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Community Medicine

AN ASSESSMENT OF NUTRITIONAL STATUS OF THE GERIATRIC POPULATION LIVING IN URBAN SLUMS OF GUWAHATI CITY: AN EPIDEMIOLOGICAL STUDY

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KEYWORDS :

INTRODUCTION:

India's elderly population is growing rapidly, both in its absolute numbers & in its percentage relative to the younger population. According to the Population Census 2011, there are nearly 104 million elderly persons aged more than 60 years age[1].The geriatric population is increasing rapidly in developing countries. India and China are the main contributors to this rise in Asia[2]. It is estimated that by 2050, about 53 % of the total world population aged more than 60 years will be living in these two countries[3]. Elderly population in particular are at high risk of malnutrition due to physiological, psychological, functional and dietary changes related to ageing such as chewing problems and decrease in the quantity of overall food consumption[4].Such a rapid rise in elderly population will definitely pose several challenges.There is a greater demand on the caregivers, society and health services of a country.Some of the daunting problems faced by the elderly in our country are lack of guaranteed and sufficient income to support themselves , absence of social security, loss of social status and recognition, non availability of opportunities for creative views of time and persistent ill health.

In India, the health of the elderly is caused by poor nutritional status along with dual medical problems which are both communicable as well as non communicable diseases. Malnutrition in older adults includes both over and under nutrition. Different structural and functional changes due to ageing process changes the nutrient needs of the elderly.The causes of malnutrition may be inadequate access to food , socioeconomic hardship, functional dependency, lack of nutritional knowledge and information , poor choice of food affect nutrients intake and metabolic demands. As a result of which , malnutrition develops easily in the elderly. Malnourished elderly are at increased risk of experiencing false prolonged hospitalization, institutionalization, postoperative complications and infections, complicate wound healing and death. One of the important indicators of nutritional status is anemia. Even though anemia is fairly prevalent among the elderly ,the underlying cause is not so well defined.

Rationale:

The nutrition and health of the elderly is often neglected. Most nutritional intervention programmes are directed towards infants, young children, adolescent and pregnant and lactating women.

Therefore nutritional intervention may play a part in the prevention of degenerative conditions of elderly, improvement of quality of life and impact on healthcare burden and resources. A timely intervention can stop weight loss in elderly who are at risk of malnutrition.Evaluation of nutritional status is important for the development of data base which could help in policy making for nutritional intervention and resource location for elderly. Limited studies have been conducted in this field in urban slums of Guwahati region. Keeping this in mind the above topic was selected .

AIMS AND OBJECTIVE:

General Objective: To assess the nutritional status of elderly and its epidemiological correlates.

Specific Objective:

1)to study the prevalence of under nutrition, over nutrition and obesity of elderly

2)To study the various epidemiological factors related to nutritional status of elderly

3) To suggestrecommendation

MATERIALS AND METHODS:

Study Population: Elderly (more than 60 years of age) residing in urban slums of guwahati city

Inclusion Criteria: All elderly above 60 years of age residing in urban slums of Guwahati city

Exclusion Criteria:

1) Elderly who are seriously ill
2) Elderly who are fed by tube
3) Elderly with neuropsychiatric illness and living alone

Sample Size:

The study prevalence of malnutrition is taken to be 14.3% based on the study named "assessment of nutritional status of elderly population living at high altitude regions of India utilizing Mini Nutritional Assessment (MNA) methodology" by Aakriti Gupta et al (2022)*. Taking absolute error of 7 percentage, the sample size calculated to be 105 using the formula

$n = z^2pq/l^2$ the sample size rounded of to 110.

Where n= required sample size

Z=2

P=expected or assumed prevalence

Q= 100 – P

L= absolute error 7

*Gupta A, Kapil U, Belwal R. Assessment of nutritional status of elderly population living at high altitude regions of India utilizing Mini Nutritional Assessment (MNA) methodology. Indian J Comm Health. 2022;34(1):49-53.

Sampling Design:
According to Guwahati Municipality Corporation website in the year 2020, there are 100 registered slums in Kamrup metro (Guwahati City).Out of these slums, 10 slums were randomly selected for the study purpose. From each slum,11 study population in the age group above 60 years were selected. The study subjects were interviewed using pre designed pre tested semi structured schedule. Before conducting the study, verbal consent were taken from the study subjects.

