Epidemiological Study to Assess the Nutritional Status and Co-morbid Factors Influencing it among Elderly in Rural Field Practice Area

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ABSTRACT
The health of the elderly is an important factor in defining the health status of a population. Malnutrition in elderly people is very common because daily food consumption reduces with old age. The consumed food is low in calories, contributing to nutritional deficiencies and malnutrition. Other factors like feeding difficulty, psychological distress, reduced mobility being widowed, illiteracy, caring for children, poverty, and poor access to health and social services make elderly more vulnerable for malnutrition. Studies have shown that more than 50% of the older population is underweight and more than 90% has an energy intake below the recommended allowance. To assess the nutritional status among elderly and To identify co-morbid factors influencing the nutritional status among elderly. A pre tested semi structured questionnaire will be used for obtaining socio-demographic details and co-morbidities of the study. Nutritional status will be assessed using mini nutritional assessment tool and 24 hrs dietry recall method. Activities of daily living and instrumental activities of living will be assessed using Barthel and Lawton scale resp. The mean age of study population was 73.79±7.85 years. The minimum age=60 years and maximum age=90 years. The nutritional status by gender was male 50.8% and female 49.2%. In the present study distribution of elderly based on Barthel scale by gender was moderate result was found in 19.70% male and in female 21.30% and Lawton scale by gender was independent in male 31.10% and in female 37.70%. Nutritional assessment of the elderly persons as a part of general health assessment is becoming increasingly important. Interventions to improve the nutritional status of the elderly should focus primarily on older people, the female gender and those who have co-morbidities.

INTRODUCTION

Elderly age is the range of ages nearing and surpassing the life expectancy of human beings. It is the end of human life cycle. Therefore they are more likely to suffer from malnutrition due to aging associated factor and along with prevalent comorbid conditions which aggravates the symptoms like anorexia, aphagia, digestive problems etc. In India especially the problem of the health of the elderly is compounded by poor nutrition together with medical issues, including both communicable and non-communicable diseases. Malnutrition and morbidity create a vicious cycle.

Apart from those with dementia and cognitive decline, healthy agers are a subject of interest to researchers. While general health, family history, psychosocial aspects are being studied, the need for improved and targeted integrated care approaches that are community-based, designed around needs of older persons and affective co-ordination and long term care systems are critical must-haves. This is true for every society, especially those with aging population and super aging population.

Ageing is the result of the long-term accumulation of cellular damage leading to a progressive decline in mental and physical capabilities and increasing the possibility of disease and death. The WHO predicts that by 2030, one out of every six people in the world will have reached the age of 60 or above[1]. In India, the proportion of elderly persons aged ≥60 years was 10.1% in 2021 and is projected to increase to 13.1% in 2031[2]. According to census 2011, India has 104 million older people, contributing 8.6% of total population. With the world ageing at a rapid rate, it is estimated that by 2030 there will be 34 nations with over 20% population above 65 years[3].

18.3% of the elderly in India (≥60 years) are malnourished and about half are at risk of malnutrition[4]. Studies have shown that more than 50% of the older population is underweight[5] and more than 90% has an energy intake below the recommended allowance[6].

The health of the elderly is an important factor in defining the health status of a population. Malnutrition in elderly people is very common because daily food consumption reduces with old age. The consumed food is low in calories, contributing to nutritional deficiencies and malnutrition[7]. Elderly persons have a higher likelihood of malnutrition due to various factors such as decreased appetite, inadequate food (protein-calorie and micronutrients) intake, impaired absorption and metabolism, functional disability, polypharmacy and chronic diseases caused by age-related physiologic and psychological changes[8].

However, nutritional intervention could play an important role in the prevention of degenerative conditions of the elderly and prevent from various co-morbid conditions.

Study instruments used:

- Mini Nutrition Assessment Tool[9,10]: is a simple tool, useful in clinical practice to measure nutritional status in elderly persons. It is a well-validated tool, with high sensitivity, specificity and reliability. An MNA score >24 (normal) identifies patients with a good nutritional status, Scores 17-23.5 identifies patients at risk and score <17 identify patients at risk for malnutrition.
- The 24-h recall (24HR)[11], a short-term dietary assessment instrument, requires the investigator to help the subject accurately recall and record the types and amounts of all of the foods consumed in the past 24 h.
- The Lawton Instrumental Activities of Daily Living Scale (IADL) is an appropriate instrument to assess independent living skills. This instrument is intended to be used among older adults, and can be used in community or hospital settings. The instrument is not useful for institutionalized older adults. It can be used as a baseline assessment tool and to compare baseline function to periodic assessments[12].

