P-21

FALLS AMONG OLDER PERSONS IN MALAYSIA: A PUBLIC HEALTH PERSPECTIVE

Norhafizah Sahril[1], Nik Adilah Shahein[1], Norzawati Yoep[1], Nor Azna Mahmud[1], Rajini Sooryanarayana[1], Tan Maw Pin[2], Nor Asiah Muhamad[3], Hasimah Ismail[1]

1. Institute for Public Health, National Institutes of Health, Ministry of Health Malaysia, Shah Alam, Selangor, MALAYSIA
2. Department of Medicine, Faculty of Medicine, University of Malaya, MALAYSIA
3. Research Policy and Planning Division, National Institutes of Health, Ministry of Health Malaysia, Shah Alam, Selangor, MALAYSIA

NMRR-17-2655-39047

INTRODUCTION

Falls are a common problem among older people, leading to major morbidity and increased mortality. It has been estimated that 30-40% of older persons will fall at least once over a 12-month period . Among those who have fallen, one in five will sustain two or more injuries . The aim of this study is to determine the prevalence of falls among older persons in Malaysia and its associated factors.

Table 1: Risk factors of falls among older persons in Malaysia (n=3977)

Variable	No (%) of Respondents *			Crude OR (95% CI)	p-value	Adjusted OR (95% CI)	p-value
	Total	Fall	Not Fall				
Age							
60-69 years old	2549 (66.2)	322 (12.7)	2222 (87.3)	1		1	
70-79 years old	1109 (26.0)	180 (16.4)	928 (83.6)	1.34(1.01,1.78)	0.040	1.20(0.88,1.65)	0.240
80 years and above	319 (7.9)	58 (17.5)	259 (82.5)	1.46(0.99,2.14)	0.056	1.18(0.73,1.89)	0.499
Gender							
Male	1872 (48.9)	253 (13.4)	1617 (86.6)	1		1	
Female	2105 (51.1)	307 (14.7)	1792 (85.3)	1.12(0.92,1.36)	0.253	0.99(0.80,1.24)	0.983
Locality							
Urban	1689 (73.1)	247 (14.1)	1439 (85.9)	1.02(0.79,1.31)	0.907	1.03(0.77,1.39)	0.824
Rural	2288 (26.9)	313 (13.9)	1970 (86.1)	1		1	
Ethnicity							
Malay	2581 (57.6)	327 (15.2)	2203 (84.8)	1.09(0.60,1.99)	0.770	1.01(0.58,1.78)	0.966
Chinese	710 (26.5)	103 (13.0)	605 (87.0)	0.91(0.49,1.70)	0.767	0.91(0.49,1.70)	0.765
Indian	126 (6.5)	19 (13.1)	107 (86.9)	0.92(0.44,1.92)	0.823	0.80(0.38,1.68)	0.547
Other Bumis	446 (7.6)	51 (10.6)	395 (89.4)	0.72(0.38,1.37)	0.319	0.74(0.40,1.37)	0.336
Others	114 (1.8)	15 (14.0)	99 (86.0)	1		1	
Employment status							
Unemployed/home-maker/retiree/	2927 (75.7)	438 (14.9)	2484 (85.1)	1.35(1.03,1.77)	0.030	1.09(0.79,1.50)	0.600
Employed	1050 (24.3)	122 (11.5)	925 (88.5)	1		1	
Self-reported Diabetes							
Yes	1018 (27.7)	189 (18.7)	829 (81.3)	1.65(1.33,2.04)	<0.001	1.55(1.23,1.94)	<0.001
No	2948 (72.3)	369 (12.3)	2576 (87.7)	1		1	
Self-reported Hypertension							
Yes	2027 (51.1)	314 (14.9)	1713 (85.1)	1.15(0.92,1.42)	0.220	0.90(0.71,1.16)	0.418
No	1939 (48.9)	244 (13.2)	1692 (86.8)	1		1	
Self-reported Hypercholesterolemia							
Yes	1576 (41.8)	256 (15.9)	1320 (84.1)	1.29(0.99,1.670	0.056	1.15(0.86,1.53)	0.355
No	2390 (58.2)	302 (12.8)	2085 (87.2)	1		1	
Hearing Disabilities							
Yes	235 (6.4)	53 (19.0)	182 (81.0)	1.47(0.92,2.35)	0.104	1.12(0.64,1.94)	0.697
No	3730 (93.6)	506 (13.7)	3221 (86.3)	1		1	
Vision Disabilities							
Yes	214 (4.5)	39 (16.8)	175 (83.2)	1.25(0.78,2.00)	0.355	0.91(0.56,1.49)	0.705
No	3754 (95.5)	521 (13.9)	3230 (86.1)	1		1	
Limitation in ADL							
Present	683 (17.0)	155 (21.4)	528 (78.6)	1.90(1.43,2.54)	<0.001	1.56(1.14,2.15)	0.006
Absent	3282 (83.0)	403 (12.5)	2876 (87.5)	1		1	
Limitation in IADL							
Dependent	1925 (42.9)	321 (16.7)	1603 (83.3)	1.47(1.16,1.84)	0.001	1.21(0.94,1.55)	0.142
Independent	2042 (57.1)	239 (12.1)	1801 (87.9)	1		1	

