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Original Research Article

THE MORBIDITY PROFILE OF COMMUNITY ELDERLY IN RURAL AREAS AND ITS ASSOCIATION WITH DISABILITY AND PSYCHOLOGICAL DISTRESS

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Abstract

Background: The general health of the elderly can be greatly impacted by their diet, and serious inadequacies in this area can lead to a multitude of morbidities. This is especially true in nations with little resources. **Objectives:** To estimate the prevalence of malnutrition among the elderly aged 65 years and above in a rural area, and to assess the possible risk factors of malnutrition among the elderly. **Materials and Methods:** A community-based cross-sectional study conducted within a radius of 10 km from Medical College from April 2022 to March 2024 (2 years). A sample size of 1000 was taken using cluster sampling technique. Mini Nutritional Assessment scale (MNA) was used as study tool (IBM SPSS version 24.0 software). Categorical variables are expressed using frequency and percentage. **Results:** Most of the participants 750 (75%) were in the age group between 65 and 74 years. The mean age of the study population was 71.84. The study population consisted of 590 (59%) females and 410 (41%) males. The prevalence of malnutrition in the study population between the year 2022 and 2024 showed 170 (17%) of the study population was malnourished according to MNA. About 93% were independent in activities of daily living (ADL) like dress or wash himself independently while 70 (7%) were dependent. **Conclusion:** Malnutrition rates were higher among those who relied on instrumental ADL and ADL, as well as those who used a walking aid. Lifestyle factors like drinking and smoking have been linked to a higher risk of malnutrition.

INTRODUCTION

In almost every nation, the proportion and total number of older people—those 60 and over—are rising, and these trends are expected to continue globally. An estimated 605 million older people lived in the world in 2002, with approximately 400 million of them residing in low-income nations. Over 1.2 billion people will be older globally by 2025, with roughly 840 million of them living in low-income nations.[1] The general health of the elderly can be greatly impacted by their diet, and serious inadequacies in this area have been linked to a number of morbidities. This is especially true in nations with limited resources.[2] Approximately 76.6 million people in India, the second most populous country in the world, are 60 years of age or older, making up more than 7.7% of the entire population. In all of India, Kerala has the largest percentage of old people. In Madhya Pradesh, 11% of the population is over the age of seven (7) percent in India. By 2051, their population—which was 9% in 1991—should have increased to 37%.[3,4]

The nation's health care advancements and demographic shift are to blame for the increase in the geriatric population. But as the number of older people increases, so does the morbidity associated with aging, necessitating extra attention and care.[5] A variety of variables, including insufficient food consumption, dietary deficiencies caused by food choices, illnesses that result in higher nutrient requirements, nutrient loss, poor nutrient absorption, or a combination of these factors, can cause malnutrition.[6] Geriatricians should take into account the crucial goal of correcting malnutrition.

The prevalence of malnutrition is high in the elderly in India from existing studies. Malnutrition is often neglected, poorly recognized, and treated leading to poor immunity, functional disabilities worsening the recovery from other systemic illness with increased hospital stay. Identifying the prevalence of malnutrition in our geographic area will bring the problem of malnutrition into a sharper focus.

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MATERIALS AND METHODS

It was a community-based cross-sectional study conducted within a radius of 10 km from Medical College from April 2022 to March 2024 (2 years). Residents above the age of 65 years formed the study population of this study. Patient diagnosed with malignancy, bedridden patients, and participants who were not willing for the study are excluded from the study.

A minimum sample size of 400 is required based on the rate of malnutrition among the elderly in a study by Jose S,[5] which has a 95% confidence interval and a 20% acceptable error. In the current investigation, a non-response rate of 20% was also observed, which was added to the necessary sample size. Since effect in the cluster sampling design was assumed to be equal to 2, the study's total sample size was 1000.

Within a 10-kilometer radius of the study site, 40 clusters (with a cluster size of 25) were chosen. Ten panchayats, four municipalities, and one corporation made up this group. It was determined to gather data from 20 clusters within the corporation, 8 clusters within the municipality, and 12 clusters within the panchayats using the population proportional to size technique. The clusters were then selected at random using the process of lots. Twenty-five people from each cluster were signed up for the research. The lead investigator conducted interviews within the household premises while the study personnel visited the homes in a sequential manner starting from a randomly selected starting point.

The study made use of the validated Mini Nutritional Assessment scale (MNA), a semi-structured questionnaire. MNA has received international validation, and Jose and Kumari's study evaluated the validity of MNA among Kerala's senior population.[5] Data from various published studies and literature on malnutrition were used to prepare a semi-structured questionnaire that included questions about sociodemographic profile, lifestyle characteristics, somatic characteristics, comorbidities, functional characteristics, socioeconomic characteristics, educational status, household status, and marital status.