Objectives:
- To assess the nutritional status among elderly.
- To identify co-morbid factors influencing the nutritional status among elderly.

MATERIALS AND METHODS

A prospective study was done in rural field practice area, Navi Mumbai on 61 elderly aged between 60-90 years of both sexes, carried out during August 2023 to December 2023 using these study instruments:

- A pre tested semi structured questionnaire was used for obtaining socio-demographic details and co-morbidities of the study.
- Nutritional status was assessed using Mini Nutritional Assessment Tool and 24 hours Dietary Recall Method.
- Activities of daily living and instrumental activities of living was assessed using Barthel and Lawton scale respectively.

After obtaining the institutional ethical clearance and permission from the authorities this study was

conducted. Sixty one elderly were enrolled for the study after they were informed about the purpose of the study and the method of completing the questionnaire. The study participants were interviewed and their privacy and confidentiality was maintained. Informed verbal consent was taken from each participant. Participants below the age of 60 and above the age of 90 years were excluded.

Present work includes distribution of prepared questionnaire, collection of responses against each question, a compilation of data in the form of tables and graphs, interpretation of data using appropriate statistical test and conclusion.

RESULTS AND DISCUSSION

Malnutrition, which is a potential consequence of advanced ageing can be defined as "a state resulting from lack of intake or uptake of nutrition that leads to altered body composition (decreased fat free mass) and body cell mass leading to diminished physical and mental function and impaired clinical outcome from disease[13].

The cumulative effect of the interaction between decreased nutrition and changes seen in aging leads to progressive under-nutrition, which often goes undiagnosed. Loneliness, lack of income, employment status, living arrangements, decreased physical activity and other factors can affect the nutritional status of elderly subjects.

Traditionally, food intake tends to decrease with advancing age to compensate for the diminished energy needs associated with lowered physical activity and basal metabolic rate. Old age is also associated with deterioration of health because of decreased resistance to diseases in the body following ageing process[14].

Although various dietary intake assessment methods are available, they do not reflect comprehensive information. Mini nutritional assessment (MNA) has been observed to be such a tool which provides a single and rapid assessment of nutritional status in older people in clinical as well as in home based settings.

MNA is the most efficient, simple and appropriate nutritional assessment tool for older people, where a physician / dietician / nurses can detect malnutrition or at risk of malnutrition before severe weight or albumin loss is present and favours early nutritional intervention in order to improve quality of life[15].

The mean age of study population was 73.79±7.85 years. The minimum age=60 years and maximum age=90 years. Similarly in the study of Joymati et al.[16]

Table 1: Nutritional Status According to Age Group

Age Group (years)	Nutritional Status by MNA Score			Total	p-value
	Normal (>24) [n (%) 10 (16.4%)]	At risk (17-23.5) [n (%) 39 (63.9%)]	Malnourished (<17) [n (%) 12 (19.7%)]		
60-69 [n (%) 21 (34.4%)]					
Count	6	12	3	21	0.357*
Within Age Group (%)					
28.60%	57.10%	14.30%	100.00%		
% of Total	9.80%	19.70%	4.90%	34.40%	
70-79 [n (%) 20 (32.8%)]					
Count	3	13	4	20	
% within Age Group	15.00%	65.00%	20.00%	100.00%	
% of Total	4.90%	21.30%	6.60%	32.80%	
≥80 [n (%) 20 (32.8%)]					
Count	1	14	5	20	
% within Age Group	5.00%	70.00%	25.00%	100.00%	
% of Total	1.60%	23.00%	8.20%	32.80%	
Total					
Count	10	39	12	61	
Within Age Group (%)	16.40%	63.90%	19.70%	100.00%	
Total (%)	16.40%	63.90%	19.70%	100.00%	

The mean age of study population was 73.79±7.85 years. The minimum age=60 years and maximum age =90 years, *Chi square test does not shows statistical difference between groups, P value and significance

