

Nutritional Assessment and Structured Teaching on Dietary Requirements for Elderly

Mrs. Brinda L M.Sc. (N)

Research Scholar

Department of Nursing

Himalayan University, Itanagar -791111, Arunachal Pradesh, India.

Abstract : PURPOSE: This study is undertaken to assess the level of malnourishment among elderly patients and to provide structured teaching on dietary requirements for at risk and malnourished elderly.

METHODS: A descriptive cross sectional design is used to determine the nutritional status of elderly admitted in medical wards of Christian Medical College, Vellore, South India. Data collection was done for a period of 6 weeks among the elderly admitted in the medical wards. Elderly who fulfilled the inclusion criteria was selected from inpatient's record according to availability of patients. Mini Nutritional assessment scale is used to assess the malnourishment and Barthel Index to assess the activities of daily living in elderly. Structured teaching programme on dietary requirements was given for elderly identified as at risk and malnourished.

RESULTS: Out of 116 samples Most of the elderly 71.55% were at risk for malnutrition and 24.1% were malnourished. Only 4% were nutritionally healthy. The mean albumin was 0.85. Association was not significant between serum albumin & nutritional status of elderly. The mean body mass index of normal, at risk, malnourished elderly were 26, 22, & 19. The differences were statistically significant ($P < 0.001$). The mean serum hemoglobin for normal, at risk, malnourished elderly were 13, 12, & 10. The mean differences were statistically significant ($P < 0.01$). Barthel index score revealed all the normal 100%, 40% at risk and 21% malnourished elderly were independent. No significant association was found between activity and nutritional status of elderly. All the samples 100% accepted the teaching was relevant to their need, able to tell meaning of balanced diet, select right choice of food and clear about terms used.

CONCLUSION: Exposure to information gives insight to practice healthy habits which in turn lead to health promotion and better quality of life. So early nutritional assessment and structured teaching on balanced diet for elderly can bring about a change in knowledge and practice of elderly patient. It also helps in adopting healthy life style. Diet when followed up regularly helps in preventing many complications of chronic illness occurring in elderly.

Index Terms – Geriatrics, Nutritional Assessment, Malnourishment, Structured teaching program, Mini Nutritional assessment scale, Barthel index, Balanced diet.

I. INTRODUCTION

“Being old is a psychic perception while being labeled old is a social ascription”

The term geriatric comes from the Greek word “geras” meaning old age and “Iatro” meaning related to medical treatment. Aging is one of the factors that may lead to powerlessness in the elderly, other factors that may contribute to patient's perception of powerlessness are lack of social support, lack of religious support, uncertainty, the severity of the disease, hospitalization and aggressive process of medical treatment. By 2025 the number of older persons worldwide is expected to reach more than 1.2 billion with about 840 million of these in low income countries. By 2025 the proportion of the population aged 60 & over is expected to reach 25% in North America, 11% in South & Central Asia. Japan (81.5yrs) and Sweden (80.1 years). Elderly population of India according to 2011 census is are nearly 104 million (aged 60 years or above); 53 million females and 51 million males. A report released by the United Nations Population Fund and Help Age India suggests that the number of elderly persons is expected to grow to 173 million by 2026. 71% of elderly population resides in rural areas while 29 % is in urban areas. The Indian aged population is the second largest in the world. Life cannot be sustained without adequate nourishment. Nutrition is a prime concern for the optimal health of older persons. Nutrition, aging & health form an inseparable triad. Nutrition modulates aging & inadequate nutrition contributes to the development & progression of degenerative diseases & disorders that are associated with aging. Extensive diet surveys carried out in different parts of our country both in rural & urban areas indicate that diet is predominantly based on cereals. Diets of poor income groups are deficient in several nutrients namely energy, vitamin A, calcium, riboflavin, & iron. Any nutritional improvement measures that maintain health of elderly population & lessen their dependence reduce cost of care and could also increase the capacity to contribute to the economy of our country.

