Nutritional assessment among elderly population of rural Belagavi: a cross-sectional study

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Abstract

Background: Ageing is a physiological process that starts from birth, continues throughout life, and ends with death. Poor nutrition is not a natural concomitant of ageing; older adults are at risk for malnutrition due to physiological, psychological, social, dietary, and environmental risk factors.

Objectives: To assess the nutritional status of elderly living in rural India and to study the factors related to nutritional status.

Materials and Methods: Community-based cross-sectional study was conducted at Butramatti village, which comes under Primary Health Centre, Vantamuri. Predesigned and pretested questionnaire and nutritional status were assessed using Mini Nutritional Assessment (MNA) scale, an instrument designed by Nestle Nutrition Institute specifically for elderly people.

Results: Out of the total 190 participants, 85 (44.70%) were having BMI less than 19, 28 (14.70%) were having BMI 19 to less than 21, 11 (5.80%) were having BMI 21 to less than 23, and 66 (34.70%) were having BMI 23 or greater. And out of 190 participants, 31 (43.7%) males and 52 (43.3%) females were at risk of malnutrition. Eighteen (25.4%) males and 25 (21%) females were suffering from malnutrition and only 22 (31%) males and 42 (35.3%) females were well nourished. However, the association of gender and nutritional status of elderly was not found to be statistically significant ($p = 0.735$).

Conclusion: The results suggest that MNA is a useful tool in the identification of elderly at risk of malnutrition. Prevalence of elderly individuals who were malnourished and were at risk of malnutrition was high in our study.

KEY WORDS: Nutritional status, assessment, MNA, elderly, Belagavi

Introduction

Ageing is a physiological process that starts from birth, continues throughout life, and ends with death. Among numerous environmental factors that modulate ageing, nutrition plays a significant role. While poor nutrition is not a natural concomitant of ageing, older adults are at risk of malnutrition due to physiological, psychological, social, dietary, and environmental risk factors.[1]

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. The Mini Nutritional Assessment (MNA) scale has been developed to diagnose the risk of malnutrition in elderly individuals.[2]

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.[3]

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

Materials and Methods

Study Design

This is a community-based cross-sectional study.

Study Period

This study extended from July 2014 to September 2014.

Study Area

Butramatti village, which comes under Primary Health Centre, Vantamuri, under the field practice area of Department of Community Medicine, JNMC, Belagavi.

Study Population

According to the 2011 census, 8.2% of the total population are elderly. Population of Butramatti village is 2,314; considering 8.2% to be elderly population, the sample size was calculated to be 190. Age was confirmed using any Government of India recognized identity proof.

Study Tool

Predesigned and pretested questionnaire and nutritional status were assessed using MNA scale, an instrument designed by Nestle Nutrition Institute specifically for elderly people.[4]

The MNA scale comprised 18 questions based on the following components: anthropometric measurements, dietary questionnaire, global health and social assessment, and subjective assessment of health and nutrition.

- The initial 6 questions were used as a screening tool; if the screening score was 11 or less, the assessment was continued to gain Malnutrition Indicator Score.
- The participants were classified as normal nutritional status, at risk of malnutrition, or malnourished based on the Malnutrition Indicator Score.
- 24–30 points: normal nutritional status
- 17–23.5 points: at risk of malnutrition
- <17 points: malnourished

Informed written consent was obtained from all participants. The subjects' body weight was measured with a weighing scale to the nearest 0.1 kg, and their standing height, mid upper arm circumference, and calf circumference were measured to the nearest 0.1 cm using measuring tape.

Statistical Analysis

Statistical analysis was done using SPSS version 19 applying chi square test.

Results

This study comprised a total of 190 participants. Table 1 shows the sociodemographic profile of study population. Out of the total participants, 63 (33.15%) belonged to the age group of 60–69 years.

There were 71 (37.36%) males and 119 (62.64%) females, and majority of the respondents (162 [85.26%]) belonged to Hindu religion. Among the study participants, 88 (46.31%) were illiterate, 24 (12.63%) had their education upto high school, and only 10 (5.27%) participants were collegiate. In our study, 67 (35.26%) participants belonged to class IV and only 5 (2.63%) belonged to class I.

Table 2 shows nutritional status of elderly according to body mass index (BMI) (MNA scale). Out of the total 190 participants, 85 (44.70%) were having BMI less than 19, 28 (14.70%) were having BMI 19 to less than 21, 11 (5.80%) were having BMI 21 to less than 23, and 66 (34.70%) were having BMI 23 or greater.

