

Reported Prevalence and Risk Factors of Chronic Non Communicable Diseases among Inmates of Old-Age Homes in IPOH, Malaysia

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ABSTRACT

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Background: Chronic Non Communicable disease is one of the common causes to elderly morbidity and mortality. This study was conducted to determine the prevalence and risk factors that contribute to chronic non communicable illness among elderly inmates of old age homes in Ipoh.

Materials and Method: This is a cross sectional study and the sample size was calculated using the standard formula assuming the prevalence is 60% (as observed from previous research) and a worst acceptable prevalence as 50%. A total of 92 elderly respondents were interviewed to obtain the information on socioeconomic factors, lifestyle factors and morbidity. The data was analyzed using SPSS 17.0.

Results: The mean age of the study participants was 73.79 years and majority were females (53.3%). Majority of the participants in our study was above 75 years of age. Hypertension (47.8%) was the highest prevalent chronic disease among the study participants followed by osteoarthritis (34.8%), diabetes mellitus (26.1%), respiratory disorders (14.1%) and cerebro-vascular accidents (10.9%). Hypertension was significantly higher among females. Female respondents were more affected with chronic illnesses as compared to male respondents. Majority of the inmates were engaged in physical activities (59.8%). Carbohydrate and fried food intake were reportedly high among the inmates (>80%). Fruits and vegetable intake was very good among all the inmates.

Conclusion: Hypertension was the most prevalent health problem among the study participants and it was significantly higher among females. Practice of physical exercise and high fibre diet intake was higher among the inmates.

Keywords: Risk factors, Non communicable, Old age, Hypertension

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BACKGROUND

Chronic Non Communicable disease (NCD) is one of the common causes of morbidity and mortality among elderly population. Malaysia reached a population of 29 million in 2012. The proportion of older Malaysians (age 60 years and above) projected to grow from 6.3% (1.4 million) in 2000 to 12% (4.9 million) by 2030, doubling in proportion but more than tripling in number.¹⁻³ The proportion of population aged 65 years and over increased to 5.1% according to census 2010 as compared with 3.9% in 2000.⁴

Increasing age is usually associated with higher morbidity and contributed to higher mortality. Socio-economic and lifestyle factors play an important role that could lead to chronic illness among the elderly.

Education level, occupation, dietary intake and physical activities are important in determining the morbidity of the elderly. Some of the common chronic illnesses are Coronary Heart Disease, Hypertension, Diabetes Mellitus, Osteoarthritis and Alzheimer's Dementia.⁵⁻⁷ The prevalence of hypertension among the elderly in north Malaysia has been reported as high as 58.3% in the community and ranging from 36 to 50.3% in old folks homes.⁸

Malaysia, just like other developing countries in the world, has been experiencing improved health, longer life expectancy, and lower mortality as well as declining fertility. The effect of all these changes has brought about a change in the demographic profile of its population. Overall, the age structure for the past three census, 1970, 1980 and 1991, shows that the

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proportion of younger age groups (15 years and below) is decreasing while the proportion of elderly is on the rise.⁹

This study was carried to determine the prevalence and risk factors that contribute to chronic non communicable illness among elderly inmates of old age homes in Ipoh, Malaysia. Also to study the socio-demographic profile of inmates of old age homes in Ipoh, Perak.

MATERIALS AND METHODS

This study was a cross sectional descriptive study conducted in three old age homes from Ipoh city, Perak state were selected randomly from the list of old age homes. A total of 92 individuals from 3 old-age homes in Ipoh, who agreed to participate in the study were included in the study. The study was conducted for a period of 6 weeks from 7th October 2013 until 15th November 201. Sample size was calculated using the standard formula assuming the prevalence of non-communicable diseases among the inmates of old age homes as 60% (as observed from previous research) with an absolute precision of 10% as 92.

Study participants were interviewed to obtain the information on socioeconomic factors, risk factors and prevalence of reported non communicable disease morbidity, which included ischemic heart disease, hypertension, diabetes mellitus, osteoarthritis, chronic obstructive pulmonary disease and cerebrovascular accidents with documented evidence of illness such as physician’s prescription or laboratory report, based on a structured questionnaire.

Informed consent was obtained from the inhabitants of old age homes after explaining about the research. Those who were willing to participate in the research and those who were not bed ridden were included in the study. The data was analyzed using SPSS version 17.0 using proportions, Fisher’s exact test and independent samples t test. Level of significance was fixed at 0.05.

RESULTS

The mean age of the study participants was 73.79 years (95% CI 71.89 –75.70). Mean age was 74.16 years among males (95% CI 71.49 –76.83) and 73.47 years among females (95% CI 70.68 –76.26) (Table 1).

