

ORIGINAL ARTICLE

Prevalence of Geriatric Giants Among Older People in Kelantan Malaysia

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ABSTRACT

Introduction: Geriatric Giants are the impairment that appear in older people. It comprises of impaired cognition, urinary incontinence, instability, fall and immobility. The aim of this study is to determine the prevalence of Geriatric Giants among older people living in three different living environment; own home, pondok and old folks home.

Methods: This comparative study involved 471 respondents from Kelantan. There were 157 participants each from own home, pondok and old folks home. The prevalence of Geriatric Giants were determine by 10 minutes comprehensive screening which was developed to diagnose and manage the Geriatric Giants (WHO, 2007) and prevalence were compared using chi-square tests or Fisher exact test.

Results: Prevalence of dementia among respondents of old folks home (11.5%), pondok (6.4%) and own home (0.6%). Prevalence of urinary incontinence among respondents of own home (22.3%), old folks home (16.6%) and pondok (14.0%). Prevalence of instability among respondents of old folk home (31.2%), pondok (27.4%) and own home (14.0%). Prevalence of fall among respondents of pondok (33.1%), old folks home (24.25) and own home (19.7%). Old folk home respondents had the highest prevalence of moderate and severe immobility There were significant difference in prevalence of dementia ((Fisher exact p value <0.001), instability ($\chi^2(2)=13.957, p=0.001$), fall ($\chi^2(2)=7.629, p=0.022$) and mild and moderate immobility. **Conclusion:** Old folks home respondents had more prevalence of Geriatric Giants compared to their other counter parts.

Keywords: Geriatric Giants, Old folks home, Pondok, Own home, Kelantan

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INTRODUCTION

Geriatric Giants are the impairment that appear in older people. It comprises of impaired cognition, urinary incontinence, instability, fall and immobility. Impaired cognition mostly dementia in elderly described as the most. Dementia is a syndrome that consists of three components; impairment of cognitive skills, resulting from disease of the brain and which are severe enough to impair daily functioning (1).

Urinary incontinence described as involuntary leakage of urine (2). In epidemiological study, the common definitions are based on the frequency of urine loss, for

example 'any uncontrolled urine loss in the prior years' or 'more than two episodes in a month' (3). Balance and postural stability are defined as body's ability to return to a state of equilibrium after a perturbation (4). Instability and falls in older people may result from the effects of a single disease process or multiple diseases and impairments (5).

When an older people, especially a woman, falls and cannot stand up because of pain, she most probably has a fracture(6). The common causes of immobility in older people are Parkinson's disease, arthritis, osteoporosis, stroke and hip fracture,. Immobility affect the wellbeing and quality of life of the elderly because it has adverse social, psychological and physical consequences (7).

Migration of young people and growth of female labour force have effect on the family as caregivers for elderly(8). This process leads to changes in living arrangement of

the elderly. Some of them still continued to live at own home, some opted to live in pondok and some was sent to the old folks home because there were no one to take care of them. Elderly were proud to live at their own homes because of happy memories with their family in their home. In countries in the region including Malaysia, extended family system have eroded (8). This were due to the decrease number of available female who had migrated for work combined with reduce family size (9).

Abdul Manaf et al.(1999), described pondok as a group of houses which were built around a mosque, and it is for the Muslim people who would like to improve their religious knowledge. Many older people live there because they want to spend their remaining life in a religious manner. Hence pondok is regarded as semi-institutions for the older people (10). The pondok is the place for older people choose to spend their remaining life and be better off spiritually (11).

In Malaysia, institutional care for elderly are provided by government and non-governmental organization (NGO). Governmental institutionalization for elderly are managed by Social Welfare Department. Older people institutional care refers to shelter provided in Rumah Seri Kenangan (RSK). There are 11 RSK all over Malaysia with two RSK in East Malaysia (8). RSK offered medical treatment, occupational rehabilitation, recreational activities, accommodation, counselling and guidance and devotional facilities. The aim of this research is to compare the prevalence of Geriatric Giants among older people living in their own home, pondok and old folks home.

MATERIALS AND METHODS

Research Methodology

This was a comparative cross-sectional study which had taken one year to be completed. The reference population was the older people in Kelantan. The source population was older people living in districts of Kota Bharu, Pasir Mas, Rantau Panjang, Bachok, Pasir Puteh and Machang. The sampling frame was the older people living at own home, pondok and old folks home in the districts mention above who had fulfilled the inclusion and exclusion criteria. The convenience sampling method was applied whereby any older people who fulfilled the study criteria will be selected.

