<u>Original article</u>

Assessment Of Malnourishment In Elderly Of Rural Punjab

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Abstract:

Background: Nutrition of the elderly affects immunity and functional ability, it is an important component of elderly care that warrants further attention. The few studies that have been done, show that more than 50% of the older population is under weight and more than 90% have an energy intake below the recommended allowance.

Aims: 1. To assess the nutritional status elderly using Body Mass Index & 2. Identify malnourishment in elderly population.

Settings and Design: Cross sectional study

Materials and Methods: This study was conducted in two villages of Kalo Majra block, district Patiala, Punjab. All the information was collected from selected subjects by interview technique. Clinical examination and anthropometric measurements were done and BMI was computed using standard equation.

Results and Conclusions: Majority of participants in the study i.e. 51.9% belonged to the age group of 60- 64 yrs. The present study showed a high percentage (63.1%) of illiteracy out of which, 30.5% were males and 69.5% were females. 86.9% of the elderly were found to be suffering from anemia. BMI was found to be higher in women than men (i.e. 21.3 ± 1.94 & 19.3± 5.5 respectively).

Key Words: Nutrition, Elderly, BMI, Aging, CED

Introduction

Demographic aging is a global phenomenon. Aging is accompanied by a variety of physiological, psychological, economic and social changes that compromise nutritional status and/or affect nutritional requirements.[1]

Globally it is estimated that there are 605 million people aged above 65 yrs. WHO has predicted that aging population will present new challenges to the health care.[2]

India has acquired the label of an aging nation with 7.7% of its population being more than 60 yrs old. There has been a sharp increase in the population of elderly in India due to demographic transition. This is attributed to decrease in mortality arising from longer life span of individuals and improvements in public health and medical services leading to control of infections diseases.[3]

In India, the national health policy focuses on maternal health, child health and communicable diseases, the health status of the elderly has not been given due consideration.[4] A large number of elderly in India, are residing in rural areas and about 30% are below poverty line i.e in a vulnerable situation without adequate food.[5]

The older population faces a number of problems ranging from absence of ensured and sufficient income to support themselves and their dependents, ill health, absence of social security, loss of social role, recognition and non-availability of opportunities for creative use of time.[5]

Since nutrition of the elderly affects immunity and functional ability, it is an important component of elderly care that warrants further attention. The few studies that have been done, show that more than 50% of the older population is under weight[6] and more than 90% have an energy intake below the recommended allowance.[7] Low micro nutritional status is

often reported in this population which is associated with increased morbidity and mortality rates. In addition micro nutrients play an essential role in the function of the immune system and deficiencies in them influence the rate, duration and severity of infections.[8] Older adults are at greater risk for nutritional deficiencies than younger adults due to physiological changes associated with aging, acute and chronic illness, financial and social status and functional decline.[9,10]

Although adult nutritional status can be evaluated by many ways Body Mass Index (BMI) is most widely used as it is inexpensive, non – invasive, safe and suitable for large scale surveys.[11] A BMI < 18.5 kg / m[2] is widely used as a practical measure of chronic energy deficiency (CED).

The rising number of elderly worldwide makes it essential and challenging to address their health and nutritional needs. The present study was conducted to assess the nutritional status of elderly through BMI in rural Punjab, India.

Methodology

This study was conducted in two villages of Kalo Majra block, district Patiala, Punjab. The population of these two villages is approximately 10,651 out of which 676 were above the age of 60 years. Ethical committee approval was taken before conducting the study. A predesigned and pretested Performa was used to collect all the relevant information regarding general demography, Socio economic status, family structure, personal habits, co-morbid diseases, their health needs and expectations. Economic independence was taken as those who were earning or their spouse was earning or those who were getting pension and did not have to ask their children for day to day expenditure

The data was collected by house to house visit by trained team members consisting of a doctor, MSW, Lab Technician and ANM. Out of the 676 elderly, 566 gave verbal consent to participate in the study.

All the information was collected from the subjects who gave consent, by interview technique. Clinical examination was done by the doctor and anthropometric measurements i.e. height and weight was measured. Weight was taken without footwear and heavy clothing using electronic weighing scale. A portable stadia meter was used for measuring the height. BMI was computed using standard equation.

$$BMI = Weight\ (Kg)/\ Height\ (m)^2$$

Nutritional status was evaluated using internationally accepted BMI guidelines.

CED III	BMI < 16
II	16.1 – 17.0
I	17.1 – 18.4
Normal	18.5 – 24.9
Over- weight	25.0 – 30.0
Obese	>30

(Source: Adapted from WHO, 1995, WHO, 2000 and WHO 2004).

Limitations of using BMI:
- Does not take into account distribution of body fat.
- Does not distinguish between weight due to muscles and weight due to fat.

Despite its drawbacks, BMI remains one of the most widely used tools to screen obesity risk in several target populations as it is simple, inexpensive and non-intrusive. Other factors such as gender, age and ethnicity should also be taken into consideration when using BMI in public health policies and to increase the success rates of obesity intervention programs.

