Geriatric Nutrition: Elderly at Risk of Malnutrition in Old Age Homes

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ABSTRACT

Background: Nutrition influences the health and functional ability. Older persons are particularly vulnerable to malnutrition, which will affect their health and functional ability. Also, Nutritional problems are the root cause of the major communicable and non – communicable diseases.

Objectives: The study conducted to assess the nutritional status of the elderly, to describe the functional ability of the elderly and to assess the vision, hearing and mobility of the elderly.

Methodology: A cross sectional study was carried out in the old age homes of Davangere district over a period of 1 year among 105 elderly living in the old age homes. Nutritional status was assessed using Mini Nutritional Assessment scale. Functional ability was measured by Katz Activities of Daily Living Scale.

Results: Out of 105 elderly, 61% were found to be at risk of malnutrition and 24% were malnourished. Visual impairment, hearing impairment and mobility was affected in 30.5%, 20% and 39% of the elderly respectively. There was a statistically significant association between age and Nutritional status of the elderly.

Conclusion: From our study, we conclude that Majority of the elderly were either at risk or were malnourished. Majority of the elderly had one of the functional inabilities.

Key words: Elderly, old age home, Malnutrition, functional ability

INTRODUCTION

Health and Functional ability is greatly influenced by nutrition.[1] In India, geriatric age group (aged 60 years and above) constitutes 8.6% of the total population as per 2011 census. Majority of them live in rural India.[2] Under nutrition is harmful leading to frailty, physical dependence and premature death apart from impairment of the immune system, increased risk of infection and poor wound-healing.[3]

The energy requirement declines with age due to reduction in the body mass, body metabolism and physical activity. Yet older people are at high risk of under nutrition due to several reasons, namely: Lack of teeth, gum problems and ill-fitting dentures make eating painful; Reduced appetite due to lack of exercise, loneliness, depression, chronic debilitating Disease, confusion, forgetfulness.[3] Available data for malnutrition worldwide shows that the prevalence of malnutrition as rated by the Mini Nutritional Assessment short form (MNA – SF) among the elderly is the following: 0–8% for those living in a community, 0–30% among the non-institutionalized elderly and 0–74% for the hospitalized and institutionalized elderly.[1]

The functional status of the elderly is reflected by their ability to perform daily activities which refers to the basic tasks of everyday life. When people are unable to perform these activities, they need help in order to cope, either from other human beings or mechanical devices or both. Although persons of all ages may have problems performing the Activity of Daily Living (ADL), prevalence rates are much higher for the elder population.[4]

Impaired mobility is a health concern for the elderly people, as it is a risk factor for fall and it may cause psychological problem of fear of falling, loss of confidence in being able to move around safely which restricts activity. Vision impairment is associated with a decreased ability to perform activities of daily living and an increased risk for depression. It also leads to increased incidence of fall, social isolation and also dependency. Inadequate hearing can result in lack of understanding and the older person's inappropriate response or expression may be wrongly interpreted as confusion or problems with mental status. Hearing loss can also interfere with socialization, as making an effort to listen becomes too embarrassing with eventual avoidance of participation in talking and hearing. [3]

In this view, this present study was undertaken to assess the nutritional status and functional ability of elderly living in rural India.

OBJECTIVES

The objectives of the study were to assess the nutritional status of the elderly using Mini Nutritional Assessment, to describe the functional ability of geriatric people, and to assess the vision, hearing and mobility of the elderly.

MATERIALS AND METHOD

A Cross sectional study was conducted for a period of One year, from 1st January 2012 to 31 December 2012 in Davangere district which has 7 old age homes (OAH) in its jurisdiction; Elderly aged 60 years and above residing in the old age homes and also those who got admission to OAHs during study period were included. Complete enumeration of all the elderly people of the 7 OAHs in Davangere district was done. With this by the end of study period we were able to reach a sample of 105 elderly.