The inclusion criteria were those 60 years of age and above and Malaysian citizen. The exclusion criteria were unable to understand or speak Bahasa Melayu or English language, deaf and mute and having aggressive behaviour.

Kelantan is located at the east coast of Malay Peninsula which covers an area 15,105 square kilometres. Kelantan

consists of 10 districts (or Jajahan), namely Kota Bharu, Bachok, Jeli, Tanah Merah, Tumpat, Kuala Krai, Gua Musang, Machang, Pasir Mas and Pasir Puteh. The population of Kelantan is 1,539,601 souls. The district of Kota Bharu has the population of 491,237 souls (12). The proportion of person age 65 and above was 4.6% of the total population. There were a total of 558 villages, 39 pondok and 9 old folk home in Kelantan but only 4 villages, 3 pondok and 6 old folks home involved in this study.

Sample size was calculated using 2 proportions formula (Pocok's formula). The number per group to detect a difference in two proportions p_1 and p_2 , with power $(1-\beta)$ and significance level $\alpha=0.05$. $z_\alpha = 1.96$ for $\alpha = 0.05$, $z_\beta = 0.84$ for 80% power. After considering 20% non-response rate, the estimated sample size for this study was determined to be 157 subjects per group. Total subjects needed in this study were 471.

Research Tools

Prevalence of Geriatric Giants was determine by 10 minutes comprehensive screening (13). The Department of Ageing and Life Course (ALC) has developed a toolkit that assists health care professionals in being well versed in the management and diagnosis of the so-called giants of geriatrics (falls/immobility, memory loss, urinary incontinence) and chronic diseases that often impact older people (14).

The content of toolkit are evaluation forms, screening tools, slides, checklists, figures, graphs, diagrams, cards, scale tables, country guidelines, and exam sheets. It can be used by primary health care professionals to assess older persons' health status. Since the screening tools was in English language, the researcher had to translate and validate the tools into Bahasa Melayu for the local population.

Translational process

The translation process was carried out by a group of experts consisted of epidemiologist and family physicians. The process of translation is to ensure the preservation of contents and meanings. The aim was to have a high-quality translation with reliability, fluency, and appropriateness (15). In this research forward and backward translational process was conducted to produce final Malay version for pretesting.

Pretesting

Pretesting was done to ten subjects who were the native speakers of Malays. The review of the respondent testing and production of the final consensus with the replacement of question one in domain physical capacity from run/walk fast to catch the bus to run/walk fast to catch something. This replacement is due to the elderly in Malaysia are seldom using a bus to commute. The prevalence of immobility was assessed for six activities. Unable to run fast and unable to do heavy

work is classified as mild immobility. Unable to go shopping and unable to use public transport is classified as moderate immobility. Unable to take bath and unable to dress up is classified as severe immobility. For question number two in domain falls, the negative connotation was replaced by positive connotation. This is for easier interpretation of the result. The word unable to do was replaced by able to and the word unsteady was replaced by steady.

Data Collection

The identified villages, pondok and old folks home were contacted and a letter of application to conduct research at their place was sent. Only Rumah Seri Kenangan Kemumin replied by approval letter and others gave verbal permission. Two or three days before data collection, the head villages or pondok management will announced at the mosque about the study which will held at their place. On the data collection day, the villages and pondok respondents will assembled at the decided place (hall or mosque).

A short briefing on the aims and procedure of the study given to participants. They were given the chance to ask question during this briefing session. After the briefing session, a written consent obtained from the participants. Some of them were thumb printed due to illiteracy. After giving consent they would be interviewed face to face. The interview include sosio-demography, medical background and 10 minute comprehensive screening. The elderly were classified as having short term memory impairment if they were unable to recall three things after one minute. Elderly with memory impairment were proceed with Mini Mental State Examination (MMSE). The elderly with MMSE score less than 17 was classified as demented.

Statistical analysis

The data was analysed using SPSS software. Descriptive statistic for prevalence of Geriatric Giants and Chi-square test or Fisher exact test for the comparison of prevalence between living place.

RESULTS

Socio-demography of respondents

A total of 471 respondents took part in this study. There were three groups in this study; own home, pondok and old folks home, whereby each group consists of 157 respondents. Response rate was 100%. Majority of the respondents were Malay (97.5%), not smoking (87.0%), had low education (95.1%), previously had odd job (83.2%), have income below poverty level (94.5%) and currently unemployed (88.7%), The mean (SD) for age was 70.64 (7.16) years. 73.7% of the respondents are female. More than half of the respondents were living alone (64.5%) and currently not married (60.5%) and There were significant differences of age ($p<0.001$), marital status ($p<0.001$), gender ($p<0.001$), past and

current occupation ($p<0.001$), race ($p=0.004$), income level ($p<0.001$), living arrangement (<0.001), number of children ($p<0.001$) and smoking status ($p=0.039$) between the own home, pondok and old folks home respondents. Education level was the only variable that was not significant.

