

Prevalence of geriatric syndromes and associated risk factors among older adults

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Abstract

A descriptive study was done to assess the prevalence of geriatric syndromes and associated factors among 200 older adults admitted in general medical and geriatric wards in a tertiary hospital. A cross sectional study design with simple random sampling technique was used to select the participants. A comprehensive geriatric assessment tool and investigator prepared questionnaire on associated risk factors which were validated by experts were used. Descriptive statistics like frequency, percentage and inferential statistics like chi-square, ANOVA, student T-test were used. Nearly 56.5% of them were male and 67% of them were married. About 61% of them were unemployed, 46.5% of them had both diabetes mellitus and hypertension. Among the participants 55% had depressive symptoms, 70% of them had lower urinary tract symptoms, 59% had GI disturbances, 61.5% had mobility impairment, 74.5% had sleep disturbance, 57% had visual impairment, 34.5% had hearing impairment, 39.5% of them had muscle weakness, 51% had memory disturbances, 46.5% of them had functional decline, 55% had malnutrition. Average number of prevalence geriatric syndromes was 6. There was a significant relationship between geriatric syndromes and associated factors (p value < 0.05). A significant association was found between geriatric syndromes and age, BMI, previous hospitalization. (p value < 0.05).

Keywords: Geriatric Syndromes; Associated risk factors; Lower Urinary Tract Symptoms; Malnutrition; Functional Decline; Comprehensive Geriatric Assessment tool

1. Introduction

It is estimated that between 2015 and 2050, the proportion of the world's population over the age of sixty will nearly double from 12% to 22%. The number of people aged sixty years or older will be greater than children younger than five years by 2020. In 2050, 80% of older people will be living in low income countries. By 2050, the population of older persons aged eighty years and above will be 434 million. India has acquired the label of "an aging nation" with 7.7% of its population being more than sixty years [1].

Geriatric syndromes are a result of multiple risk factors. The four main risk factors include age, cognitive impairment, functional impairment and impaired mobility. Frailty is the common end product of geriatric syndromes which leads to dependence and death, if not recognized and addressed [11]. Geriatric syndromes refer to "multi factorial health conditions that occur when the accumulated effects of impairments in multiple systems render a person vulnerable to situational challenges" [7].

Geriatric syndromes have a set of common causative or risk factors which are interlinked with each other and need early recognition and treatment [13].

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Studies have shown that there is an increase in the total number of Geriatric syndromes in association with lower educational status, increase in co morbidities, use of alcohol, drug abuse and employing a sedentary lifestyle [14].

Geriatric Syndromes, along with other chronic diseases, have led to the decline in the quality of life and physical function in the older individual. Poor functioning and disabilities have led to prolonged hospitalization and nursing care, and increase in mortality [7].

This study was mainly conducted to investigate the prevalence of geriatric syndromes viz. depression, urinary symptoms, gastrointestinal symptoms, mobility, sleep disturbances, visual and hearing impairment, muscle power, memory impairment, functional decline and malnutrition among hospitalized patients and to identify underlying factors.

Objectives

- To identify the prevalence of Geriatric syndromes among older adults admitted in Medical and Geriatric wards.
- To study the relationship between Geriatric syndromes and associated risk factors among older adults admitted in Medical and Geriatric wards.
- To find the association between Geriatric syndromes, associated risk factors and socio-demographic and clinical variables of older adults in the study population.

2. Material and methods

2.1. Patients

A quantitative, non-experimental, descriptive, cross-sectional study design was used. The study was undertaken in Medical and Geriatric wards of a tertiary hospital in Vellore for a period of 6 weeks. Simple random sampling was used and 200 patients who fulfilled the inclusion criteria were recruited. The inclusion criteria were older adults i) ≥ 60 years, ii) Able to read and write Tamil/ English/ Hindi/ Telugu/ Malayalam. The exclusion criteria were older adults i) with acute health conditions ii) who were critically ill iii) who were stuporous, comatose, confused or delirious. Permission was sought from Nursing Superintendent, Head of the Departments of Medicine, Geriatrics and Medical Nursing. Written informed consent was obtained from the study participants.

