

Original Research Article

Nutritional status assessment among elderly population in a rural area of South India

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ABSTRACT

Background: With growing science and technology, the proportion of elderly population is increasing worldwide. Ageing with coupled with increased risk of malnutrition in elderly and is often the neglected part resulting in increased morbidity and mortality. Early identification and intervention of the malnutrition among elderly population plays a crucial role in improve the health of the elderly. Objective of the study was to estimate the prevalence of malnutrition among elderly in rural south Indian population.

Methods: A Community based cross sectional study was conducted over a period of 2 months among 392 elderly population residing in a rural field practice area of a tertiary care hospital in Coimbatore. Elderly population both males and females > 60 years of age were screened for malnutrition and at risk for malnutrition using Mini Nutrition Assessment (MNA) tool. Data was analysed using Excel. $p < 0.05$ were considered significant.

Results: Majority of the study participants were in the age group of 60-70 years. 21.4% of the study participants were malnourished and 32.65% were at risk for malnutrition. The risk of malnutrition (40.57%) and malnutrition (25.71%) were high in females and is statistically significantly ($p < 0.05$).

Conclusions: Malnutrition among elderly is increasing at high rate even in rural areas. Early identification and intervention has to be done.

Keywords: Elderly, Malnutrition, Mini nutrition assessment, Rural areas

INTRODUCTION

Malnutrition is a common problem in childhood in all developing countries. However poor nutritional status in the elderly population is increasing in the recent time. Malnutrition among elderly accounts for about 17-25% in India.¹⁻³ Development of malnutrition in the elderly is a continuum, starting with inadequate food intake, followed by changes in body composition and biochemical variables.⁴ Development of malnutrition goes mainly unrecognized, owing to the lack of a specific, validated instrument to detect malnutrition in these elderly persons,

and if recognized it is not taken into account.⁵ The causes of malnutrition are often complex and multifactorial. But whatever be the cause, the clinical consequences are serious leading to complications of pre-existing disease, poor response to drug treatment, poor immune competence, and increased morbidity and mortality.⁶ There is also the effect of muscle wasting upon body strength, gait and balance, which increases the risk of falls and subsequent injury.⁷ Economic consequences include increased costs associated with prolonged hospital stay and additional treatment. It is therefore important to recognize older patients who are at risk of

malnutrition or who are already undernourished, so that early management and corrective measures can be initiated. There are various clinical and biochemical tools for diagnosing malnutrition, but they are not always easy to use, or else they require clinical experience. The Mini Nutritional Assessment (MNA) was designed to detect the risk of malnutrition in patients.⁶ Hence this study was planned to measure the prevalence of malnutrition among elderly patients in a rural area of South India.

METHODS

This community based cross sectional study was conducted over a period of 2 months from October 2017–November 2017 among elderly population residing in the rural field practice area of a tertiary care hospital in Coimbatore which serves a population of more than 40000. The institutional ethical committee approval was obtained before the start of the study. Sample size was calculated using Nmaster2.0 software considering the prevalence of malnutrition among elderly as 19.47% from the previous study.² With a relative precision of 20% and 95% confidence interval the sample size was 396. However 392 individuals were covered.

Households were the primary sampling units. Proportionate sampling method was used to find out the number of households needed from each Panchayat. Systematic random sampling was employed to select the households from the Panchayat. Individuals >60 years of age were the study unit and were recruited into the study randomly from the selected households. Households which were locked even after three visits were excluded from the study. MNA questionnaire is a nutritional screening instrument widely used for assessing the nutritional status of elderly. It has been tested and validated in many countries as an assessment tool of malnutrition in elderly.^{4,5,8-11} The maximum score for the scale is 30. A score <17 indicates malnutrition; a score of 17-23 indicates a risk of malnutrition and a score of ≥24 indicates a satisfactory nutritional status.⁵

Data collection was started after obtaining informed consent from the selected individuals. Training doctors posted in the Rural Health Training Centre were sensitized regarding the objectives of the study, confidentiality of information, participants rights, informed consent and were trained to administer the questionnaire. Interview was conducted by house-house visit. Height was measured with a measuring tape to the nearest 0.1 cm and weight was measured using bathroom weighing scale to the nearest 0.1 kg.

