 (7.4,12.5)
Employment Status		
Employed	1029	24.2 (22.1,26.3)
Unemployed	2894	75.8 (73.7,77.9)
Income		
Less than RM 1000	2477	58.2(54.4,61.8)
RM1000 – RM1999	839	21.5(19.1,24.1)
RM2000 – RM2999	318	11.2 (9.6,13.0)
≥RM3000	245	9.2 (22.1,26.3)
Smoking Status		
Nonsmoker	2797	74.3 (72.0,76.5)
Current smoker	605	13.2 (11.6,14.9)
Former smoker	512	12.5 (11.0,14.2)
Living status		
Living alone	291	6.3 (5.3,7.5)
Not living alone	3632	93.7 (92.5,94.7)

Table 2. Association between social support with sociodemographic and smoking status.

Variables	Social support				Crude OR, (95% CI)	p value	*AOR(95%CI)	P value
	Good		Poor					
	n	% (95% CI)	n	% (95% CI)				
Age								

60-69 years	1823	73.1(69.3,76.5)	689	26.9(23.5,30.7)	1.00		1.00	
70-79 years	688	65.0(59.2,70.4)	401	35.0(29.6,40.8)	1.46(1.17,1.82)	<0.01	1.18(0.92,1.50)	0.19
≥80 years	155	50.1(41.7,58.6)	149	49.9(41.4,58.3)	2.70(1.95,3.73)	<0.01	1.72(1.19,2.48)	<0.01
Gender								
Male	1297	72.7(68.2,76.8)	532	27.3(23.2,31.8)	1.0		1.00	
Female	1369	65.9(61.6,70.0)	707	34.1(30.0,38.4)	1.38(1.12,1.70)	<0.01	0.99(0.77,1.28)	0.94
Ethnicity								
Malay	1778	71.1(66.9,75.0)	791	28.9(25.0,33.1)	0.89(0.58,1.35)	0.56	1.15(0.73,1.81)	0.55
Chinese	450	65.8(58.4,72.5)	248	34.2(27.5,41.6)	1.13(0.70,1.83)	0.62	1.61(0.95,2.74)	0.08
Indian	87	64.4(51.0,75.9)	37	35.6(24.1,49.0)	1.20(0.62,2.34)	0.59	1.58(0.79,3.12)	0.20
Others	62	81.2(66.4,90.5)	17	18.8(9.5,33.6)	0.50(0.21,1.21)	0.12	0.59(0.23,1.55)	0.28
Bumiputra Sabah & Sarawak	289	68.5(60.0,75.9)	146	31.5(24.1,40.0)	1.00		1.00	
Marital status								
Single/widow/widower/divorcee	797	60.0(54.6,65.1)	527	40.0(34.9,45.4)	1.86(1.46,2.38)	<0.01	1.44(1.08,1.91)	0.01
Married	1867	73.6(69.4,77.4)	711	26.4(22.6,30.6)	1.00		1.00	
Strata								
Urban	1161	69.9(64.9,74.4)	506	30.1(25.6,35.1)	1.00		1.00	
Rural	1505	67.5(62.9,71.8)	733	32.5(28.2,37.1)	1.12(0.82,1.51)	0.48	0.99(0.77,1.28)	0.92
Education Level								
No formal education	430	54.0(48.0,59.9)	357	46.0(40.1,52.0)	3.93(2.33,6.62)	<0.01	1.93(1.13,3.30)	0.02
Primary education	1301	68.4(64.0,72.6)	595	31.6(27.4,36.0)	2.13(1.29,3.53)	<0.01	1.19(0.72,1.95)	0.49
Secondary education	722	73.2(67.1,78.5)	236	26.8(21.5,32.9)	1.70(1.09,2.64)	0.02	1.24(0.82,1.87)	0.31
Tertiary education	213	82.2(74.2,88.1)	51	17.8(11.9,25.8)	1.00		1.00	
Employment								
Employed	751	75.7(70.9,80.0)	273	24.3(20.0,29.1)	1.00		1.00	
Non employed	1915	67.2(63.1,71.0)	966	32.8(29.0,36.9)	1.53(1.23,1.90)	<0.01	1.14(0.89,1.47)	0.29
Income								
Less than RM 1000	1557	62.6(58.1,66.9)	911	37.4(33.1,41.9)	2.60(1.52,4.45)	<0.01	1.94(1.21,3.13)	<0.01

