

Geriatric Syndromes in Medina Nursing Home: Prevalence and Association Factors

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ABSTRACT

Introduction: Old population (> 65 years) forms more than 4% of total population in Saudi Arabia. This number expected to be 25% of total population in 2050. This is because the improvement of in Saudi care system. This study conducted to help in understanding geriatric syndromes and their risk factors. Falls, urinary incontinence, delirium and many conditions are included in the geriatric syndromes.

Methods and Materials: An in-person interview was conducted by the researchers to collect the answers from 75 participants. Functional decline was screened by the modified Katz Activities of Daily Living Scale (ADL), Cognition was measured by the mini-mental state examination (MMSE) and urinary incontinence by Incontinence Short Form (ICIQ-UI Short Form).

Results: The total of 75 (51 male, 24 female) participants of the same nursing home were screened. Functional status (function decline), totally dependent (<1 ADL) is 15% of the subjects, totally independent is 30 % (=6ADL) where those partially dependent are 55% (≥1ADL). 96% of the subjects have Mini Mental State Examination (MMSE) score below 17. Urinary incontinence was reported by 9% of subjects (≥1 ICIQ-UI Short Form).

Conclusions: Major component of geriatric syndromes were found to be very high among nursing home residents in Medina. Score of mini-mental state examination (MMSE) was totally low; diabetes mellitus was the commonest among the chronic disease. However urinary incontinence was not very prominent. Further studies are recommended to explore the rest of factors and minimize it.

Keywords: Functional Decline, Cognition, Incontinence, Geriatric Syndromes.

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Article History:

Received: 20-08-2017, **Revised:** 16-09-2017, **Accepted:** 09-10-2017

Access this article online

Website: www.ijmrp.com	Quick Response code 
DOI: 10.21276/ijmrp.2017.3.6.003	

INTRODUCTION

By the end of 2050, people who aged 60 year or over in Saudi Arabia will be 25% of total population which is 40 million.¹ That is considered more than 10 million people aged 60 or over in 2050. The population in the same age group (60 years and older) was 4.4% (1.1 million) in 2010.¹ Medina region contains 1.8 million residents according to last population reported by Central Department Of Statistics & Information.² The older population is growing in number because the improvement of health facilities. This will be associated with more geriatric related health problems.³ To overcome geriatric related health conditions, their uses of care services and to increase the health expectancy of this age group; we need to know more about geriatric syndromes and their associated factors.⁴ The target of our study is to identify these factors and their association with geriatric syndromes among nursing home residents in Medina region of Saudi Arabia. Geriatric syndromes are term used to describe different health conditions that occur in the older population and are not belong to any diseases category.⁵

METHODS AND MATERIALS

Because there is only one nursing home in Medina, we endeavored to apply the study on all residents of the nursing home after taking the permission. An in-person interview was conducted by the researchers to collect the answers from participants. There was not self-answer by the residents, because the majority is illiterate. For questions that cannot be answered by the residents, we took the answers from the caregivers in the nursing home. Each questionnaire took about 30 minutes per participants. Questionnaires divided into two part. Firstly, part one contains demographic factors (age, gender, education statues, smoking, and chronic diseases.). Secondly, part two contains the most common components of geriatric syndromes (functional decline, cognitive impairment and incontinence). For demographic factors, we did not ask about occupation, marital status because all inhabitants are full time staying. Functional decline was screened by the modified Katz Activities of Daily Living Scale (ADL), cognition was measured by the mini-mental state

examination (MMSE) and urinary incontinence by Incontinence Short Form (ICIQ-UI Short Form). All these measurement questionnaires were in formal, valid and reliable Arabic versions to ensure that the questions are delivered to the participants accurately.^{6,7, 8} The Ethical Review Committee approved the study. Verbal consent for participation was taken from the participants. The statistical analysis was done using SPSS for Windows, version 20 (Chicago, IL, USA); we used Spearman's Rank Correlation Coefficient to test the association between the variables. $P < 0.01$ was considered statistically significant relationship.

Table 1: Socio-demographic factors

Factor	N	Percentage
Gender		
Male	51	68%
Female	24	32%
Age		
< 60	11	15%
60-69	18	24%
70-79	18	24%
80-89	19	25%
90 -99	8	11%
>100	1	1%
Smoking		
Smoker	14	18.7%
Not smoker	50	66.7%
Ex-smoker	11	14.7%

Table 2: Prevalence of chronic diseases among residents of the nursing home

Chronic diseases	Yes - No	N	Percentage
Diabetes mellitus	Yes	36	48%
	No	39	52%
Hypertension	Yes	33	44%
	No	42	56%
Asthma	Yes	15	20%
	No	60	80%
Heart diseases	Yes	19	25%
	No	56	75%
Hepatitis	Yes	3	4%
	No	72	96%

RESULTS

The total of 75 (51 male, 24 female) participants of the same nursing home were screened. Illiteracy is the dominant educational status, 90.7% (68 persons). Smoker percentage is 18.7% (14 persons) where those ex-smokers are 14.7% (Table 1). Most of the participants have chronic diseases, diabetes mellitus is the highest percentage, 48%. (Table 2). In the category of functional status (function decline), totally dependent (<1 ADL) is 15% of the subjects, totally independent is 30 % (=6ADL) where those partially dependent are 55% (≥ 1 ADL). 96% of the subjects have Mini Mental State Examination (MMSE) score below 17. Urinary incontinence was reported by 9% of subjects (≥ 1 ICIQ-UI Short Form). The results of the association between geriatric syndrome and the studied factors are shown in Table 3. Aging found to reduce the scores of ADL and MMSE scores significantly

($p = 0.001$). On other hand we did not find an association between aging and urinary incontinence ($p = 0.148$). Among chronic disease only diabetes mellitus and hypertension show association with lower ADL scores ($p = 0.006$, $p = 0.014$ respectively) but they did not show association with MMSE or urinary incontinence. Smoking shows no association with any of the studied geriatric syndromes. Literate participants have better ADL and MMSE scores than uneducated ($p = 0.018$, $p = 0.012$ respectively).