2.2. Data collection

Participants who fulfilled the inclusion criteria were recruited using Simple Random Sampling method. The investigator developed a sampling frame of patients admitted in the ward with the help of admission register. Then the subjects were selected using computer generalized numbers. The investigator distributed the questionnaire to the participants. A pilot study was conducted to assess the feasibility of the study.

2.3. Comprehensive Geriatric Assessment Tool and Questionnaire on associated risk factors for Geriatric Syndromes

The prevalence of geriatric syndromes was assessed using Comprehensive Geriatric Assessment tool and MNA[®]. The questionnaire on Associated Risk Factors for Geriatric syndrome was used to assess the associated risk factors. The Comprehensive Geriatric Assessment tool developed by Geriatrics department and the questionnaire on Associated Risk Factors of Geriatric syndrome were validated by experts in Nursing and Medicine.

2.4. Statistical Analysis

Descriptive statistics like frequency and percentage were used for demographic, clinical variables and inferential statistics like chi-square was used for association, student t-test, ANOVA were used for relationship and the data was analyzed using SPSS version 26.0. Statistical significance was set at a p -value of < 0.05 .

3. Results

The findings of the study revealed that 56.5% of the participants were males. Among them 37% completed high school education. Nearly 67% of them had been married and living with their spouse. Of them 61% were unemployed. In the present study, 48.5% of them were taken care of by their spouse, 47.5% of them were dependent on their children financially, 73% of them had no personal ill habits and 5.5 % of them lived alone. The clinical variables in the present

study revealed that the BMI was normal in 41.5% of the participants. Majority of them, 83.5% had a previous history of hospitalization, with 46.5% with co morbidities like both diabetes mellitus and hypertension.

The percentage of prevalence of geriatric syndromes is shown in Figure1. The average number of geriatric syndromes prevalent among older adults was found to be six.