Table 2: Nutritional Status by Gender

Gender	Nutritional Status by MNA Score			Total	p-value
	Normal (>24) [n (%) 10 (16.4%)]	At risk (17-23.5) [n (%) 39 (63.9%)]	Malnourished (<17) [n (%) 12 (19.7%)]		
Male [n (%) 31 (50.8%)]					
Count	3	18	10	31	0.821*
Within Gender (%)	9.70%	58.10%	32.30%	100.00%	
Total (%)	4.90%	29.50%	16.40%	50.80%	
Female [n (%) 30 (49.2%)]					
Count	7	21	2	30	
Within Gender (%)	23.30%	70.00%	6.70%	100.00%	
Total (%)	11.50%	34.40%	3.30%	49.20%	
Total					
Count	10	39	12	61	
Within Gender (%)	16.40%	63.90%	19.70%	100.00%	
Total (%)	16.40%	63.90%	19.70%	100.00%	

*Chi square test does not shows statistical difference between groups, P value and significance

mean age 69.5±7.7 years and majority (82.4%) belonged to 60-74 age groups (Table 1).

In the present study nutritional status by gender was male 50.8% and female 49.2%. Similarly in the study of Khan *et al.*[17] sex distribution was male (48.16%) and female (51.84%) which is almost similar to our present study (Table 2).

In the present study nutritional status by education was not literate (14.8%). Similarly in the

Table 3: Nutritional Status According to Comorbidity

	Comorbidity		
Age Group (years)	Hypertension	Diabetic Mellitus	Other
60-69 [n (%) 21 (34.4%)]	16	10	15
70-79 [n (%) 20 (32.8%)]	18	12	17
≥80 [n (%) 20 (32.8%)]	19	15	19

Table 4: Nutritional Status by Marital Status

	Nutritional Status by MNA Score				
	Normal (>24)	At risk (17-23.5)	Malnourished (<17)		
Marital status	[n (%) 10 (16.4%)]	[n (%) 39 (63.9%)]	[n (%) 12 (19.7%)]	Total	p-value
Married [n (%) 24 (39.3%)]					
Count	2	18	4	24	0.591*
Within Marital status (%)	8.30%	75.00%	16.70%	100.00%	
Total (%)	3.30%	29.50%	6.60%	39.30%	
Not married [n (%) 17 (27.9%)]					
Count	3	9	5	17	
Within Marital status (%)	17.60%	52.90%	29.40%	100.00%	
Total (%)	4.90%	14.80%	8.20%	27.90%	
Widowed [n (%) 19 (31.1%)]					
Count	5	11	3	19	
Within Marital status (%)	26.30%	57.90%	15.80%	100.00%	
Total (%)	8.20%	18.00%	4.90%	31.10%	
Separated [n (%) 1 (1.6%)]					
Count	0	1	0	1	
Within Marital status (%)	0.00%	100.00%	0.00%	100.00%	
Total (%)	0.00%	1.60%	0.00%	1.60%	
Total					
Count	10	39	12	61	
Within Marital status (%)	16.40%	63.90%	19.70%	100.00%	
Total (%)	16.40%	63.90%	19.70%	100.00%	

*Chi square test does not shows statistical difference between groups, P value and significance.

Table 5: Nutritional Status by Education

	Nutritional Status by MNA Score				
	Normal (>24)	At risk (17-23.5)	Malnourished (<17)		
Educational Status	[n (%) 10 (16.4%)]	[n (%) 39 (63.9%)]	[n (%) 12 (19.7%)]	Total	p-value
Not literate [n(%) 9 (14.8%)]					
Count	0	4	5	9	0.044**
Within Education (%)	0.00%	44.40%	55.60%	100.00%	
Total (%)	0.00%	6.60%	8.20%	14.80%	
Literate without schooling [n(%) 8 (13.1%)]					
Count	1	7	0	8	
Within Education (%)	12.50%	87.50%	0.00%	100.00%	
Total (%)	1.60%	11.50%	0.00%	13.10%	
Primary [n(%) 14 (23%)]					
Count	0	10	4	14	
Within Education (%)	0.00%	71.40%	28.60%	100.00%	
Total (%)	0.00%	16.40%	6.60%	23.00%	
Middle [n(%) 1 (1.6%)]					
Count	0	1	0	1	
Within Education (%)	0.00%	100.00%	0.00%	100.00%	
Total (%)	0.00%	1.60%	0.00%	1.60%	
Secondary [n(%) 5 (8.2%)]					
Count	3	2	0	5	
Within Education (%)	60.00%	40.00%	0.00%	100.00%	
Total (%)	4.90%	3.30%	0.00%	8.20%	
Graduation [n(%) 20 (32.8%)]					
Count	5	12	3	20	
Within Education (%)	25.00%	60.00%	15.00%	100.00%	
Total (%)	8.20%	19.70%	4.90%	32.80%	
Post Graduation [n(%) 3 (14.9%)]					
Count	1	2	0	3	
Within Education (%)	33.30%	66.70%	0.00%	100.00%	
Total (%)	1.60%	3.30%	0.00%	4.90%	
Not known [n(%) 1 (1.6%)]					
Count	0	1	0	1	
Within Education (%)	0.00%	100.00%	0.00%	100.00%	
Total (%)	0.00%	1.60%	0.00%	1.60%	
Total					
Count	10	39	12	61	
Within Education (%)	16.40%	63.90%	19.70%	100.00%	
Total (%)	16.40%	63.90%	19.70%	100.00%	