Statistical Analysis

Statistical analysis was performed using IBM SPSS version 24.0 software. Categorical variables are expressed using frequency and percentage. Continuous variables are presented by mean and standard deviation. To test the statistical significance of association of categorical factors with nutritional status, Chi-square test was used. Written informed consent was taken and the study was approved by the Ethics Committee of Medical College.

RESULTS

As per Table 1, most of the participants 750 (75%) were in the age group between 65 and 74 years. The mean age of the study population was 71.84. The study population consisted of 590 (59%) females and 410 (41%) males. Among the participants, 883 (88.3%) had a normal body mass index (BMI), while 62 (6.2%) was underweight and 50(5%) were overweight. Mean BMI was 21.81. Majority of the study population was living along with the family 826 (82.6%), while 148 (14.8%) was living along with spouse. Nine participants (0.9%) were found to be living alone. Six hundred and fifty-five (65.5%) had Class II and 298 (29.8%) had Class I. Majority of participants 780 (78%) were non-pensioners. [Table 1]

As per Table 2, the study of the prevalence of malnutrition in the study population between the years 2022 and 2024 showed that 17 (17%) of the study population were malnourished according to MNA. Three hundred and sixty-eight (38.6%) were at risk of malnutrition and 462 (46.2%) were having a normal nutritional status. [Table 2]

According to Table 3, 930 (93%) were independent in activities of daily living (ADL) like dress or wash himself independently while 70 (7%) were dependent. Seven hundred and seventy-two (77.2%) were independent in instrumental ADL (IADL) such as cleaning the household or shopping independently. Seventy (7%) of the study population was using an assistive device like walking aid. [Table 3]

Table 4 presents the association between nurses' years of experience and their awareness and knowledge regarding newer vaccines and cold chain maintenance. Higher awareness and knowledge regarding the newer vaccines and cold chain maintenance was observed among nurses with more years of experience which was statistically significant (p-value<0.05). [Table 4]

As per Table 4, malnutrition was significantly more in the age group of 75–76 between these age groups were found to be at risk of malnutrition. Study participants above the age of 86, 15 (60%) were found to be malnourished. There is a statistically significant association between age and nutritional status with P < 0.01. Malnutrition was found to be more in females (133 [22.5%]) compared to 40 (9.8%) in males. This was found to be statistically significant with P < 0.01. Majority of the study participants were living with children and family 826 (82.6%). There was no statistically significant association between living conditions and malnutrition in my study. Malnutrition rates were significantly higher in widowed participants 82 out of 142 (57%) compared to married 89 (10.9%) out of 852 participants. There was a statistically significant association of marital status and malnutrition with P < 0.01. Malnutrition rates were higher in participants with Class II and Class III per capita income. One hundred and twenty-five (19.1%) participants belonged to Class II SES. Twenty (44.4%) out of 45 participants with Class III income were malnourished. There was a statistically

significant association between income status and malnutrition with P < 0.01. [Table 5]

Table 1: Demographic characteristics of the study participants

Variables	Frequency (%)
Age	
65–75 (in years)	750 (75)
76–85 (in years)	225 (22.5)
86 and above (in years)	25 (2.5)
Gender	
Females	590 (59)
Males	410 (41)
Body mass index	
Underweight	62 (6.2)
Healthy weight	883 (88.3)
Overweight	50 (5)
Obese	5 (0.5)
Education	
<12th standard	840 (84)
Graduate	140 (14)
Postgraduate	20 (2)
Household status	
Living alone	9 (0.9)
Living with spouse	148 (14.8)
Living with children and family	826 (82.6)
Joint family	17 (1.7)
Marital status	
Single	6 (0.6)
Widowed	142 (14.2)
Married	852 (85.2)
Income (per capita)	
Class I	290 (29)
Class II	660 (66)
Class III	45 (4.5)
Class IV and V	5 (0.5)
Pension	
No	780 (78)
Yes	220 (22)

Table 2: Prevalence of malnutrition

Prevalence of malnutrition	Frequency (%)
Normal nutritional status	462 (46.2)
Risk of malnutrition	368 (36.8)
Malnourished	170 (17)

Table 3: Functional status of the study participants

Physical activity level	Frequency (%)
ADL	
Independent	930 (93)
Dependent	70 (7)
IADL	
Independent	772 (77.2)
Dependent	228 (22.2)
Walking aid	
No walking aid	930 (93)
Using walking aid	70 (7)
ADL: Activities of daily living, IADL: Instrumental activities of daily living	

Table 4: Univariate analysis of selected sociodemographic factors with malnutrition