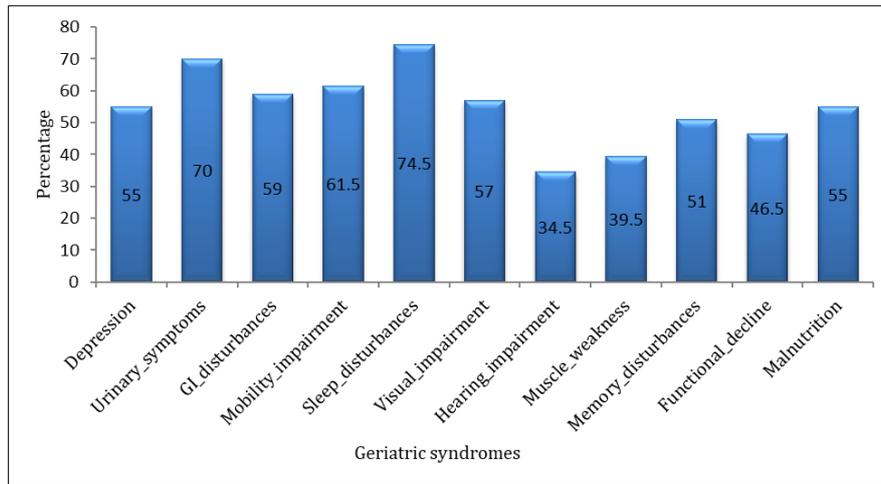


Figure 1 Percentage of overall prevalence of geriatric syndromes

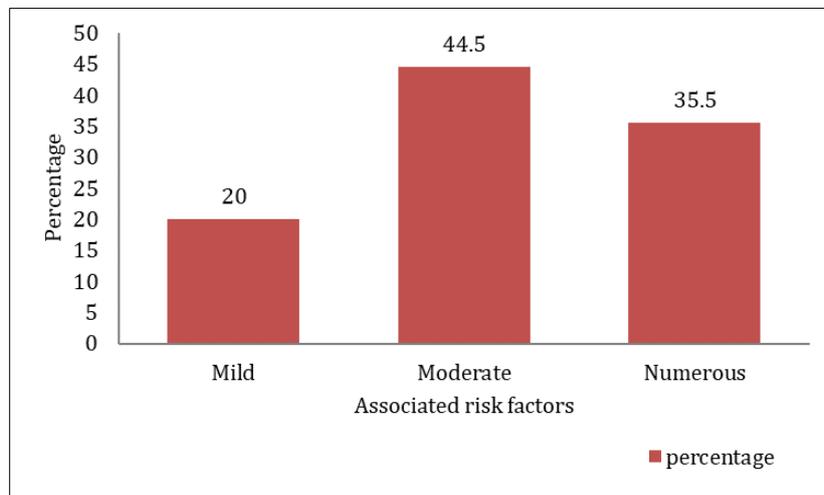


Figure 2 Distribution of patients based on their associated risk factors

There was a significant association found between age and lower urinary tract symptoms (p value= 0.035); age and mobility impairment (p value= 0.008), age and memory impairment (p value= 0.006); age and functional decline (p value= 0.016); age and malnutrition (p value <0.001). A significant association was found between occupation and lower urinary tract symptoms (p value= 0.001). The study also revealed a significant association between BMI and gastrointestinal symptoms (p value <0.001); BMI and mobility impairment (p value= 0.007); BMI and sleep disturbances (p value = 0.001), BMI and malnutrition (p value<0.001). There was a significant association between previous hospitalization and sleep disturbances (p value= 0.004); hearing impairment and comorbidities (p value= 0.021). The study findings revealed a significant association between BMI and associated risk factors (p value< 0.001); previous hospitalization and associated risk factors (p value= 0.036).

Table 1 Relationship between geriatric syndromes and associated risk factors

S. No	Geriatric Syndromes	Associated factors						p value
		Mild		Moderate		Numerous		
		N	%	N	%	N	%	
1.	Depression							
	Present	15	37.5	49	55.1	46	64.8	0.021*
	Absent	25	62.5	42	44.9	25	35.2	
2.	Lower urinary tract symptoms							
	Present	26	65.0	59	66.3	55	77.5	0.230
	Absent	14	35.0	30	33.7	16	22.5	
3.	Gastrointestinal symptoms							
	Present	13	32.5	51	57.3	54	76.1	< 0.001*
	Absent	27	67.5	38	42.7	17	23.9	
4.	Mobility impairment							
	Present	14	35.0	56	62.9	53	74.6	< 0.000*
	Absent	26	65.0	33	37.1	18	25.4	
5.	Sleep disturbances							
	Present	22	55.0	67	75.3	60	84.5	0.003*
	Absent	18	45.0	22	24.7	11	15.5	
6.	Visual impairment							
	Present	21	52.5	45	50.6	48	67.6	0.078
	Absent	19	47.5	44	49.4	23	32.4	
7.	Hearing impairment							
	Present	7	17.5	30	33.7	32	45.1	0.013*
	Absent	33	82.5	59	66.3	39	54.9	
8.	Muscle weakness							
	Present	8	20.0	35	39.3	36	50.7	0.006*
	Absent	32	80.0	54	60.7	35	49.3	
9.	Memory impairment							
	Present	11	27.5	44	49.4	47	66.2	< 0.001*
	Absent	29	72.5	45	50.6	24	33.8	
10.	Functional decline							
	Totally dependent	5	12.5	30	33.7	33	34.0	0.005*
	Severe dependency	7	17.5	10	11.2	8	11.3	
	Moderate dependency	7	17.5	23	25.8	14	19.7	
	Severe dependency	21	52.5	26	29.2	16	22.5	
11.	Malnutrition							
	Normal nutritional status	6	90.0	37	41.6	17	23.9	< 0.001*
	Risk for malnutrition	2	5.0	29	32.6	9	12.7	
	Malnourished	2	5.0	23	25.8	45	63.4	

*denotes the significant relationship (p value< 0.005) between specific geriatric syndromes and associated risk factors.