*Chi square test shows statistical difference between groups, p-value and significance

Table 6: Nutritional Status by Financial Status

	Nutritional Status by MNA Score				
	Normal (>24)	At risk (17-23.5)	Malnourished (<17)		
Financial Status	[n (%) 10 (16.4%)]	[n (%) 39 (63.9%)]	[n (%) 12 (19.7%]	Total	P-value
Dependent [n (%) 33 (54.1%)]					
Count	6	21	6	33	0.031*
Within Financial Status (%)	18.20%	63.60%	18.20%	100.00%	
Total (%)	9.80%	34.40%	9.80%	54.10%	
Partially dependent [n (%) 12 (19.7%)]					
Count	0	10	2	12	
Within Financial Status (%)	0.00%	83.30%	16.70%	100.00%	
Total (%)	0.00%	16.40%	3.30%	19.70%	
Independent [n (%) 16 (26.2%)]					
Count	4	8	4	16	
Within Financial Status (%)	25.00%	50.00%	25.00%	100.00%	
Total (%)	6.60%	13.10%	6.60%	26.20%	
Total					
Count	10	39	12	61	
Within Financial Status (%)	16.40%	63.90%	19.70%	100.00%	
Total (%)	16.40%	63.90%	19.70%	100.00%	

*Chi square test shows statistical difference between groups, p value and significance

Table 7: Nutritional Status by Sources of Income

	Nutritional Status by MNA Score				
	Normal (>24)	At risk (17-23.5)	Malnourished (<17)		
Sources of Income	[n (%) 10 (16.4%)]	[n (%) 39 (63.9%)]	[n (%) 12 (19.7%)]	Total	p-value
None [n (%) 23 (37/7%)]					
Count	3	13	7	23	0.287*
Within Sources of Income (%)	13.00%	56.50%	30.40%	100.00%	
Total (%)	4.90%	21.30%	11.50%	37.70%	
Pension [n (%) 9 (14.8%)]					
Count	4	3	2	9	
Within Sources of Income (%)	44.40%	33.30%	22.20%	100.00%	
Total (%)	6.60%	4.90%	3.30%	14.80%	
Old age pension [n)%] 5 (8.2%)]					
Count	0	5	0	5	
Within Sources of Income (%)	0.00%	100.00%	0.00%	100.00%	
Total (%)	0.00%	8.20%	0.00%	8.20%	
Immovable assets [n (%) 17 (27.9%)]					
Count	2	13	2	17	
Within Sources of Income (%)	11.80%	76.50%	11.80%	100.00%	
Total (%)	3.30%	21.30%	3.30%	27.90%	
Interest from FD [n (%) 1 (1.6%)]					
Count	0	1	0	1	
Within Sources of Income (%)	0.00%	100.00%	0.00%	100.00%	
Total (%)	0.00%	1.60%	0.00%	1.60%	
Gainful employment [n (%) 6 (9.8%)]					
Count	1	4	1	6	
Within Sources of Income (%)	16.70%	66.70%	16.70%	100.00%	
Total (%)	1.60%	6.60%	1.60%	9.80%	
Total					
Count	10	39	12	61	
Within Sources of Income (%)	16.40%	63.90%	19.70%	100.00%	
Total (%)	16.40%	63.90%	19.70%	100.00%	

*Chi square test does not shows statistical difference between groups, P value and significance