Prevalence of Geriatric Giants

Prevalence of dementia was highest among old folks home respondents (11.5%) and lowest among own home respondents (0.6%). Dementia prevalence for pondok respondents was 6.4%. There was a significant difference of prevalence of dementia between living place (Fisher exact p value <0.001). The total prevalence of urinary incontinence was 17.6% and highest in own home respondents with 22.3%. Pondok respondents had the lowest prevalence (14.0%). There was no significant difference in prevalence of urinary incontinence of respondent according to living place. The prevalence of instability was highest among old folk home respondents (31.2%). The lowest prevalence was among own home respondents (14.0%). There was a significant difference of prevalence of instability between living place ($\chi^2(2)=13.957, p=0.001$). Prevalence of fall was highest among pondok respondents with 33.1%. The lowest prevalence was among own home respondents (19.7%). There was a significant difference of prevalence of fall between living place ($\chi^2(2)=7.629, p=0.022$).

Pondok respondents had the highest prevalence of mild immobility with 70.1% inability to run fast and 42.7% inability to do heavy work. Old folk home respondents had the highest prevalence of moderate and severe immobility with inability to go shopping (42.1%), use public transport (38.2%), to take bath (3.3%) and to dress up (1.9%) as shown in Table I.

The lowest prevalence of immobility was among own home respondents. The prevalence for mild immobility with inability to run fast and doing heavy work were 49.7% and 15.9% respectively. The prevalence for moderate immobility with inability to go shopping and in using public transport were 15.3% and 10.2% respectively. None of own home respondents had severe immobility. There were significant different of prevalence of mild and moderate immobility between the living place with inability to run fast ($\chi^2(2)=16.50, p<0.001$), inability to do heavy work ($\chi^2(2)=29.97, p<0.001$), inability to go shopping ($\chi^2(2)=31.30, p<0.001$) and inability to use public transport ($\chi^2(2)=37.38, p<0.001$). Table II shows the result.

DISCUSSION

The prevalence of dementia in this study was 6.2% which was lower than the prevalence of cognitive impairment in rural community elderly with 22.4% (16). There was a significant difference of the prevalence of dementia between the own home, pondok and old folks

Table I: Prevalence of Geriatric Giants in Kelantan Malaysia (n=471)

Variable	Living place n(%)				χ^2 (df)	p value ^a
	Total frequency (%)	Own home (n=157)	Pondok (n=157)	Old folks home (n=157)		
Dementia	29 (6.2)	1 (0.6)	10 (6.4)	18 (11.5)	-	<0.001 ^b
Urinary incontinence in the past one year	83 (17.6)	35 (22.3)	22 (14.0)	26 (16.6)	3.890 (2)	0.143
Instability	114(24.2)	22 (14.0)	43 (27.4)	49 (31.2)	13.957 (2)	0.001
Fall	121 (25.7)	31 (19.7)	52 (33.1)	38 (24.2)	7.629 (2)	0.022

^a Pearson chi square test ^bFisher exact tests

Table II: Comparison of immobility between living place (n=471)

Variable	Living place n(%)				X ² (df)	p value ^a
	Total frequency (%)	Own home (n=157)	Pondok (n=157)	Old folks home(n=157)		
Unable to run fast	294(62.4)	78(49.7)	110(70.1)	106(67.5)	16.509(2)	<0.001
Unable to do heavy work	153(32.5)	25(15.9)	67(42.7)	61(38.9)	29.971(2)	<0.001
Unable to go shopping	128(27.2)	24(15.3)	37(23.6)	67(42.7)	31.304(2)	<0.001
Unable to use public transport	132(28.0)	16(10.2)	56(35.7)	60(38.2)	37.387(2)	<0.001
Unable to take bath	8(1.7)	0(0.0)	3(1.9)	5(3.3)		0.106 ^b
Unable to dress up	5(1.1)	0(0.0)	2(1.3)	3(1.9)		0.379 ^b

^aPearson chi square test, ^bFisher exact test

home where the highest prevalence was among old folks home respondents. Cognitive impairment and dementia were the risk for institutionalization of the older people regardless of their functional status, socio-demographic status or social network (17). Systematic review by Luppa et al.,(2009) also noted that functional impairment and dementia are the predictors of institutionalization of the older people (18). The other prediction was lack of assistance in daily living.