Table 3 reveals that out of the 190 participants, 31 (43.7%) males and 52 (43.3%) females were at risk of malnutrition. Eighteen (25.4%) males and 25 (21%) females were suffering from malnutrition and only 22 (31%) males and 42 (35.3%) females were well nourished. However, the association of gender and nutritional status of elderly was not found to be statistically significant ($p = 0.735$).

Table 1: Sociodemographic profile of study population ($n = 190$)

Variables	No.	%
1) Age (years)		
60–64	63	33.15
65–69	66	34.74
70–74	29	15.27
75–79	20	10.52
>80	12	6.32
2) Gender		
Male	71	37.36
Female	119	62.64
3) Religion		
Hindu	162	85.26
Muslim	28	14.74
4) Education	88	
Illiterate	68	
Primary	24	46.31
High School	10	35.79
College		12.63
		5.27
5) Socioeconomic status		
Class I	05	2.63
Class II	22	11.58
Class III	60	31.58
Class IV	67	35.26
Class V	36	18.95

Table 2: Nutritional status of elderly according to Body Mass Index (MNA scale)

Nutritional status (BMI)	No.	%
BMI (<19)	85	44.70
BMI (19 to less than 21)	28	14.70
BMI (21 to less than 23)	11	5.80
BMI (23 or greater)	66	34.70
Total	190	100

Table 3: Association of gender and nutritional status

Characteristics	Male patients	Female patients	Total
Normal (24 to 30 points)	22 (31)	42 (35.3)	64
Risk of malnutrition (17 to 23.5)	31 (43.7)	52 (43.3)	83
Malnourished (<17 points)	18 (25.4)	25 (21)	43
Total	71	119	190

$\chi^2 = 0.616$; df = 2; $p = 0.735$.

Discussion

WHO has predicted that ageing population will present new challenges to health care. Thus, assessing nutritional status in the elderly is critical in determining health status.[5] The MNA is a practical noninvasive technique for rapidly evaluating potential risk of malnutrition in the elderly.[6] This study gives an insight into the priority issue of nutritional status in elderly in India.

In this study, 71(37.36%) males and 119 (62.64%) females and majority of respondents that is 162 (85.26%) belonged to Hindu religion. Whereas study conducted in Guwahati showed that 30 (41.67%) males and 42 (58.33%) females were in the age group of 60–64 years.[7] In this study, 88 (46.31%) were illiterate, 24 (12.63%) had their education upto high school, and only 10 (5.27%) participants were collegiate. Whereas the study conducted in Allahabad showed that 106 (27.17%) were illiterate and 53 (13.54%) had completed their education till high school, which was similar to our study.[8] In our study, 67 (35.26%) participants belonged to class IV and about 5 (2.63%) belonged to class I. These finding were comparatively similar to that reported by the study conducted in Allahabad.[8]

Out of the total 190 participants, 85 (44.70%) were having BMI less than 19, 28 (14.70%) were having BMI 19 to less than 21, 11 (5.80%) were having BMI 21 to less than 23, and 66 (34.70%) were having BMI 23 or greater according to MNA scale. Whereas a study done in rural Finland showed that 52 (30%) had a BMI of 30 kg/m^2 or more and 10 (6%) participants had a BMI below 20 kg/m^2.[9]

In this study 31 (43.7%) males and 52 (43.3%) females were at risk of malnutrition. 18 (25.4%) males and 25 (21%) females were suffering from malnutrition and only 22 (31%) males and 42 (35.3%) females were well nourished, whereas the study conducted in Pakistan showed that 88 (23.16%) males and 72 (18.95%) females were at risk of malnutrition, 12 (3.16%) males and 9 (2.37%) females were suffering from malnutrition, and 109 (28.68%) males and 90 (23.68%) females were well nourished.[10] Another study conducted in Bangladesh showed 61.7% were at risk of malnutrition, 25.8% were suffering from malnutrition, and only 12.5% were well nourished.[11]

Our results showed more at risk of malnutrition than actually malnourished. This finding has been seen among community-dwelling elderly from India and other parts of the world.[12–16] This is primarily due to the fact that the MNA is better at identifying those at risk of malnutrition among healthy elderly in the community.[17]

Conclusion

The results suggest that MNA is a useful tool in the identification of elderly at risk of malnutrition. Because of the high prevalence of elderly individuals that are malnourished and are at risk of malnutrition as seen in our study, it is necessary to have a more detailed evaluation of nutritional state of elderly and more regular evaluation, in addition to dietary intervention to reverse the observed symptoms. Government, NGO's, community, families, and medical and social science faculties need to give greater emphasis to provide health care, social support, and nutrition services to elderly.

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