Majority of the study participants were females (53.3%), were above 75 years of age (56.6%), were primary school educated (58.7%) and were doing at least 150 minutes of physical activity per week (59.8%). Carbohydrate and fried food intake were reportedly

Table 1. Distribution of old age home inmates based on socio demographic and lifestyle characteristics

Age categories	Frequency	Percentage
60-64y	15	16.3%
65-69	11	12%
70-74	14	15.2%
75-79	26	28.3%
>80	26	28.3%
Total	92	100%
Gender		
Male	43	46.7%
Female	49	53.3%
Total	92	100%
Ethnicity		
Malay	45	48.9%
Chinese	34	37%
Indian	13	14.1%
Total	92	100%
Education		
No education	25	27.2%
Primary School	54	58.7%
Secondary School	13	14.1%
Total	92	100%
Previous Occupation		
No Occupation	26	28.3%
Government Employee	6	6.5%
Private Employee	15	16.3%
Self Employed	45	48.9%
Total	92	100%
At least 150 minutes of moderate to high physical activity per week		
Yes	55	59.8%
No	37	40.2%
Total	92	100%

high among the inmates (>80%). Fruits and vegetable intake was very good among all the inmates (Table 3).

Hypertension (47.8%) was the highest prevalent chronic disease among the study participants followed by osteoarthritis (34.8%), diabetes mellitus (26.1%), chronic obstructive pulmonary disease (COPD) (14.1%) and cerebro-vascular accidents (10.9%) (Table 2).

Table 2. Prevalence of reported non communicable diseases morbidities among the study participants

Morbidity	Frequency	Percentage
Hypertension	44	47.8%
Diabetes Mellitus	24	26.1%
Ischemic Heart Disease	7	7.6%
Osteoarthritis	32	34.8%
Chronic Obstructive Pulmonary Disease	13	14.1%
Cerebrovascular accidents	10	10.9%
Any of the above NCD	72	78.3%

Table 3. Diet history of study participants

Date	Duration	Frequency	Percentage
High Carbohydrate intake	>4 times a week	90	97.8%
	<4 times a week	2	2.2%
Intake of fruits and vegetables	>4 times a week	92	100%
	<4 times a week	0	0%
Meat / Chicken intake	>4 times a week	73	79.3%
	<4 times a week	19	20.7%
Fish intake	>4 times a week	92	100%
	<4 times a week	0	0%
Intake of Fried / oily foods	>4 times a week	75	81.5%
	<4 times a week	17	18.5%
Fast Food intake	>4 times a week	0	0%
	<4 times a week	92	100%

Mean number of NCDs among males was (mean = 1.23, 95% CI 0.93, 1.54) lower than the number among females (mean = 1.37, 95% CI 1.09, 1.65). The difference in mean number of NCDs in different genders was not statistically significant.

The frequency of ischemic heart disease was high among study participants who were aged between 75-79 years old (19.2% of those in that age group). The frequency of hypertension was high in respondents aged between 75-79 years old (65.4% in that age group). The frequency of diabetic mellitus was high among respondents aged 75-79 years old (38.5% in that age group) (Table 4).

Osteoarthritis was significantly higher among those between 70 and 74 years of age. Chronic obstructive pulmonary disease was highest among respondents aged 75-79 years old (19.2% in that age group). Cerebrovascular accident was high among respondents aged 65 –69 years (25% in that age group).

Hypertension was significantly higher among females (p < 0.05). Almost all elderly with chronic illnesses were doing physical exercise regularly. There was no significant association between physical activity and NCD morbidity (Table 5).

DISCUSSION

This study showed that prevalence of most of the chronic illnesses such as hypertension, diabetic mellitus, chronic heart disease and COPD were more among the elderly aged 75-79 years old. The prevalence of Hypertension (48%) was more as compared to Osteoarthritis (35%). The current research does not correspond to a study done in Malaysia Tertiary Hospital which showed that the prevalence of chronic illnesses decreases with age.¹⁰

Previous research done in a tertiary hospital in Malaysia revealed a significant association between gender and hypertension¹⁰, which was similar to the current study. A study done in America, state that 70.4% of the elderly were presented with chronic diseases with prevalence of