Study Variables:
1) Socio demographic variables: age, sex, religion, caste, marital status, living status, educational status, per capita income
2) Social and cultural habits
3) General examination of elderly including pallor, kyphosis, scoliosis, icterus, edema and other signs of specific nutrient deficiency
4) Anthropometric variables: weight, height, mid upper arm circumference, calf circumference, waist circumference, and hip circumference
5) Nutritional status
6) Morbidity profile
7) Anemia status

Data Collection Tools:
1) Predesigned pretested proforma
2) Height measurement using inch tape
3) Electronic weighing scale to measure the weight
4) General clinical examination for assessing any deficiency signs
5) Visual acuity was assessed by history and finger counting
6) Hearing was assessed based on history using tuning fork
7) Review of medical records, laboratory test records and prescriptions
8) Sphygmomanometer was used to measure blood pressure
9) Socioeconomic status was determined by BJ Prasad classification
10) Stethoscope for chest auscultation

Nutritional Status:
a) Mini nutritional assessment tool – as per MNA scoring , those having score less than 17 are considered as malnourished , scores between 17 – 23.5 are to be at risk and those with scores above 23.5 are well nourished. All the elderly in the present went through complete MNA assessment irrespective of MNA screening score
b) Body mass index
c) Dietary history : 24 hours recall method

Data Collection Technique:
In the current study, data were collected by house to house visit in the selected slums and information was collected with the help of pretested and predesigned proforma. In obtaining the information from the elderly having hearing and speech impairment , information was verified with other responsible adult members involved with care giving of the elderly.

Regarding the use of medications , the information obtained from the elderly was collaborated with the medical records and prescriptions. The respondents were carefully briefed prior to the commencement of field work regarding the purpose of the study so as to get their full cooperation during the study period , so that information about the events under study could be obtained to optimum level. To assess the nutritional status of elderly, 24 hour recall method was used. Weight was measured using electronic weighing scale and height was measured using inch tape .General clinical examination was done and BP measurement was done using sphygnomanometer. To assess the nutritional status of elderly,MNA scoring tool was also used.

Data is collected, entered in Microsoft office excel & analyzed for preparation of tables and reports.

RESULTS:
In our study conducted on the elderly population, it was found that out of 110 elderly, 73(66.4%) are male,37(33.6%) are female. 63(57.3%) of elderly belong to the age group of 60-75 years of age and only 13(11.8%) belong to age group above 85 years of age .Out of 110 respondents, 72(65.4%) are married, 12(11%) are unmarried .30(27.3%) of elderly went to primary school& only 8(7.3%) of the elderly were graduated and had higher studies.

Out of 110 elderly 41(37.3%) of elderly were living with their spouse & children and 32(29.1%) of elderly were living with their children. 21(19.1%) elderly were living with their spouse. According to MNA scoring ,43 elderly takes two meals per day out of which 25(58.2%)of the elderly were found to be at risk of malnutrition and 13(30.2%)of elderly were found to be malnourished and only 5(11.6%) of elderly were found to be well nourished. Out of 110 participants , 67 elderly takes 3 meals per day out of which 32(47.8%)were found to be at risk, and 34(50.7%)were well nourished while only 1(1.5%) were found to be malnourished.

Table 1: Socio-demograhic Profile Of The Participants

Socio-demograhic profile of the participants		
Demographic factors		**N(%)**
Gender		
1	Male	73(66.4%)
2	Female	37(33.6%)
By age group		
1	60-75	63(57.3%)
2	75-85	34(30.9%)
3	>85	13(11.8%)
Marital status		
1	Married	72(65.4%)
2	Separated/divorced/widowed	26(23.6%)
3	Unmarried	12(11%)
Education		
1	Illiterate	5(4.5%)
2	Primary	30(27.3%)
3	Middle primary	25(22.7%)
4	High school	20(18.2%)
5	Matriculation	13(11.8%)
6	Higher secondary	9(8.2%)
7	Graduation &above	8(7.3%)
Occupation		
1	Unskilled	10(9.1%)
2	Semiskilled	13(11.8%)
3	Skilled	23(20.9%)
4	Unemployed	15(13.6%)
5	Businessman	12(10.9%)
6	retired	19(17.3%)
7	Homemaker	18(16.4%)
Living status		
1	With spouse	21(19.1%)
2	With children	32(29.1%)
3	With spouse & children	41(37.3%)
4	Only relatives	16(14.5%)

In the current study, out of total 110 geriatric it is found that 14(12.7%) are malnourished, 57(51.8%) are at risk while 39(35.5%) are well nourished. Out of all malnourished geriatric, 8(57.1%) are females while 6(42.9%) are males.

Table 2: Gender Distribution Of Nutritional Status As Per Mini Nutritional Assessment

Gender	MNA status		
	Well nourished	**At risk**	**Malnourished**
	N(%)	**N(%)**	**N(%)**
Males	25(64.1%)	42(73.7%)	6(42.9%)
Females	14(35.9%)	15(26.3%)	8(57.1%)
Total	39(100%)	57(100%)	14(100%)

Table 3: Relationship Of Nutritional Status With Number Of Major Meals Taken Per Day

Relationship of nutritional status with number of major meals per day				
Number of major meals taken	**No of participants N(%)**	**MNA status**		
		Well nourished	**At risk**	**Malnourished**
		N(%)	**N(%)**	**N(%)**
1	Nil	---	---	---
2	43(100%)	5(11.6%)	25(58.2%)	13(30.2%)
3	67(100%)	34(50.7%)	32(47.8%)	1(1.5%)

Table 4: Distribution Of Respondent As Per Calorie Intake

Distribution of respondents as per calorie intake		
Calorie intake in 24 hours	**Frequency**	**Percentage**
Adequate	58	52.7%
Inadequate	52	47.3%
Total	110	100%

Note: calorie intake is assessed by 24 hour dietary recall method

Among of 110 elderly, 58(52.7%) are found to be taking adequate diet per day as recommended per kilogram of body weight while 52(47.3%) are found to be taking inadequate diet.

