Original Research Article

DOI: http://dx.doi.org/10.18203/2394-6040.ijcmph20164275

Geriatric health: assessment of nutritional status and functional ability of elderly living in rural area of Bangalore, Karnataka, India

Kavya C.1*, Santosh A.2

¹UG Student, III MBBS, RajaRajeswari Medical College and Hospital, Bangalore, Karnataka, India

Received: 05 October 2016 **Accepted:** 04 November 2016

*Correspondence:

Dr. Kavya C.,

E-mail: kavyachikkanna@gmail.com

Copyright: © the author(s), publisher and licensee Medip Academy. This is an open-access article distributed under the terms of the Creative Commons Attribution Non-Commercial License, which permits unrestricted non-commercial use, distribution, and reproduction in any medium, provided the original work is properly cited.

ABSTRACT

Background: In India, geriatric age group (aged 60 years and above) constitutes 8.6% of the total population as per 2011 census. Under nutrition among elderly is leading to frailty, functional dependence and premature death. The functional status of the elderly is reflected by their ability to perform daily activities which refers to the basic tasks of everyday life. Present study looks into their nutritional status and functional ability. The objectives were to assess the nutritional status of the elderly using mini nutritional assessment (MNA) scale, to describe the functional ability of geriatric people using Katz scale and to assess the vision, hearing and mobility of the elderly.

Methods: The study was a community based cross sectional study carried out in KakaRamanahalli, rural field practice area of RajaRajeswari Medical College Hospital, Bangalore for a period of 3 months. By the end of the study, we were able to reach a sample of 91 elderly.

Results: Majority of the elderly were either at risk of malnutrition or malnourished. There was significant association between age of the elderly and their nutritional status. About 25% of the elderly were having decreased ability in performing activities of daily living. More than 30% were having hearing impairment. Mobility and vision was affected in about 25% of the elderly.

Conclusions: From our study, we conclude that majority of the elderly were either at risk or were malnourished. There was a statistically significant association between age of the study subjects and their nutritional status.

Keywords: Functional ability of elderly, Geriatrics, Malnutrition among elderly

INTRODUCTION

Health and Functional ability is greatly influenced by nutrition. In India, geriatric age group (aged 60 years and above) constitutes 8.6% of the total population as per 2011 census. Undernutrition 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.

The energy requirement declines with age due to reduction in the body mass, body metabolism and physical activity. Yet older people are at higher risk of under nutrition due to several reasons, namely:

Food is less enjoyable due to changes in taste and smell sensation; lack of teeth, gum problems and ill-fitting dentures make eating painful; reduced appetite due to lack of exercise, loneliness, depression, chronic

²Department of Community Medicine, RajaRajeswari Medical College and Hospital, Bangalore, Karnataka, India

debilitating disease, confusion, forgetfulness and side effects of drugs, alcohol and smoking.³

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 Malnutrition in elderly patients is common because daily food consumption decreases with old age. Furthermore, the consumed food is low in calories, contributing to nutritional deficiencies and malnutrition.⁴ The functional status of the elderly is reflected by their ability to perform daily activities which refers to the basic tasks of everyday life. The most often used measure of functional ability is the Katz Activities of Daily Living Scale. In this scale, the set of tasks assessed are bathing, dressing, transferring, using the toilet, continence, and eating. A theoretical basis for selecting these functions is that they represent milestones in the sociobiological development of self-care independence in children.⁵ 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.

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

Objectives

- To assess the nutritional status of the elderly using Mini Nutritional Assessment (MNA) scale.
- To describe the functional ability of geriatric people using Katz scale.
- To assess the vision, hearing and mobility of the elderly.

METHODS

Study design: It is a Community based cross sectional study.

Study period: Three months from May 2016 to July 2016.

Study area: KakaRamana Halli, Rural Field Practice Area of RajaRajeswari Medical College and Hospital, Bangalore.

Study population: All the elderly aged 60 years and above residing in KakaRamana Halli.

Sample size: With this by the end of study we were able to reach a study population of 91 elderly.