Data collection: After explaining the purpose of the study to the participants a written/ informed consent was obtained. A predesigned semi structured questionnaire was used to collect information. Nutritional status was assessed using Mini Nutritional Assessment scale [5] The Mini Nutritional Assessment (MNA) scale is to diagnose the risk of malnutrition in elderly individuals. This provides a simple and quick evaluation of the nutritional state of elderly people in the community. [2] It is simple and non-invasive, which facilitates its use in the community. It detects subjects at risk of malnutrition before significant changes occur in weights.[6]

The most often used measure of functional ability

is the Katz Activities of Daily Living Scale [6] In this scale, the set of tasks assessed are bathing, dressing, transferring, using the toilet, continence, and eating. [7,8] A theoretical basis for selecting these functions is that they represent milestones in the sociobiological development of self-care independence in children. [4]

Eye examination was done by finger counting method, hearing assessment was done by Whisper Test [9] mobility by Get Up and Go Test [9]

Definitions and procedures:

Visual Impairment: Individuals who were unable to count fingers at a distance of 3 meter were considered as visually impaired. [10]

The **Whisper Test** is performed with the investigator standing at a fixed distance behind the patient"s ear and whispering a short set of random words. The patient should not be able to see the examiner"s lip movements and the opposite ear should be occluded. The patient is then asked to repeat the words depending upon which the person was categorized as having normal hearing or having hearing impairment. [9]

Get up and go test: Residents were asked to rise from an armless chair without using hands, stand still momentarily, walk to a wall 10 feet away, turn around without touching the wall, walk back to the chair, turn around & sit down. Undue slowness, hesitancy, abnormal movements, staggering, and stumbling are considered abnormal and indicate that the patient is at risk of falling. [9]

RESULTS

Out of 105 residents, majority were in the age group of 60 – 69 (young old) accounting for 50 (48%).Females outnumbered the males, 68(65%) were females and 37(35%) were males. 101 (96%) residents belonged to Hindu Religion. 48 (46%) residents were illiterates. A social security benefit in the form of old age pension/widow pension was available to about 45(43%) of the residents. 29 (28%) of the residents didn't have income from any source. 75 (71%) of the residents were from rural background. 68 (65%) residents were staying in the old age home from less than 4 years. (Table 1)

Based on Mini Nutritional Assessment Scale, 64 (61%) were found to be at risk of malnourishment, 25(24%) were normally nourished and 16 (15%) were found to be Malnourished.

Majority of the residents 96 (91.43%) had full functioning capacity and 9 (8.57%) had decreased activity. (Table 3)

Table 1: Distribution of study subjects according to their socio demographic profile

Variable	Frequency (%)
Age(years)	
60- 69	50 (48)
70- 79	36 (34)
80 & above	19 (18)
Gender	
Male	37 (35)
Female	68 (65)
Marital Status	
Married	24 (23)
No spouse	81 (77)
Religion	
Hindu	101 (96)
Muslim	3 (3)
Jain	1 (1)
Education	
Not literate	48 (46)
Literate	57 (54)
Source of income	
Gainfully employed	2 (2)
Money sent from family	22 (21)
Old age pension / widow pension	45 (43)
Property	7 (6)
No income	29 (28)
Place most stayed	
Urban	30 (29)
Rural	75 (71)
Duration of stay	
< 4 years	68 (65)
>4 years	37 (35)

Table 2: Distribution of the residents according to their nutritional and Functional status (n=105)

Characteristic	Frequency (%)
Mini Nutritional Assessment	
Normal	16 (15)
At risk of malnutrition	64 (61)
Malnourished	25 (24)
Vision impairment present	32 (30.5)
Hearing impairment present	21 (20)
Affected mobility present	41 (39)

Table 3: Residents according to the functional ability on Activities of Daily Living by Katz scale

Activities of Daily Living (ADL)	Frequency (%)
Full function	96 (91.43)
Decreased activity	9 (8.57)
Total	105 (100)

Majority of the elderly in the age group of 80 years and above were malnourished (42%) where as in the age group of 60 – 69 years and 70 – 79 years majority were at risk of malnutrition accounting for 64% and 72% respectively. Females (18%) were more malnourished and 11% of the males were malnourished. Higher proportions of males (68%) were at risk of malnutrition whereas 57% of the females were at risk of malnutrition.