Urinary incontinence prevalence among own home older people in this study was 22.3%. It was higher than the prevalence found in study by Sidik et al. (2004) where the prevalence was 9.9%. Incontinence in elderly was regarded as aging process and the older people usually did not seek any medical advice for the problem. There was no significant difference between the own home, pondok and old folks home respondents

in the prevalence of urinary incontinence. Own home older people had higher prevalence (22.3%) than old folks home respondents (16.6%). This finding was contradicted study by Aggazzotti et al. (2000) and Xu and Kane (2013) where more than half old folks home older people had urinary incontinence with the prevalence of 54.5% and 65.8% respondents(19, 20).

Old folks home older people had the highest prevalence of instability with 31.3% of them were instable. Impaired gait and balance (instability) were another major risk factor for falls (21). Although older people in old folks home had the highest prevalence of instability, the prevalence of fall was not the highest. This might be due to the facilities provided for them to prevent fall such as railing in the bathroom. Live at own home respondents had the lowest prevalence for instability and falls which was 14.0% and 19.7% respectively. This was lower than

an old study that showed the prevalence of falls in older people living in community was 32% (22).

The prevalence of fall within the past 12 months was 25.7%, where the pondok respondents reported highest prevalence of fall of 33.1%. Fall is the major risk factor for morbidity and mortality in older people. It was estimated 30-40% of older people will fall at least once every year. Risk factors for falls include advancing age, environmental factors, visual impairments, cognitive decline especially executive and attention dysfunction, and female gender (21). The pondok was a small house or huts which were not arranged or structured properly. The pondok was located closely to one another. The road to the mosque was not properly built. It can be slippery during rainy season. All these factors might contributed to the falls incidents among older people in pondok. The prevalence of fall in old folks home respondents was 24.2%. It was lower than the prevalence of falls among pondok respondents.

The pondok respondents had the highest prevalence of mild immobility with 70.1% of them had inability to run fast and 42.7% of them had inability to do heavy work. Although they have mild immobility, they still can take care of themselves and continue the religious life in pondok.

The highest prevalence of moderate and severe immobility were among old folks home respondents with 42.1% had inability to go shopping and 38% of them had inability to use public transport. The old folks home respondents were taken care by the staff and they were not necessarily have to go shopping or use public transport to fulfilled their necessities. Instrumental activity of daily living such as grocery shopping, preparing meals, and managing household finances were not done anymore by the old folks home residents. This might be the reason for high prevalence of moderate immobility among old folks home residents. There were 3.3% of old folks home respondents had inability to take bath and 1.9% of them had inability to dress up. This was in line with study by Ro and Kim (1995) in Taiwan where they compared the activity of daily living between the institutionalized and non-institutionalized elderly and found that the non-institutionalized elderly had higher score in activity of daily living test(23). Functional impairment, cognitive impairment, lack of support and assistance in daily living were the predictors of institutionalization of the elderly(18). All the living at own home elderly in this study could take bath and dress by their own without assistance. They had the lowest prevalence of severe immobility. This was in line with Sidik et al, (2004) where none of the rural community elderly had inability to dress up and only 0.4% had inability to take bath (16).

The current study showed elderly in old folks home suffered more than their counterparts. It is

recommended that more comprehensive health care services to be provided in this institutions. The access to comprehensive health care and services are needed in order to minimize the effects of diseases and should promote the achievement of personal health potential. This step is to ensure that the quality of life of the older people is not compromised. The expansion of education in gerontology and geriatric should be enhanced to increase the man power in the health care of the older people.

There are a few strategies to reduce the risk of falls in elderly. The strategies should include exercise to improve balance, strength and gait training, modification of home environment, management of postural hypotension, minimization of psychoactive medications, management of foot problem and footwear,. Other interventions are cataract surgery if indicated, vitamin D supplementation and avoiding wearing multifocal lenses while walking. In anticipation of Malaysia heading towards an aging nation, health care providers especially the Ministry of Health (MOH) need to be alert and informed of the special needs of the older people. The views of the older people should be central to provide community primary health care services that is more age-friendly and more responsive to the needs of the elderly.

CONCLUSION

Old folks home older people had the highest prevalence in three out of five Geriatric Giants. They had highest prevalence of dementia, instability and immobility. Own home respondents had highest prevalence of urinary incontinence. Pondok respondents had highest prevalence of fall. There were significant difference in prevalence of dementia, instability and immobility in this three different living place.

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