II. NEED FOR THE STUDY

The elderly dependency ratio rose from 10.9% in 1961 to 14.2% in 2011 for India as a whole. Most common disability among the aged persons was locomotor disability and visual disability as per Census 2011. State - wise data on elderly population divulge that Kerala has maximum proportion of elderly people in its population (12.6 per cent) followed by Goa (11.2 per cent) and Tamil Nadu (10.4 per cent) as per Population Census 2011. The elderly population in India is expected to increase by 9.87% by 2021. In India we do not have adequate specialized geriatric clinics (or) geriatric nurses. Thus, the inadequacy of health care as it relates to the elderly is of much concern. Special rapporteur from Indian council of medical research studies have shown that national nutritional goals have not been met. According to FAO, India is home to the largest share of world's undernourished as

given in government own report. Poorest 30% of household eat less than 1700 kilocalories per day per person well below international minimum standard of 2100 kilocalories per day. In global campaign of health for all, "promotion of proper nutrition" is one of the 8 elements of primary health care. The investigator having worked in a geriatric ward found that elderly lacked adequate knowledge regarding diet & had come across elderly mostly presenting with difficulty in intake of food because of difficulty in swallowing, isolation from family & spouse due to hospitalization. Many have reported having reduced appetite and during acute episodes of illness many seem to lose functional ability because of limited energy reserves. Some of the elderly admitted even had feeding difficulty which in turn affected their activities of daily living and delay in recovery. This study will inform elderly on the importance of whole some diet for healthy life and sensitize nurses to get involved into this important aspect of geriatric care.

III. OPERATIONAL DEFINITION

Nutritional status

It refers to the maintenance of normal nutrition parameters such as height, weight, Body mass index and calf muscle circumference.

Elderly

Male and Female aged 60 years and above.

Structured Teaching

Structured teaching refers to using prepared teaching guidelines regarding balanced diet for elderly in relation to recommended intake of carbohydrate, protein, fats, vitamins and minerals.

Nutritional Assessment

It is an assessment that helps to identify the actual nutritional state of the elderly.

Demographic variables

Includes age, sex, education, occupation, income, marital status, Type of family, dietary pattern, alcoholic consumption, and smoking habit and activities of daily living.

Clinical Variables

Clinical variables include diagnosis, height, weight, BMI, Mid-arm circumference, serum albumin & haemoglobin of elderly.

Nutritional assessment

It is an assessment that helps to identify the actual nutritional state of the elderly.

IV. OBJECTIVES

To check the reliability of the Mini Nutritional Assessment scale using inter-rater reliability

To assess the nutritional status of elderly

To associate the relationship between nutritional status with selected demographic variables (age, gender, education, occupation, religion, marital status.) and clinical variables.

To find the association between activities of elderly with their nutritional status.

To evaluate the individual teaching on balanced diet for elderly.

V. INCLUSION CRITERIA

Elderly Men and Women, aged 60years and above

Who can either speak English, Tamil or Hindi

Those on normal mode of feeding

VI. EXCLUSION CRITERIA

Elderly who are bed ridden since nutritional parameters such as height and weight cannot be measured.
Those who become critically ill, die or are discharged during study period

VII. ASSUMPTIONS

Elderly group have inadequate knowledge about appropriate diet.

Elderly give less importance to their diet thereby increasing the risk of malnutrition.

Nutritional assessment helps to detect malnutrition among the elderly at an early.

VIII. DELIMITATION

The duration of the study is limited to 6 weeks.

IX. METHODOLOGY

Data collection was done for a period of 6 weeks in the medical wards of selected hospital in Vellore district, South India. Elderly who fulfilled the inclusion criteria were selected from inpatient's record according to availability of patients. Institutional dissertation committee approval was obtained to conduct the study.

The researcher visited the elders in the medical wards as per below schedule. Introduction was given by the researcher regarding the study in brief within limitation and verbal consent for participation in the study was obtained. The data collection took place for a period of 6 weeks. Day-1 Collection of demographic variables & assessment of biological measures which includes height, weight, BMI, Mid-Arm Circumference and Calf Circumference Measurements and Interview by using Mini Nutritional Assessment Scale was conducted. The mini nutritional assessment scale reliability was assessed by inter-rater reliability. The inter-clause correlation of inter-rater reliability of mini nutritional assessment scale was 0.9963 & the P value was <0.00 which indicates that the mini nutritional assessment scale is highly reliable & is suitable for use in Indian context for quick assessment of nutritional status in hospitalized elderly & in community. Patients those who scored 11 or below 11 in screening sections of the Mini nutritional assessment scale was further assessed for risk of malnutrition using assessment section of the scale. Day-2 health teaching regarding balanced diet was given individually for those who are malnourished and at risk followed by reinforcement on the third day and feedback from elderly regarding health teaching was sort on the 5th day. The questionnaires required a time period of 20 minutes to complete. Screening section of Mini Nutritional Assessment comprises of 6 Questions. Score of 12 and above out of 14 indicates no malnourishment. A range of 17 – 23.5 Points is at risk for malnutrition and < 17 points indicates Malnourishment. If the screening score is 11 points or below indicates possible malnutrition. The Assessment section of Mini Nutritional Scale consists of 12 questions and the total scoring including assessment part is 30. Assessment of daily activities was made using Barthel index scale. Barthel index consists of totally 10 questions indicating needs met by the elderly with options. Two questions carry maximum score of 15. 6 questions carry maximum score of 10 and 2 questions with maximum score of 5. Total score is 100. Scoring ranging from 61-80 indicates requirement of minor help, 41-60 – Require major help and >40 Completely dependent.