	n	% (95% CI)	n	% (95% CI)	Crude OR (95% CI)	p	Adjusted OR (95% CI)	p
RM1000 – RM1999	619	74.4(69.4,78.9)	215	25.6(21.1,30.6)	1.50(0.88,2.55)	0.14	1.28(0.80,2.06)	0.30
RM2000 – RM2999	261	83.4(77.6,88.0)	56	16.6(12.0,22.4)	0.87(0.49,1.54)	0.62	1.24(0.82,1.87)	0.31
≥RM3000	203	81.3(71.3,88.4)	41	18.7(11.6,28.7)	1.00		1.00	
Living status								
Living alone	177	60.3(51.8,68.2)	113	39.7(31.8,48.2)	1.53(1.03,2.25)	**0.03**	0.96(0.62,1.48)	0.84
Not living alone	2489	69.8(65.9,73.5)	1126	30.2(26.5,34.1)	1.00		1.00	
Smoking status								
Non smoker	1907	69.2(65.3,72.9)	883	30.8(27.1,34.7)	1.00		1.00	
Former smoker	353	73.6(67.7,78.7)	158	26.4(21.3,32.3)	0.67(0.46,0.97)	**0.04**	0.99(0.74,1.32)	0.95
Current smoker	406	65.1(58.4,71.2)	197	34.9(28.8,41.6)	0.83(0.66,1.04)	0.11	1.42(1.05,1.91)	**0.02**

*Multiple variable logistic regression analysis was performed after adjusted for other potential confounders in the model. No interaction was found among the independent factors (p-value >0.05).   Classification of table showed the model correctly predicts 70.2% of the cases. Receiver operating characteristics curve analysis area under the curve was 0.64, p<0.001

Discussion

To the best of our knowledge this is the first paper exploring role of social support and smoking status and its associated factors in a nationally representative sample of older Malaysians. The prevalence of good social support was 73% in the 60-69 years old compared to 50% in the 80 years and more Malaysians. Additionally, the 80 years and more respondents were more likely to be associated with risk of poorer social support compared to their younger peers. The probable reasons for the poor social support in the 80 years and above was probably due to lack of spousal support due to illness or death (21) and low income (10) contributed by retirement.

Educational profiling found that respondents with no formal education and having an income of < RM 1000 and were almost twice as likely to have poorer social support. This latter finding concurs with the literature in which older respondents with lower income were perceived to have poorer social support (10).

The prevalence for non-smokers, current smokers and former smokers were 74.3% , 13.2% and 12.5% in our study compared to 36.3%,11.9% and 24.4% in 2015 (13). The prevalence of non-smokers and former/ex-smokers has increased (22) and current smokers has reduced. The reasons for this are probably due to an increase in diseases in older respondents hence they quit smoking and the rigorous quit smoking campaigns conducted by the government. In addition, the prevalence of current smoker in our paper was lower than smokers in the middle and older ages in South Korea which was 17.4% (23). This discrepancy was due to their operational definition which had included both middle and older age group in the South Korean study.

In terms of smoking status, our result showed that former smokers had the highest prevalence of good social support, followed by never smokers and current smokers. There was a significant association between smoking and poor social support. This finding concurs with a local study published by Rusdi et al, 2019 (17), which states that current smokers have lower income and lower education level which probably contributed to the poor social support. Furthermore, cessation of smoking depends on good social support through behavioral interventions and strong support from family and friends based on the literature (24).

Strength and limitations

The study's strength is that it is a nationally representative health morbidity survey with a large sample size of Malaysian older adults. Nevertheless, the cross-sectional study design does not allow the causal relationship to be established between social support and smoking status. Additionally, the data on smoking status were self-reported, this may cause response bias. Hence, there may have been underestimating or overestimating of prevalence of smoking.

Conclusions

This study highlighted that there is poor social support among older persons who were current smokers. In addition, there is poor social support in advancing age, those with no formal education and low income However, further longitudinal studies are needed to determine the exact effects of the studied variables. Besides, these findings could assist the policymakers to develop strategies at the national level in to enhance social support among the older smokers to ensure cessation of smoking to promote healthy ageing.

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