Data entry and analysis were done in Microsoft Excel. Continuous variables such as age were summarized as mean and standard deviation (SD).

Results of malnutrition status were summarized as proportion. Bivariate analysis (Chi square test/Fisher's exact test) was used to find the association between age and gender. P value less than 0.05 was considered statistically significant.

RESULTS

The mean age of study population was 66.72±5.88 years. 55.4% of the study population were males and 44.6% were females. Around 64 % of study participants were between the age group of 61 and 70 years (Table 1). 21.4% of the study participants were malnourished and 32.65% were at risk for malnutrition. The proportion of females malnourished (25.71 vs 17.97) was higher compared to males and at risk for malnutrition (40.57 vs 26.27). The results are statistically significant (Table 2). Table 3 shows that 18.18% were malnourished and 28.85 % were at risk of malnutrition in 61-70 years of age. 26.12% were malnourished and 38.74% were at risk of malnutrition in 71-80 years of age and 32.14% were malnourished and 42.85% were at risk of malnutrition in participants >80 years of age. As age increases, the proportion of participants who were at risk of malnutrition and who were malnourished also increases. The results are statistically significant.

Table 1: Distribution of study population according to age group and gender.

Age group (yrs)	Males		Females		Total	
	Frequency	%	Frequency	%	Frequency	%
61-70	140	64.51	113	64.57	253	64.54
70-80	62	28.57	49	28	111	28.31
>80	15	6.92	13	7.43	28	7.14
Total	217	100	175	100	392	100

Table 2: Association between MNA score and gender of the participants.

Nutritional status	Males		Females		Chi square	P value
	Frequency	%	Frequency	%		
Malnourished	39	17.97	45	25.71	19.03	0.00007
At risk for malnutrition	57	26.27	71	40.57		
Normal nutritional status	121	55.76	59	33.72		

Table 3: Association between MNA score and age group of the participants.

Age group (yrs)	Malnourished No (%)		At risk for malnutrition No (%)		Normal nutritional status No (%)		Chisquare (p value)
	Frequency	%	Frequency	%	Frequency	%	
61-70	46	18.18	73	28.86	134	52.96	15.37 (0.0039)
71-80	29	26.12	43	38.74	39	35.14	
>80	9	32.14	12	42.85	7	25	
Total	84	100	128	100	180	100	

DISCUSSION

This community based cross sectional study was conducted to measure the prevalence of malnutrition among elderly population in a rural south India. The mean age group of study participants was 66.72 ± 5.88 . 64 % of study participants were between 61 and 70 years of age. Around 21.4% of the study participants in the current study were malnourished. Similar results were reported in other authors.^{1-3,12,13} In a study by Hailemariam et al in Ethiopia higher prevalence of 28.3% were reported whereas Rashmi et al in Assam reported a lower prevalence of malnutrition(15%).¹⁴⁻¹⁵ 32.65% were at risk of malnutrition in the present study. The prevalence was higher in nearly all the studies.^{1-3,12-16}

Compared to males more females were malnourished in our study. Similar results were reported by other researchers.^{1,3,8,12} However in a study done by Rashmi et al in Assam, males were more malnourished compared to females.¹⁵ Females have the habit of having food after all the family members which leads to have the left over food which may be cause for more malnutrition. In the current study malnutrition and risk were more among >80 years of age. The prevalence of malnutrition increases as the age increases. Similar results were observed by many authors.^{1,14}

CONCLUSION

The prevalence of malnutrition in rural area is alarming and intervention at an early stage is recommended. Nutritional programs for elderly can be implemented. Since the consequence of malnutrition is worse in elderly, early and opportunistic screening for malnutrition and correction would help in improving their quality of life.

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Conflict of interest: None declared

Ethical approval: The study was approved by the Institutional Ethics Committee

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