Table 8: Nutritional Status by Types of Family

	Nutritional Status by MNA Score				
	Normal (>24)	At risk (17-23.5)	Malnourished (<17)		
Types of Family	[n (%) 10 (16.4%)]	[n (%) 39 (63.9%)]	[n (%) 12 (19.7%)]	Total	p-value
Nuclear family [n (%) 33 (54.1%)]					
Count	5	22	6	33	0.021*
Within types of family (%)	15.20%	66.70%	18.20%	100.00%	
Total (%)	8.20%	36.10%	9.80%	54.10%	
Joint family [n (%) 15 (24.6]%)]					
Count	3	9	3	15	
Within types of family (%)	20.00%	60.00%	20.00%	100.00%	
Total (%)	4.90%	14.80%	4.90%	24.60%	
3 generation family [n (%) 3 (4.9%)]					
Count	0	3	0	3	
Within types of family (%)	0.00%	100.00%	0.00%	100.00%	
Total (%)	0.00%	4.90%	0.00%	4.90%	
Others [n (%) 10 (16.4%)]					
Count	2	5	3	10	
Within types of family (%)	20.00%	50.00%	30.00%	100.00%	
Total (%)	3.30%	8.20%	4.90%	16.40%	
Total					
Count	10	39	12	61	
Within types of family (%)	16.40%	63.90%	19.70%	100.00%	
Total (%)	16.40%	63.90%	19.70%	100.00%	

*Chi square test shows statistical difference between groups, p-value and significance

study of Ramya et al. [18] nutritional status by education was not literate (20.61%) which is similar to our present study (Table 3-5).

In the present study nutritional status by financial status was dependent 54.1% and independent 26.2%, in the study of Joymati et al.[16] majority of the respondents were financially dependent (60.8%) which is similar to our study (Table 6).

In the present study nutritional status by types of family was nuclear (54.1%) and joint family (24.6%) similarly in the study of Joymati et al.[16] majority of the respondents were financially dependent (60.8%) which is similar to our study (Table 5). Similarly in the study of Khan et al.[17] elderly who lives with spouse and/or others are 25% which is similar to our study (Table 8).

In the present study distribution of elderly based on Barthel scale by gender was moderate result was found in 19.70% male and in female 21.30% (Table 9).

In the present study distribution of elderly based on Lawton scale by gender was independent in male 31.10% and in female 37.70% (Table 10).

In the present study association of Lawton scale and MNA score among elderly was independent in MNA normal findings was 16.40% and in malnourished it was 9.80% (Table 10). Significant association was noted between two parameters indicating risk of malnutrition in subjects with dependents (p<0.05) and elderly who were dependent on others were found to be Significant p<0.05) Associated with Risk of Malnutrition by Mcnemar's test also.

In the present study association of Barthel scale and MNA score among elderly was moderate dependent in MNA normal findings was 6.60% and in malnourished it was 8.20%. (Table 12) in this study we noted that the significant association was noted between two parameters indicating risk of

Table 9: Distribution of Elderly Based on Barthel Scale by Gender

Gender	Barthel Scale				
	Independent [19 (31.1%)]	Slightly dependent [n(%)] 15 (24.6%)]	Moderate dependent [n(%)] 25 (41%)]	Severe dependent [n(%)] 2 (3.3%)]	Total
Male [n (%) 31 50.8%)]					
Count	6	12	12	1	31
Within Gender (%)	19.40%	38.70%	38.70%	3.20%	100.00%
Total (%)	9.80%	19.70%	19.70%	1.60%	50.80%
Female [n (%) 30 (49.2%)					
Count	13	3	13	1	30
Within Gender (%)	43.30%	10.00%	43.30%	3.30%	100.00%
Total (%)	21.30%	4.90%	21.30%	1.60%	49.20%
Total					
Count	19	15	25	2	61
Within Gender (%)	31.10%	24.60%	41.00%	3.30%	100.00%
Total (%)	31.10%	24.60%	41.00%	3.30%	100.00%

Table 10: Distribution of Elderly Based on Lawton Scale by Gender

Gender	Lawton Scale		
	Independent [n = 42 (68.9%)]	Dependent [19 (31.1%)]	Total
Male [n (%) 31 50.8%)]			
Count	19	12	31
Within Gender (%)	61.30%	38.70%	100.00%
Total (%)	31.10%	19.70%	50.80%
Female [n (%) 30 (49.2%)			
Count	23	7	30
Within Gender (%)	76.70%	23.30%	100.00%
Total (%)	37.70%	11.50%	49.20%
Total			
Count	42	19	61
Within Gender (%)	68.90%	31.10%	100.00%
Total (%)	68.90%	31.10%	100.00%