Table 4: Showing association between the Nutritional status and the characteristics of the elderly

Variable	Nutritional Status			P value*
	Normal (n=25)	At risk of malnourishment (n=64)	Malnourished (n=16)	
Age (in years)				
60 - 69	13 (26%)	32 (64%)	5 (10%)	0.004#
70 - 79	7 (19%)	26 (72%)	3 (9%)	
≥80	5 (27%)	6 (31%)	8 (42%)	
Gender				
Male	8 (21%)	25 (68%)	4 (11%)	0.53
Female	17(25%)	39 (57%)	12 (18%)	
Literacy status				
Not literate	9 (19%)	31 (65%)	8 (16%)	0.53
literate	16(28%)	33 (58%)	8 (14%)	
Place				
Urban	10(33%)	16 (54%)	4 (13%)	0.35
Rural	15(20%)	48 (64%)	12 (16%)	
Duration of Stay in the Old age home				
< 4 yrs	16(24%)	43 (63%)	9 (13%)	0.72
> 4 yrs	9 (24%)	21 (57%)	7 (19%)	

*Chi square test; #Significant

Malnutrition was found to be slightly on higher side in Not literate (16%), rural (16%) and in elderly living in old age home from more than 4 years (19%). Statistically significant association was found between the age of the elderly and their nutritional status (P = 0.004) (Table 4)

DISCUSSION

In our study, majority of the participants, 61% were at risk of malnutrition, 24% were found to be normally nourished and 15% participants were found to be malnourished. . Similar result was found in a study carried out by Shivaj M et al. in Bikaner, Rajasthan [1] , where approximately 11.6% elderly were malnourished while 46% were at risk of malnutrition and 42.4% were well nourished and in an another study done by Vedantam A et al. (2009) in rural south India, in which the MNA scale classified 14% as malnourished and 49% at risk of malnourishment. [11] In a study done by Baweja S et al. (2008) from western Rajasthan 7.1% elderly were malnourished while 50.3% were at risk of malnutrition and only 42.6% were well nourished. [12] All these studies including our study show that larger proportions of the elderly people are at risk of malnourishment.

In a study done by Kansal D et al. among rural population of Belagavi it was found that 43.7% males and 43.3% females were at risk of malnutrition. 25.4% males and 21% females were suffering from malnutrition and 31% males and 35.3% females were well nourished, in this study the association of gender and nutritional status of elderly

was not found to be statistically significant (p = 0.735).[13] Similar result was found in our study, in which there was also no Statistically significant association between Gender and Nutritional status (P = 0.505). A study done by Shivraj et al. also showed that risk of malnutrition and malnutrition was more common in female 48.64% , 15.13% than males 44.44%, 9.52% respectively. [1] In our study there was a statistically significant association between age and the Nutritional status (P = 0.004). A study by Lahari S et.al found Older age (p < 0.001), low literacy level (p < 0.001), were independently associated with lower MNA scores. [2]

In our study visual impairment was found in 30.5% of the residents and hearing was impaired in 20% of the residents. Mobility was affected in 39% of the residents. In a study conducted by Sharma et al. in Chandigarh reported that locomotive disorders were found in 38.2% of the elder population.[14] A study done by Majra JP et al. (2010) done in old age homes of Southern India, reported visual impairment in about 28% of the residents and hearing deficit was found in about 42% of the residents. [15]

In a study by Tiwari S et al. (2010) in rural population of Varanasi where activities of daily living was assessed using Katz ADL scale, about 7.2% of the elderly population had decreased activity.[8] Similar result was found in our study where 8.57% had decreased activity.

CONCLUSION

As evident in this study, majority of the elderly were either at risk or were malnourished. There was statistically significant association between age of the study subjects and their nutritional status. Mobility was affected in more than one-third of the residents which is a risk factor for fall and also it might lead to dependency.

RECOMMENDATION

Majority of the residents were at a risk of malnutrition, hence more emphasis should be given to the diet that is provided in the OAH. Due to affected mobility chances of fall are high among elderly; provision of first aid kit should be made and also old age homes should be made geriatric friendly. Subjects with visual impairment, hearing impairment, reduced mobility were referred to respective departments of RRMC Hospital for further examination and treatment. As the elderly population is on the rise it's important to address their health and social problems and contribute in improving their quality of life.

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