Study tools: Predesigned and pretested questionnaire and nutritional status were assessed using MNA scale, an

instrument designed by Nestle Nutrition Institute specifically for elderly people.⁶

Inclusion criteria

Individuals aged 60 years & above residing in KakaRamana Halli were included in the study.

Exclusion criteria

Individuals who didn't give consent were excluded from the study.

Individuals who were not able to comprehend the study questionnaire due to terminal illness or dementia were excluded from the study.

Methodology: A community based cross sectional study was conducted among elderly living in KakaRamana Halli, rural field practice area of RRMCH, Bangalore. There are about 140 households in the village. All the elderly aged 60 years and above in the village were interviewed and examined. House to house visit was done, all the elderly living in the house were included in the study, if the elderly was not there in the house or if the house was locked, visit was given on the next day.

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. The objective of this scale is to provide a simple and quick evaluation of the nutritional status of elderly people. It is a simple and non-invasive instrument which facilitates its use in community.

Measure of functional ability was done by the Katz Activities of Daily Living Scale. In this scale, the set of tasks assessed were bathing, dressing, transferring, using the toilet, continence, and eating. ^{7,8}

Eye examination was done by 'finger counting' method, hearing assessment was done by 'whisper test', mobility by 'get up and go' test.

Definitions and procedures

- Visual impairment: Individuals who were unable to count fingers at a distance of 3 meter were considered as visually impaired.
- The Whisper test is performed with the investigator standing at a fixed distance behind the person'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. 10
- Get up and go test: Residents were asked to rise from an armless chair without using the support of 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.¹⁰

Statistical data analysis

The data was compiled in MS Excel Sheet and analyzed by using SPSS (Statistical Package for Social Sciences) version 16.0. Descriptive statistics and Chi square test was used during analysis. Statistical significance of 0.05 was considered.

RESULTS

Our Study comprised of 91 geriatric participants. The mean age of the study subjects was 67.69 ± 8.76 years with minimum and maximum ages being 60 and 98 years. Majority, 61 (67%) belonged to the age group 60-69 years, 19 (20.9%) belonged to the category to 70-79 years and 11 (12.1%) were aged 80 years and above. With respect to gender, 42 (46.2%) were males and 49 (53.8%) were females (Table 1).

Table 1: Age wise and gender wise distribution of the study participants.

Characteristic	Category	Frequency	Percent
Age in years	60 -69	61	67.0
	70 - 79	19	20.9
	80 and above	11	12.1
	Total	91	100.0
Gender	Male	42	46.2
	Female	49	53.8
	Total	91	100.0

Majority of the participants, 51 (56%) out of 91 were at risk of malnutrition and 28 (30.8%) were found to be malnourished. About 12 (13.2%) participants were normal (Figure 1).

Of the 91 elderly assessed, 22 of them (24.2%) had decreased activities of daily living and around 69 (75.8%) of them were found to be capable of coping with their ADL (Figure 2).

It is seen that, among the study subjects in the age group of 60 to 69 years, 62% participants were at risk of malnourishment and 20% were malnourished. Among the participants aged 70-79 years 58% were at risk and 42% were malnourished. Majority of the participants aged 80

years and above were malnourished accounting for 72% and 23% were at risk of malnourishment. A statistically significant association was found between age and Nutritional status of the participants (p = 0.007) (Table 2).

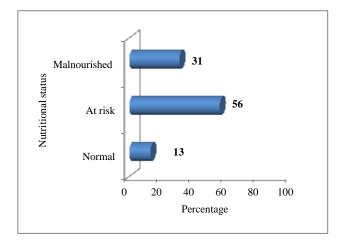


Figure 1: Distribution of study subjects according to their nutritional status.

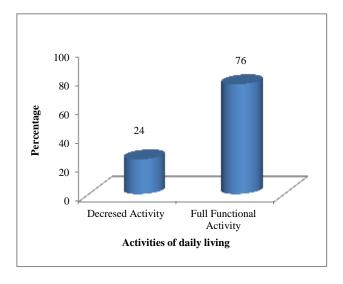


Figure 2: Distribution of subjects according to their ability to perform activities of daily living.