Table 11: Association of Lawton Scale and Mna Score among Elderly

MNA	Lawton Scale			
	Independent [n = 42 (68.9%)]	Dependent [19 (31.1%)]	Total	p-value
Normal (>23.5) [n (%) 10 (16.4%)				
Count	10	0	10	0.030**
Within MNA Score (%)	100.00%	0.00%	100.00%	
Total (%)	16.40%	0.00%	16.40%	
At risk (17-23.5) [n (%) 39 (63.9%)				
Count	26	13	39	
Within MNA Score (%)	66.70%	33.30%	100.00%	
Total (%)	42.60%	21.30%	63.90%	
Malnourished (<17) [n (%) 12 (19.7%)				
Count	6	6	12	
Within MNA Score (%)	50.00%	50.00%	100.00%	
Total (%)	9.80%	9.80%	19.70%	
Total				
Count	42	19	61	
Within MNA Score (%)	68.90%	31.10%	100.00%	
Total (%)	68.90%	31.10%	100.00%	

*Chi square test shows statistical difference between groups, p value and significance

Table 12: Association of Barthel Scale and Mna Score among Elderly

| MNA | Barthel Scale | | | | | |
	Independent [19 (31.1%)]	Slightly dependent [n(%)] 15 (24.6%)]	Moderate dependent [n(%)] 25 (41%)]	Severe dependent [n(%)] 2 (3.3%)]	Total	p-value
Normal (>23.5) [n (%) 10 (16.4%)]						
Count	4	2	4	0	10	0.001**
Within MNA SCORE (%)	40.00%	20.00%	40.00%	0.00%	100.00%	
Total (%)	6.60%	3.30%	6.60%	0.00%	16.40%	
At risk (17-23.5) [n (%) 39 (63.9%)						
Count	12	11	16	0	39	
Within MNA SCORE (%)	30.80%	28.20%	41.00%	0.00%	100.00%	
Total (%)	19.70%	18.00%	26.20%	0.00%	63.90%	
Malnourished Malnourished (<17) [n (%) 12 (19.7%)]						
Count	3	2	5	2	12	
Within MNA SCORE (%)	25.00%	16.70%	41.70%	16.70%	100.00%	
Total (%)	4.90%	3.30%	8.20%	3.30%	19.70%	
Total						
Count	19	15	25	2	61	
Within MNA SCORE (%)	31.10%	24.60%	41.00%	3.30%	100.00%	
Total (%)	31.10%	24.60%	41.00%	3.30%	100.00%	

*Chi square test shows statistical difference between groups, p value and significance, **Correlation of Association between outcome of BARTHEL SCALE AND MNA SCORE was assessed using chi-square test, Significant association was noted between two parameters indicating RISK OF MALNUTRITION in subjects with DEPENDENTS (p<0.05), **Elderly who were dependent on others were found to be Significant (p<0.05) Associated with Risk of Malnutrition by Mcnemar's test also

malnutrition in subjects with dependents (p<0.05) and elderly who were dependent on others were found to be Significant p<0.05) Associated with Risk of Malnutrition by Mcnemar's test also.

CONCLUSION

Elderly population (≥60 years) are uniquely susceptible to malnutrition because of physiological, psychological and functional changes that occur with aging. As they become older, most of them start depending on others for their daily needs and majority of them have no financial support, inadequate access to food and live with other existing co-morbidities. Malnutrition in elderly is both a health outcome as well as a risk factor for diseases. Nutritional status according to age group, gender, marital status, source of income was not found to be statistically significant in our study but when we compare nutritional status of elderly person with other factors like educational status, financial status and type of family it was observed as statistically significant difference. Significant association was noted between two parameters indicating risk of malnutrition in subjects with dependents (p<0.05). Elderly who were dependent on others were found to be significant (p<0.05). Associated with risk of malnutrition by Mcnemar's test also. Correlation of association between outcome of Lawton scale and MNA SCORE significantassociationwasnotedbetweentwoparamet ersindicatingrisk of malnutrition insubjectswith dependents (p<0.05). Elderly who were dependent on others were found to be significant (p<0.05) associated with risk of malnutrition by Mcnemar's test also.

Therefore, nutritional assessment of the elderly persons as a part of general health assessment is becoming increasingly important. Interventions to improve the nutritional status of the elderly should focus primarily on older people, the female gender and those who have co-morbidities.

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