Variable	Category	Nutritional status (%)			P-value
		Normal nutritional status		**At risk of malnutrition**	**Malnourished**	
Age	65–75 (in years) (750)	409 (54.2)	262 (35.3)	79 (10.5)	**0.01**
	>75 (in years) (250)	54 (20.3)	102 (41.5)	94 (38.2)	
Gender	Female (590)	250 (42.50)	207 (35.00)	133 (22.50)	**0.01**
	Male (410)	209 (50.90)	161 (39.40)	40 (9.80)	
Household	Living with spouse and living	69 (43.9)	61 (38.9)	27 (17.2)	0.08

status	alone				
	Living with children and family and joint family	390 (46.3)	307 (36.4)	146 (17.3)	
Marital status	Single and widowed (148)	24 (16.2)	40 (27.0)	84 (56.8)	**0.01**
	Married (852)	435 (51.1)	328 (38.5)	89 (10.4)	
Income (per capita)	Class I (290)	170 (59.4)	94 (31.9)	26 (8.7)	**0.01**
	Class II (660)	275 (41.2)	260 (39.7)	125 (19.1)	
	Classes III and IV (50)	12 (25.5)	13 (27.7)	25 (46.8)	

DISCUSSION

Most of the participants 75% were in the age group between 65 and 74 years. Majority being females 59%. Most of the participants 840 (84%) had educational status <12th standard. About 93% of the participants were independent in the ADL and 7% were using assistive device. Majority of the study population was living along with the family 826 (82.6%). In the study participants, 852 (85.2%) participants were married. One hundred and forty-two (14.2%) were widowed. This study of the prevalence of malnutrition in the study population between the years 2022 and 2024 showed that 170 (17%) of the study population were malnourished according to MNA. Three hundred and sixty-eight (36.8%) were at risk of malnutrition and 462 (46.2%) were having a normal nutritional status.

A comparable study employing the MNA questionnaire in 129 participants in the Pathanamthitta district of Kerala by Abraham J et al,[6] revealed that the prevalence of malnutrition was 11.6%, with 46.5% of individuals at risk of malnutrition and 41.9% of participants having normal nutritional status. A study by Mathew et al and Das.[7,8] in 190 participants in a rural area of Coimbatore, Tamil Nadu, revealed a 19.47% prevalence of malnutrition and 24.73% at risk of malnutrition. In a rural Bengaluru, Karnataka, study by Ramya et al,[9] 182 participants completed the MNA questionnaire. The results indicated that 21.3% of the participants had malnutrition, 47.33% were at risk of malnutrition, and 31.3% had normal nutritional status. Research by Joshi,[10] infield practice area of a medical college in Rajasthan showed 7.3% of the study population to be malnourished with 48% at risk of malnutrition. These differences in prevalence of malnutrition could be because of differences in socioeconomic characteristics of study population in these study settings. In this study, malnutrition was significantly more in the age group of 75–76 (35.7%) with 42% between these age groups to be at risk of malnutrition. Study participants above the age of 86 (60%) were found to be malnourished.

In the present study, malnutrition rates were significantly higher in widowed participants 82 out of 142 (57%) compared to married participants. Research conducted in the Kancheepuram area of Tamil Nadu by Chitrasena and Ramasubramaniam,[11] and in Coimbatore, Tamil Nadu by Mathew et al,[7] revealed high rates of malnutrition among widows. Research by Ramya et al,[9] in Bengaluru revealed that individuals with lower socioeconomic level had greater rates of malnutrition. Nevertheless, my research did not find a link between hunger and pension status. The majority of the 848 participants had less than a 12th grade education, and their rates of malnutrition were higher. Research by Joymati et al,[12] and Thakur et al,[13] revealed that illiterate and low-education groups had greater rates of malnutrition. Age and nutritional status are statistically significantly correlated.

In this study, the prevalence of malnutrition was significantly higher in participants who were dependent in ADL (85%). The prevalence of malnutrition was more in participants who were dependent in IADL such as shopping and cleaning household (55.3%). Malnutrition rates were more in participants who used a walking aid 77%. Study done by Mathew et al.[7] showed higher rates of malnutrition in participants who were dependent on IADL. Similar result was seen in study done by Mamhidir et al,[14] which showed higher malnutrition rates in the elderly with functional impairment

CONCLUSION

This was a community Based cross sectional study conducted in rural area among elderly population. The prevalence of malnutrition reported during the period of 2 years (2022–2024) was 17% with 36.8% of the population at risk of malnutrition. The independent risk factors for malnutrition included age, female gender, widowed participants, low socioeconomic status, and low education. Participants dependent on IADL and ADL and those using a walking aid had higher rates of malnutrition. Lifestyle characteristics such as smoking and alcohol were associated with increased risk of malnutrition.

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