Results

Table I: Socio – demographic profile of elderly people over 60 years of age

Characteristics	Male 243 (42.9%)	Female 323 (57.1%)	Total 566
Age Groups (years)			
60-65	112 (46.1)	182 (56.3)	293 (51.9)
66-70	25 (10.3)	76 (23.5)	101 (17.8)
71-75	57 (23.4)	40 (12.5)	97 (17.2)
> 76	49 (20.2)	25 (07.7)	74 13.1)
Education Status			
Illiterate	108 (44.8)	248 (76.8)	356 (63.1)
Primary	59 (24.3)	27 (08.4)	86 (15.2)
Middle	23 (09.1)	26 (08.0)	49 (08.5)
Matric	42 (17.3)	19 (05.9)	61 (10.7)
H. Sc. & above	11 (04.5)	03 (00.9)	14 (02.5)
Occupation			
Unable to work	21 (08.6)	80 (24.8)	101 (17.8)
Household	06 (02.5)	172 (53.3)	178 (31.6)
Cultivator	67 (27.6)	11 (03.4)	78 (13.8)
Labourer	30 (12.4)	18 (05.6)	48 (08.5)
Service	03 (01.2)	1 (00.3)	4 (00.7)
Business/Selfemployed	71 (29.2)	28 (08.6)	99 (17.5)
Retired (Pensioner)	45 (18.5)	13 (04.0)	58 (10.2)

Table II: Anthropometric data of the elderly

Characteristics	Men (243)	Women (323)
Height	170± 2.02	150± 3.88
Weight	54.2±3.6	48.3± 8.7
BMI	19.3± 5.5	21.3± 1.94

Table-III: Sex-wise distribution of the nutritional status of elderly

BMI	Men (243)	Women (323)
CED	61 (25.2)	49 (15.2)
Normal	134 (55.1)	135 (41.8)
Overweight	35 (14.4)	103 (31.9)
Obese	13 (5,3)	36 (11.1)

$X^2 = 35.01$, df = 3

Table- IV: Age-wise distribution of nutritional status of elderly

BMI	61-65 (294)	66-70 (101)	71-75 (97)	>75 (74)
CED	20 (6.8)	9 (8.9)	41 (42.3)	40 (54.1)
NORMAL	174 (59.2)	40 (39.6)	39 (40.2)	16 (21.6)
OVERWEIGHT	73 (24.8)	41 (40.6)	12 (12.4)	12 (16.2)
OBESE	27 (9.2)	11 (10.9)	05 (5.2)	06 (8.1)

$X^2 = 143.45$, df= 9

In Table I, it was seen that majority of the participants in the study (51.9%) belong to the age group of 60- 64 yrs. Out of 566 participants, 57.1% were females expressing feminizing of the elderly population. More than half of the participants (63.1%) were illiterate, out of which 75% were females.

Inspite of the age, maximum number of study participants were involved in house hold work (31.6%). Punjab being an agricultural state, cultivation was seen as the second commonest occupation (15.9%) in this study. It was also observed that 15.2% of the study subjects were unable to do any kind of work. 80.7% of the participants were married and living with their spouse. Financially and for their basic needs, 42.5% were dependent on their families.

Table II shows, that men are heavier and taller than women. The mean height of men is 170 ±2.02 while that of

women is 150 ± 3.88. BMI was found to be higher in women i.e. 21.3 ± 1.94 than men 19.3 ± 5.5.

11.1% females were obese and 31.9% were overweight. This percentage is more than that of the male participants in which 5.3% and 14.4% were found to be obese and overweight respectively.

There were no men or women who were found to be severely obese. CED was seen in almost 25.2% males as compared to 15% of females. This difference in the prevalence of CED and obesity in males and females was found to be statistically significant. (Table III)

The number of elderly with CED increases with age, whereas tendency of obesity and over-weight decreases as the age advances.(Table IV) This observation was also found to be statistically significant.

Discussion

The magnitude of malnutrition among the elderly in India is largely under reported.

There is no gold standard for estimating malnutrition among elderly. Studies have been conducted by researchers using different screening tools like Mini nutritional assessment (MNA) questionnaire or BMI.

The few studies that have been done show that more than 50% of the elderly population is underweight[12] and more than 90% [6] have energy intake below the recommended allowance.

In comparison to studies conducted in rural population of Tamil Nadu[13] and Western Rajasthan[14], our study showed higher prevalence (19.4% vs 14% and 11% respectively). These studies were conducted using MNA questionnaire which utilizes a higher BMI cut off (19 kg/m^2) than that recommended by WHO (18.5 Kg/m^2). Older age is associated with a lower BMI score in our population. This finding has also been observed in previous studies[15] while others have shown that age has no effect on nutritional status.[16]

It was our observation that the older subjects were less active and often reported reduced appetite and decreased food intake. It is apparent that increased focus on nutritional status is required as the age of the elderly increases.

In our study population insufficient income and financial dependence on children (45.2%) were the possible factors related with low energy intake.

We observed that economic pressure did influence dietary pattern to a large extent, but we did not assess the knowledge and attitude of elderly towards nutrition. Similar findings were also reported by Natarajan et al.[6]

Conclusions

In conclusion, our study showed 19.4% of elderly had chronic energy deficiency. Considering this prevalence of poor nutritional status, more focus on diet and possible nutritional intervention is required.

Recommendations

Nutrient requirements for elderly people are mostly extrapolated from younger adults in developed countries, and assume the reduction in energy expenditure associated with retirement. These requirements may not be correct for poor older people in developing countries. There are also age-related changes that can lead to reduced or altered food intake. Interventions that address these problems need to be developed and tested.

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