DISCUSSION:

Table 1 depicts the elderly according to their age group, most of the elderly 63(57.3%) belong to the age group of 60-75 years & only 13(11.8%) above 85 years of age. Olayiwala et an (2006) in their study in Nigeria found that 50% of elderly belong to age group of 60-69 years of age[5]. Saeidlou et al 2011 in Iran found that most of the elderly belong to the age group of 76-85 years of age[6].

As for distribution of elderly according to gender in our study ,73(66.4%) are male , 37(33.6%) are female. Saeidlou et al (2011) observed that 71.7% were female & 28.2 % were male[6], while. Kabir et al (2006), in rural area of Bangladesh found that 55% of elderly were female and 45% were male[7].

As per the distribution of elderly according to the marital status in our study, 72(65.4%) of the elderly are married and 12(11%) are unmarried. As per the report, on the status of elderly in selected states of india (2011), 61.6% of elderly in the rural area were married and 36% widowed. Boul0s et al (2011) found that 64.2% of elderly were married while 29.3% were widowed[8]. Olayiwala et al (2011) found 61% of elderly to be married and 31% of elderly to be widowed[5].

As per the distribution of elderly according to the living status in our study 41(37.3%) of the elderly living with their spouse & children, 32(29.1%) of the elderly living with their children, 21(19.1%) of the elderly are living with their spouse . none of the elderly are found to be living alone. This could be attributed to the traditional family system and culture of rural indian society. Boulous et al (2011) found 10% of the elderly were living alone. Bedantamet al (2010) found that 66% were living with their children[8].

Table number 2 shows the relationship of elderly between MNA status and gender. Out of total malnourished, 8(57.1%) are female and 6(42.9%) are male. Out of all at risk elderly, 15(26.3%) are female while 42(73.7%) are male. The association between gender and MNA status is found to be statistically significant. Donini et al (2013) in Italy found, 26% of females and 16.3% of males to be malnourished and 40.9% of females and 35% of male were found to be at risk[9]. Boulous et al (2011) also observed in Lebanon that females were more malnourished compared to males[8]. Saeidlou et al (2011) also observed that the lower scores of mini nutritional assessment were associated in their study with female gender[5].

Table number 3 : regarding distribution of elderly according to nutritional status as determined by MNA scoring, in our study 43 elderly takes 2 major males per day out of which 13(30.2%) are malnourished, 25(58.2%) are at risk and 5(11.6%) are well nourished. While 67 elderly takes 3 major meals per day out of which 1(1.5%) are malnourished, 32(47.8%) are at risk and 34(50.7%) are well nourished. None of the elderly takes 1 major meal a day. As per Saka et al (2010) 13% of thhe elderly were found to be malnourished and 31% of elderly were found to be at risk[10]. In a study done by saeidlou et al in iran (2008) found that among the elderly people living at nursing home 12.26% were well nourished, 49.06 % malnourished , 38.68% at risk of malnutrition. Vedantam et al (2010) found 14% of elderly as malnourished while 49% were at risk[11]. Ferdous et al (2009) found 26% of elderly and 62% are at risk as per MNA score[12]. Baweja et al (2008) in rural rajasthan revealed that 7.1% elderly were malnourished while 50.3 % were at risk of malnutrition and 42.6 % were well nourished[13].

Table number 4 shows distribution of elderly as per calorie intake. In our study , among of 110 elderly, 58(52.7%) are found to be taking adequate diet per day as recommended per kilogram of body weight while 52(47.3%) are found to be taking inadequate diet. In a prospective study of elderly people done by mowe et al in 1994, observed in their study in Norway that 65% of the male and 69 % of the females had an insufficient energy intake then as recommended.

In our study the , the prevalence of malnutrition among elderly is found to be 12.7% . In a study done by Aakriti Gupta et al (2022), the prevalence of malnutrition was found to be 14.3%[14].

There is a scope for health education and nutrition counseling in both elderly and the care givers.

CONCLUSION:

In our study 14(12.7%) are found to be malnourished which is a sign of concern. Malnutrition is highly prevalent among older patients. The maintenance of correct nutritional status is major challenge among the elderly population as inadequate nutrition is associated with impaired health with ageing. The increased dependency with medications is also known to affect the health by antagonistic relationship with certain nutrients. Socioeconomic factors , metabolic changes, during ageing and the increased risk of disease severely affect the nutritional status in multiple ways . majority of the age related disorder can be prevented by following proper nutritional interventions & consuming food rich in nutrients and antioxidants. the correct dietary modifications have a potential to raise the health standards of the older population globally . thus , special emphasizes must be given to geriatric health for the maintenance of their health status and to decrease the prevalence of chronic diseases Further studies can be conducted on a larger case in Guwahati city amongst the geriatric population so that proper interventions can be taken.

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