X. RESULTS AND DISCUSSION

In the current study out of 116 participants malnourishment & at risk for malnutrition was highest among age group 60 to 65Yrs that is about 29% (n=17) & 71% (n=42) respectively. Malnutrition is least in the age group of 70yrs & above that is 25% (n=4) whereas at risk for malnourishment is less between the age group of 66 to 70yrs. Malnourishment is high among women that is 35.7% when compared to elderly men 19%, but elderly men are more at risk for malnourishment 81.2% (n=56) than women 64%. Only 4% were not at risk for malnourishment. 54% of elderly were between the age group 60-65 years, 4% were above 70 years, 24% were between 66-70yrs & 17% were between 71-75yrs of age. 64% were men & 36% were women. About 35% of them studied till primary school, 16% were illiterates, only 4% were professionally qualified & 34% had secondary education. Most of them 85% were Hindus, the rest 10% were Christians & 4% were Muslims. More than half of the elderly 66% were non-vegetarians, 13% were vegetarians & 5% were Pesco Vegetarians. Overall 94% were non-drinkers, only few elderly 16% were alcoholics & 10% also had the habit of smoking. Among 36% of elderly women 27% were housewives, 40% of elderly were pensioners, 29% were non-workers, only one was professional & the rest 3% were petty workers.

Most of the elderly 36% had diabetes mellitus, followed by 16% with hypertension, 14% had chronic obstructive pulmonary disease, 6% were diagnosed to have cerebrovascular accident, 5% were admitted with acute gastro enteritis, 4% among them had pulmonary tuberculosis & 2% had malignancy of stomach. Other rare diseases diagnosed were arthritis, bronchiectasis, cervical myelopathy, cardiac failure, hypokalemia, pagets disease, seizures, heat exhaustion, chemical Pneumonitis.

Table 1 Association of demographic variables with nutritional status of elderly

Demographic variables	Outcome Measures					P Value
	Malnourished No % (n = 28)		At risk No % (n = 83)		Chi Square	
Age Groups						
60-65 yrs	17	28.8	42	71.2	1.5	0.5
66-70 yrs	7	25.9	20	74.1		
71 & above	4	16.0	21	84.0		
Gender						
Male	13	18.8	56	81.2	3.9	*0.05
Female	15	35.7	27	64.3		
Education						
Illiterate	5	27.8	13	72.2	2.7	0.4
Primary school education	13	32.5	27	67.5		
Secondary school education	8	21.1	30	78.9		
Graduate & above	2	13.3	13	86.7		
Occupation						
Housewife	10	32.3	21	67.7	2.6	0.5
Retired/Pensioner	10	23.3	33	76.7		
Not working/Dependent	8	25.0	24	75.0		
Others (Professional, petty worker)	0	0	5	100.0		
Religion						
Hindu	23	24.2	72	75.8	0.4	0.5
Others (Christian & Muslim)	5	31.2	11	68.8		
Income per month						
Rs1000-3000	19	32.8	39	67.2	3.7	0.2
Rs3001-5000	5	16.1	26	83.9		
Above 5000	4	18.2	18	81.8		
Marital Status						
Married	21	24.1	66	75.9	0.3	0.6
Widow/ Widower	7	29.2	17	70.8		
Type of family						
Nuclear	8	22.2	28	77.8	0.3	0.6
Joint	20	26.7	55	73.3		
Dietary Pattern						
Vegetarian	11	29.7	26	70.3	0.6	0.4
Non-Vegetarian	17	23.0	57	77.0		
Alcohol Consumption						
Drinks at present	2	33.0	4	67.0	0.2	0.6
Not at all	6	24.8	79	75.2		
Smoking						
Current smoker	2	18.0	9	82.0	0.3	0.6
Non -Smoker	26	26.3	73	73.7		

Table1 shows association of demographic variables with nutritional status of elderly. Age, education, occupation, dietary pattern, religion, marital status, alcohol consumption, & smoking does not influence the nutritional status of elderly. Therefore, there is no association between the socio-demographic variables & nutritional status of elderly. However, the gender distribution shows statistically significant association with nutritional status of elderly, the P value is 0.047, More number of Females 15 (35.7%) were malnourished compared to male 13 (18.8%).