DISCUSSION

Geriatric syndromes still has no plain definition but the majority of the definitions agree that the components of the syndromes are multifactorial and are not belong to any diseases category.⁵ Geriatric syndromes have high prevalence among the older population and high impact on their daily life.⁵ By searching in scientific journals through MEDLINE/PubMed and Google scholar engines, we did not find any study that investigate about the prevalence of geriatric syndromes or their related factors in Medina as a result we established this study. Our study is the first one that conducted in Medina region. We studied the association between geriatrics syndromes and four factors. The four factors are aging, educational status, smoking and chronic diseases. Aging is non-modifiable factor that associated with wide variety of health related conditions according to different age groups. The older persons are those of 65 year or more than according to WHO definition.⁹ As we age, there a deterioration of the physical activity.¹⁰ Our study shows there is association between aging and functional decline ($p = 0.001$). 55% of the subjects are partially dependent (≥ 1 ADL). As the function decline percentage increases among the aged, this will lead to total disability and a need for someone to assists them to do simple daily life routine as going to bathroom or even eating.¹¹ A Saudi study found 37.3 % of aged cannot do their daily activates without assistance from other.¹² An American study found that One-half of the visitors of primary care unite are aged 65 or over.¹³ In Saudi Arabia there is no statistical analysis for age groups that visit primary care units but the total visits in 2015 is 49.6 million visits.¹⁴ Therefore as research team we advise further studies about the benefit of making the functional decline assessment as routine in primary care untie for all older patients because early detection can prevent the further progress. Physical activity in aged plays a vital a role in integrity of the brain cell and act as protective factor against cognitive impairment.¹⁵ We found that aging also associated with cognition decline (p value=0.001) (table 3). This is agreeing with another study that found aging reduces the mini-mental state examination score.¹⁶ MMSE score was totally low, because the majority of the subjects (94%) scored below 17. Although increasing of age associated with urinary incontinence, we did not find a significant association between them (p value=0.148) (table 3). We did not predict this result because aging is known factor that associated with urinary incontinence.¹⁷ We expect this low percentage of urinary incontinence because of older person is usually feeling embarrassment to answer question about urinary incontinence.¹⁸ Data shows the geriatric syndromes are not consider as a comorbidity till now although its effect. It is important to the physician to consider in the management plan the highly prevalence of co-occurrence of the geriatric syndromes and chronic diseases.¹⁹ Al-Modeer et al, found 60.6% aged Saudis had two or more morbid conditions.¹² It is also evident the effect of

chronic diseases on the daily life activates and how it may cause function disability.¹⁹ In our study, we found 48% of the participants have diabetes mellitus followed by hypertension, cardiac diseases, asthma and only three participants have hepatitis (table 2). Both hypertension and diabetes associated with less daily activity ($p = 0.006$, $p = 0.014$ respectively) but they did not show association with MMSE or urinary incontinence. In Saudi Arabia, the current date show that the ratio of aged diabetic patient (60

years and above) to aged non-diabetic is 1:1.²⁰ Although it is clear detrimental effect on the body function we did not find a significant association between smoking and geriatric syndromes (Table 3), this is agreeing with a study that show the same result.²¹ Illiteracy is the major educational status among the residents. It has significant association with cognitive impairment²²; we found that the educated persons are have higher MMSE and modified Katz Activities of Daily Living Scale scores (Table 3).

Table 3: Association between variables and Geriatric syndromes
*Date were analyzed using Spearman's rank order correlation.

	Daily activity		Cognitive function		Incontinence	
	correlation coefficient*	P value	correlation coefficient	P value	correlation coefficient	P value
Ageing (>=65)	-0.416	0.001	-0.479	0.001	0.169	0.148
Diabetes	-0.314	0.006	-0.101	0.392	0.081	0.490
Hypertension	-0.285	0.014	-0.174	0.138	0.148	0.209
Smoking	-0.131	0.264	-0.134	0.253	0.081	0.491
Education	0.273	0.018	0.289	0.012	0.100	0.395

LIMITATIONS

There are no published studies about Medina geriatric population to do comparisons between results. There is only one nursing home in Medina and this will not consider as representative sample for the older population in Medina. To sum up, the study helps us in knowing the demographic factors and chronic diseases that have a significant association with geriatric syndromes.

CONCLUSIONS

Major component of geriatric syndromes were found to be very high among nursing home residents in Medina. Score of mini-mental state examination (MMSE) was totally low; diabetes mellitus was the commonest among the chronic disease. However urinary incontinence was not very prominent. Further studies are recommended to explore the rest of factors and minimize it.

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Source of Support: Nil. **Conflict of Interest:** None Declared.

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Cite this article as: Yasser Moghli ASubhi, Samia Siddeq Sabur, Aseel Bandar AlSaedi, Malak Bandar AlSaedi. Geriatric Syndromes in Medina Nursing Home: Prevalence and Association Factors. *Int J Med Res Prof*. 2017 Nov; 3(6):13-16.

DOI:10.21276/ijmrp.2017.3.6.003