Out of 91 participants, 26 (62%) of the males and 25 (51%) females are at risk of malnutrition. 12 (28%) males and 16 (33%) females were found as malnourished, while, 4 (10%) males and 8 (16%) females were normally nourished. There was no statistically significant association between gender and nutritional status (p = 0.505) (Table 3).

Visual impairment was found in 26 (28.5%) of the study participants. 35(38.5%) of the elderly were unable to hear whispers and 24 (26.4%) participants were unable to get up without support and walk with steadiness and failed the get up and go test (Table 4).

Table 2: Association between age and nutritional status of the study participants.

A go in rooms	Nutritional status			Total	Dyalua
Age in years	Normal	At risk	Malnourished	Total	P value
60 -69	11 (18)	38 (62)	12 (20)	61	
70 - 79	1 (5)	10 (58)	8 (42)	19	0.007*
80 and above	0	3 (23)	8 (72)	11	0.007*
Total	12	51	28	91	

^{*}Fischer Exact Test.

Table 3: Showing association between gender and nutritional status of the study participants.

Nutritional status			Total	P value	
Gender	Normal	At risk	Malnourished	Total	r value
Male	4 (10)	26 (62)	12 (28)	42	0.505
Female	8 (16)	25 (51)	16 (33)	49	0.303
Total	12	51	28	91	

^{*}Fischer exact test.

Table 4: Distribution of the study subjects with respect to their impairment in the functioning status.

Functional status assessment	Frequency	Percentage
Vision	26	28.5
Hearing	35	38.5
Mobility	24	26.4

DISCUSSION

Nutrition is an important factor contributing to health and functional ability.

Malnourished elderly are more likely to require health and social services, need more hospitalization, and demand extra challenges from caregiver. So, early detection and prompt interventions are essential for prevention of malnutrition in this group.⁴ In our study, majority of the participants, 56% were at risk of malnutrition and 30.8% were found to be malnourished. Only around 13.2% participants were found to be well nourished. In a study carried out by Shivaj M et al. in Bikaner, Rajasthan, showed that 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 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 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 proportion of the elderly people are at risk of malnourishment.

In our study, out of 91 participants, 62% of the males and 51% females are at risk of malnutrition. Also 28% males

and 33% females were found to malnourished, while, 4 (10%) males and 8 (16%) females were normally nourished. 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). Similar result was found in our study, that is, no statistically significant association between Gender and Nutritional status (P = 0.505). Study done by Shivraj et al also showed that risk of malnutrition and malnutrition was more common in female 48.64%, 15.13% than male 44.44%, 9.52% respectively.

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. This restriction limits the social activity leading to social isolation of the person. In our study, 26.4% participants were having impaired mobility whereas in a study conducted by Sharma et al in Chandigarh reported that locomotive disorders were found in 38.2% of the elderly population.¹³

Vision impairment is associated with a decreased ability to perform activities of daily living. It also leads to increased incidence of fall, social isolation and also dependency. Hearing impairment can interfere with socialization, as making an effort to listen becomes too embarrassing with eventual avoidance of participation in talking and hearing.³

In our study, visual impairment was found in 28.5% of the study participants and 38.5% of the elderly were having hearing impairment The findings of our study are comparable to a study done by Majra JP et al, in old age homes of Southern India, in which visual impairment was found in about 28% of the residents and hearing deficit was found in about 42% of the residents. 14

Although persons of all ages may have problems performing the ADLs, prevalence rates are much higher for the elder population than for the non-elder population. In our study 24.2% had decreased activities of daily living whereas in a study done by Tiwari S et al in rural population of Varanasi by using Katz ADL scale, about 7.2% of the elderly population had decreased activity.⁸

CONCLUSION

From our study, we conclude that Majority of the elderly were either at risk or were malnourished. There was significant association between age of the study subjects and their nutritional status.