4. Discussion

The findings of the study were in contrast to a study by Greene M done in 2015 among HIV infected adults. Nearly 93% of them were men, 20.7% of them had completed high school education and 33.8% of them were employed [6]. This is contrary to the study done in which 28.6% of the elderly lived alone [5]. In the study conducted in 2020, 56% of the participants had normal BMI. Hypertension was found among 28% of the participants while 26% had Diabetes mellitus [8].

4.1. The first objective was to assess the prevalence of Geriatric syndromes.

In a study conducted in Moscow in 2018, depressive symptoms were found among 40.7%, 40.4% of them had urinary incontinence, 46.4% had mobility impairment, 54.5% had visual or hearing impairment, 14.3% had gastrointestinal symptoms and 72.5% of participants had memory disturbances [12].

In India, a study was conducted in Delhi in which the prevalence of geriatric syndromes was assessed. In that study, the prevalence of depression was 8.2%, cognitive impairment was 1.5%, falls 7.6%, incontinence 4.4% and functional dependency was 10.9% [5].

4.2. The second objective of the study was to study the relationship between geriatric syndromes and associated risk factors.

Another study conducted in 2020 to assess the prevalence of geriatric syndrome among older cancer patients receiving chemotherapy, identified a significant relationship between age and geriatric syndromes. Age greater than or equal to 65 years old was significantly associated with the geriatric syndrome ($p = 0.018$) [8].

A study was conducted in Boston in 2014 to assess the factors associated with geriatric syndrome among older homeless adults. The associated factors were age, female gender, less than a high school education, diabetes mellitus, arthritis, alcohol use, drug use, ADL impairment. A significant relationship was found between diabetes mellitus and geriatric syndromes ($OR=2.28$); arthritis and geriatric syndromes ($OR=2.35$); drug use and geriatric syndromes ($OR=2.27$); ADL impairment and geriatric syndromes ($OR= 2.69$) [4].

A study was done in Thailand in 2011 to assess the prevalence and recognition of geriatric syndromes. Among 120 participants, 50 were assessed by using geriatric assessment and 70 were assessed by using a routine medical assessment. A significant relationship was found between geriatric syndromes and increasing age (p value= 0.05); a significant relationship was identified between female gender and geriatric syndrome (p value = 0.03) [9].

4.3. The third objective was to find association between geriatric syndromes, associated factors, demographic and clinical variables.

In 2014 a study was conducted in Boston which revealed that lower educational status was associated with higher number of geriatric syndromes and also cognitive impairment was associated with higher number of geriatric syndromes which is contrary to the current study findings [3].

According to the study conducted in 2020, there was a significant association between age > 65 years and prevalence of geriatric syndromes (p value = 0.017). There was also a significant association found between BMI and depression and between Diabetes mellitus and depression [9].

A study was conducted in 2019 which revealed that female gender is associated with higher number of geriatric syndromes (p value= 0.005), which is contrary to our study. This might be due to selection of only inpatients [10].

5. Conclusion

Thus the current study had shown us that average number of prevalence of geriatric syndromes was six among older adults and these findings alarms the need for early detection and prompt action which can prevent them from developing further disabilities.

Compliance with ethical standards

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Disclosure of conflict of interest

The authors declare no conflict of interest.

Statement of ethical approval

The study was approved by the Institutional Review Board of College of Nursing, Christian Medical College, Vellore. The present research work does not contain any studies performed on animals/ humans subjects by any of the authors.

Statement of informed consent

Informed consent was obtained from all individual participants included in the study.

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