***Total percentage may not add up to 100, owing to missing data**

Methodology

Data were obtained from the National Health and Morbidity Survey 2018, a cross-sectional study using stratified cluster sampling design. Older persons were defined as aged 60 years and above in this study. Fall was defined as a situation where a person accidentally falls to a lower level usually the floor other than as a result of having a strong blow. Descriptive and logistic regression analyses were conducted using SPSS version 25.0 (IBM, USA) taking into account the complex survey design.

Results

1. Overall, 14.1% (95% CI: 12.46,15.84) of older persons reported having experienced at least one fall in the past 12 months.
2. Falls were more likely to occur among individuals who were not employed, [OR=1.35 (95%CI:1.03, 1.77)], and with self-reported medically diagnosed diabetes mellitus, [OR=1.65 (95%CI: 1.33, 2.040] and among those with limitations in ADL, [OR=1.90 (95%CI: 1.43, 2.54)] or IADL, [OR=1.47 (95%CI: 1.16, 1.84)].
3. Multiple logistic regression revealed that falls were positively associated with those who had diabetes mellitus [aOR:1.55 (95% CI: 1.23,1.94)] and limitation in ADL [aOR:1.56 (95% CI: 1.14, 2.15)].

Acknowledgements

The authors would like to thank the Director General of Health Malaysia for permission to present this poster.

Discussion

In comparison to other Asian countries, the fall prevalence of our population approximated most to Japan 15.9%[3] and Taiwan 19.1%[4], but appears to be lower than the prevalence reported by Thailand 26.1%[5].

Diabetes mellitus was a prominent risk factor of falls among the population included in the NHMS 2018 confirming the findings of previous local studies[6,7]. A meta-analysis found that older persons with diabetes mellitus had a 64% greater risk of falls with an overall increased risk of 94% and 27% among those who are insulin and non-insulin treated respectively[8].

The relationship between falls and impaired ADLs has also been established in numerous previous studies[4,9].

Conclusion

One in six older Malaysians experienced at least one fall over a 12 months period. Diabetes mellitus and limitation in ADL were the factors significantly associated with falls among older persons. A comprehensive and targeted program designed to reduce risk of falls is urgently needed. Future research should identify suitable programs for our setting to reduce the potential societal burden of falls in older Malaysians.

References

1. Ambrose AF, Paul G, Hausdorff JM. Risk factors for falls among older adults: A review of the literature. Maturitas. 2013;75(1):51–61.
2. Clemson L, Kendig H, Mackenzie L, Browning C. Predictors of injurious falls and fear of falling differ: an 11-year longitudinal study of incident events in older people. J Aging Health. 2015;27(2):239-256.
3. Kitayuguchi J, Kamada M, Okada S, Kamioka H, Mutoh Y. Association between musculoskeletal pain and trips or falls in rural J apanese community-dwelling older adults: A cross-sectional study. Geriatr Gerontol Int 2015;15(1):5464.
4. Chen PL, Lin HY, Ong JR, Ma HP. Development of a fall-risk assessment profile for community-dwelling older adults by using the National Health Interview Survey in Taiwan. BMC Public Health. 2020;20(1):1-0.
5. Worapanwisit T, Prabpai S, Rosenberg E. Correlates of falls among community-dwelling elderly in Thailand. J Aging Res. 2018;2018.
6. Singh DK, Shahar S, Vanoh D, Kamaruzzaman SB, Tan MP. Diabetes, arthritis, urinary incontinence, poor self-rated health, higher body mass index and lower handgrip strength are associated with falls among community-dwelling middle-aged and older adults: Pooled analyses from two cross-sectional Malaysian datasets. Geriatr Gerontol Int.2019;19(8):798-803.
7. Azidah AK, Hasniza H, Zunaina E. Prevalence of Falls and Its Associated Factors among Elderly Diabetes in a Tertiary Center, Malaysia. Curr Gerontol Geriatr Res. 2012; 2012
8. Yang Y, Hu X, Zhang Q, Zou R. Diabetes mellitus and risk of falls in older adults: a systematic review and meta-analysis. Age Ageing. 2016;45(6):761-767.
9. Chen TY. Predictors of Falls Among Older Singaporeans. Centre for Ageing Research and Education (CARE) Duke-NUS Medical School