About 25% of the elderly were having decreased ability in performing activities of daily living. More than 30% were having hearing impairment. Mobility and vision was affected in about 25% of the elderly. Around 24% of the study subjects had decreased activities of daily living.

Recommendations

Subjects with visual impairment, hearing impairment, reduced mobility were referred to respective departments of RRMC Hospital for further examination and treatment. Advice on the diet and education on the nutritional values of various food stuff was given to the participants.

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.

ACKNOWLEDGEMENTS

Authors, are thankful to the health workers of KakaRamana Halli for their kind participation.

Funding: No funding sources Conflict of interest: None declared

Ethical approval: The study was approved by the

Institutional Ethics Committee

REFERENCES

- 1. Shivraj M, Singh VB, Meena BL, Kusum S, Neelam M, Dayal S, et al. Study of Nutritional Status In Elderly In Indian Population. Int J current research. 2014;6(11):10253-7.
- 2. Lahiri S, Biswas A, Santra S. Lahiri SK. Assessment of nutritional status among elderly population in a rural area of West Bengal, India. Int J Med Sci Public Health. 2015;4:569-572.

- 3. Dey AB. Introduction; Hand Book on Health Care of Elderly. A Manual for Trainers of Physicians in Primary and Secondary Health Care Facilities, 1st ed., WHO, Ministry of Health and Family Welfare, AIIMS, p 11-16.
- Kansal D, Baliga SS, Kruthika K, Mallapur MD. Nutritional assessment among elderly population of rural Belagavi: a cross-sectional study. Int J Med Sci Public Health. 2016;5DOI: 10.5455/ijmsph.2016.15122015298.
- Wiener JM, Hanley RJ, Clark R, Van Nostrand JF. Measuring the activities of daily living: Comparisons across national surveys; 1990 [cited 2013 Oct 18]. Available from: http://aspe.hhs.gov/daltcp/reports/meacmpes.pdf.
- Kaiser MJ, Bauer JM, Ramsch C, et al. Validation of the Mini Nutritional Assessment Short-Form (MNA®-SF): A practical tool for identification of nutritional status. J Nutr Health Aging. 2009;13:782-8.
- 7. Shelkey M, Wallace M. Katz Index of Independence in Activities of Daily Living (ADL). Available from http://consultgerirn.org/uploads/File/trythis/try_this_2.pdf
- 8. Tiwari S, Sinha AK, Patwardhan K, Gehlot S, Gambhir IS, Mohapatra SC. Prevalence of health problems among elderly: A study in a rural population of Varanasi. Indian J Prev Soc Med. 2010;41(3 & 4):226-30.
- 9. Park K: Textbook of Preventive and Social Medicine. Banarasidas Bhanot Publication, 22th edition, 2012, p549.
- All India Institute of Medical Sciences. Evaluation of health status and health needs of old age home residents and establishment of minimum standards of health services in long stay institutions in India, 2006-07. New Delhi: All India Institute of Medical Sciences; 2007: 46-57.
- 11. Vedantam A, Subramanian V, Rao NV, John KR. Malnutrition in free-living elderly in rural south India: prevalence and risk factors. Public Health Nutr. 2010;13(9):1328-32.
- Baweja S, Agarwal H, Mathur A, Haldiya KR, Mathur A. Assessment of Nutritional Status and Related Risk Factors in Community Dwelling Elderly Rajasthan. J Ind Acad Geriatr. 2008;4:5-13.
- 13. Sharma S, Thakur M, Kaur S. Health Problems and Treatment Seeking Behaviour among Elderly. HelpAge. India-Research & Development J. 2012;18(2):21-7.
- 14. Majra JP, Gur A. Medico social profile of the inmates of the old age homes in southern India. Middle East J Age Aging. 2010;7(3):2.

Cite this article as: Kavya C, Santosh A. Geriatric health: assessment of nutritional status and functional ability of elderly living in rural area of Bangalore, Karnataka, India. Int J Community Med Public Health 2016;3:3460-4.