Table 4. Non communicable diseases morbidities in different age groups

Morbidities	Age categories					Total (n=92)	p-value*
	60-64y (n=15)	65-69y (n=11)	70-74y (n=14)	75-79y (n=26)	>80y (n=26)		
Hypertension Present	9 (60)	5 (45.5)	(28.6)	17(65.4)	9(34.6)	44(47.8)	>0.05
Hypertension Absent	6 (40)	6 (54.5)	10(71.4)	9(34.6)	17(65.4)	48(52.2)	
DM Present	4 (26.7)	2 (18.2)	3 (21.4)	10(38.5)	5(19.2)	24(26.1)	>0.05
DM Absent	11(73.3)	9 (81.8)	11(78.6)	16(61.5)	21(80.8)	68(73.9)	
IHD Present	0 (0)	0 (0)	1 (7.1)	5 (19.2)	1(3.8)	7 (7.6)	>0.05
IHD Absent	15(100)	11(100)	13(92.9)	21(80.8)	25(96.2)	85(92.4)	
OA Present	3 (20)	5 (45.5)	9 (64.3)	4 (15.4)	11(42.3)	32(34.8)	<0.05
OA Absent	12 (80)	6 (54.5)	5 (35.7)	22(84.6)	15(57.7)	60(65.2)	
COPD Present	2 (13.3)	1 (9.1)	1 (7.1)	5 (19.2)	4 (15.4)	13(14.1)	>0.05
COPD Absent	13 (86.7)	10(90.9)	13(92.9)	21(80.8)	22(84.6)	79(85.9)	
CVA Present	3 (20)	1 (9.1)	1 (7.1)	3 (11.5)	2 (7.7)	10(10.9)	>0.05
CVA Absent	12 (80)	10(90.9)	13(92.9)	23(88.5)	24(92.3)	82(89.1)	
NCD Present	13 (86.7)	8 (72.7)	10 (71.4)	22(84.6)	19(73.1)	72(78.3)	>0.05
NCD Absent	2 (13.3)	3 (27.3)	4 (28.6)	4 (15.4)	7 (26.9)	20(21.7)	

* Fisher's exact test was applied

Table 5. Non communicable diseases morbidities in different gender

Disease	Gender			p-value*
	Male (n=43)	Female (n=49)	Total (n=92)	
Hypertension Present	15 (34.9)	29 (59.2)	44 (47.8)	<0.05
Hypertension Absent	28 (65.1)	20 (40.8)	48 (52.2)	
DM Present	11 (25.6)	13 (26.5)	24 (26.1)	>0.05
DM Absent	32 (74.4)	36 (73.5)	68 (73.9)	
IHD Present	2 (4.7)	5 (10.2)	7 (7.6)	>0.05
IHD Absent	41 (95.3)	44 (89.8)	85 (92.4)	
OA Present	17 (39.5)	15 (30.6)	32 (34.8)	>0.05
OA Absent	26 (60.5)	34 (69.4)	60 (65.2)	
COPD Present	8 (18.6)	5 (10.2)	13 (14.1)	>0.05
COPD Absent	35 (81.4)	44 (89.8)	79 (85.9)	
CVA Present	4 (9.3)	6 (12.2)	10 (10.9)	>0.05
CVA Absent	39 (90.7)	43 (87.8)	82 (89.1)	
NCD Present	33 (76.7)	39 (79.6)	72 (78.3)	>0.05
NCD Absent	10 (23.3)	10 (20.4)	20 (21.7)	

* Fisher's exact test was applied

Hypertension 36.1%, Chronic Obstructive Pulmonary Disease 23.7% and Cataract 16.7%.^{11,12} Increased physical activity, and in particular increased cardio respiratory fitness, has a beneficial effect on all risk factors for chronic disease and premature death.¹¹

The relationship between the chronic illnesses and gender was studied in the present research. The prevalence of chronic illnesses (Ischemic Heart Diseases, Diabetes Mellitus, Hypertension and cerebrovascular accidents) among females was higher as compared to males. A study done in Tertiary Hospital Malaysia in 2002 revealed that the elderly females were more affected by hypertension as compared to elderly males.¹⁰ Data from the National Health and Nutrition Examination Survey 1999–2000, also showed a higher prevalence of hypertension among females as compared to males in the US general adult populations.¹³ There was a greater prevalence of diabetes in women than in men in the study by Cacciatore et al in Italy in 1998.¹⁴

This study also investigated the relationship of chronic illnesses and physical exercise done by the elderly. Almost all elderly with chronic illnesses were doing physical exercise regularly. There was no significant association between physical activity and NCD morbidity. A study conducted by Georgia State University stated that physical exercise could increase survival function among white men and women especially the elderly.^{9,13}

Physical activity had been shown to reduce the risk of developing or dying from heart disease, diabetes and hypertension.¹⁵⁻¹⁸

CONCLUSION

This study showed that the prevalence of non-communicable chronic illness among the inhabitants of old age homes in Ipoh was influenced significantly by age and gender. Hypertension was the most prevalent health problem among the study participants followed by osteoarthritis and diabetes mellitus. Hypertension was significantly higher among females. Osteoarthritis was significantly higher among those who were between 70 and 74 years of age. Practice of physical exercise and high fibre diet intake was higher among the inmates.

END NOTE

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