Table 2 Mean (SD) Of Serum Albumin

Nutritional Status	Mean	Standard Deviation	P Value
Malnourished	3.08	0.85	0.3
At risk	3.33		

Table 2 shows the Mean & standard deviation of serum albumin of elderly. The mean serum albumin of malnourished elderly is 3.08 & that of elderly at risk is 3.33. There is no significant difference between the mean values of malnourished & elderly at risk, the P value is 0.3. Hence nutritional status of elderly had not influenced the serum albumin.

Table 3 Comparison of diagnosis of elderly with Nutritional status

Diagnosis	Outcome Measures			
	Malnourishment No. % (n =28)		At Risk No % (n = 83)	
Acute gastro enteritis	4	80.5	1	20.0
Arthritis	2	66.7	1	33.3
Cancer stomach	-	-	2	100.0
Cerebrovascular accident	1	12.5	7	87.5
Cervical myelopathy	1	100.0	-	-
Chemical Pneumonitis	1	100.0	-	-
Chronic obstructive pulmonary disease	4	25.0	12	75.0
Cardiovascular problems	3	50.0	3	50.0
Diabetes mellitus	8	19.5	33	80.5
Pyrexia	2	33.3	4	66.7
Hypertension	2	11.1	16	88.9
Tuberculosis	4	66.7	2	33.3
Seizures	-	-	1	100.0

Table 3 shows the comparison of diagnosis of elderly with their nutritional status. Most of the elderly at risk for malnourishment 81% had diabetes mellitus, 89% of them at risk for malnourishment had hypertension. 75% of elderly at risk for malnourishment had chronic pulmonary obstructive disease. 88% of elderly at risk for malnourishment had cerebrovascular accident. Among elderly under malnourished group most of them 20% were diagnosed to have diabetes mellitus. 67% had tuberculosis & 25% had chronic obstructive pulmonary disease.

Table 4 Association of activity with Nutritional status of elderly

Barthel index score	Malnourished No. %		At risk for No. %		Chi square	P value
>85	6	15.4	33	84.6	3.48	0.2
85-65	10	34.5	19	65.5		
<60	12	27.9	31	72.1		

Table 4 shows the association between activity & nutritional status of elderly. 84% who are at risk for malnourishment were independent in their activities, 66% require minor help, & 72% require major help in day to day activities. Among the malnourished group 15% were independent in their activities, 35% of them require minor help & 28% require major help in carrying out their daily activities. The P value is 0.2 which shows that nutritional status does not influence the activity of elderly. Therefore, there is no significant association between the activity & nutritional status of elderly.

Table 5 Feedback of elderly on health education of balanced diet

Content	No.	%
Relevance of teaching		
Yes	116	100.0
Meaning of balanced diet		
Yes	116	100.0
Selection of food		
Yes	116	100.0
Use of simple terms		
Yes	116	100.0
Modification of diet		
Yes	116	100.0
Educate on balanced diet		
Yes	45	38.8
No	71	61.2
Grading Of teaching		
Very Good	48	41.4
Good	68	58.6

Table 5 shows the feedback of elderly regarding education on balanced diet. Almost all the elderly 100% had accepted that teaching was relevant to their needs, able to tell the meaning of balanced diet, select right choice of food for their daily livelihood,

& understood the terms used in teaching. 39% said they will be able to educate others on balanced diet & 61% revealed their inability to educate others. Overall 41% graded the teaching as very good & the remaining 59% graded it as good.

XI. CONCLUSION

The present study assessed the level of malnourishment among the elderly patients. Based on the statistical findings it is evident that most of the elderly are at-risk for malnourishment so nutritional assessment scale can be used as a quick and effective tool to assess the nutritional status of elderly admitted in hospital. Nurses can be prepared to provide effective interventions such as structured teaching to improve their nutritional status based on this. Earlier the screening better will be the prognosis and recovery of patient. 24 hrs dietary recalls can be done along with nutritional assessment scale to find the dietary deficit in elderly compared to the recommended dietary allowance.

XII. REFERENCE

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