



Prevalence of under-nutrition, associated factors and perceived nutritional status among elderly in a rural area of Puducherry, South India



S. Kalaiselvi^a, Yousuf Arjumand^b, R. Jayalakshmy^a, Ramaswamy Gomathi^a,
Thekkur Pruthu^a, C. Palanivel^{a,*}

^aJawaharlal Institute of Postgraduate Medical Education and Research (JIPMER), Puducherry-6, India

^bIndira Gandhi Medical College and Research Institute (IGMC&RI), Puducherry-10, India

ARTICLE INFO

Article history:

Received 18 May 2015

Received in revised form 26 February 2016

Accepted 6 March 2016

Available online 16 March 2016

Keywords:

Aged
Anthropometry
Elderly
Malnutrition
Nutritional assessment
Self-perception

ABSTRACT

Background: Under-nutrition among elderly goes undetected, despite their nature of vulnerability to it. Majority of the available literature assessed under nutrition in the facility based settings. We aimed to determine the prevalence of under-nutrition and its associated factors among elderly, in a rural setting. **Methods:** A community based cross sectional survey was conducted among elderly in one of the randomly selected sub centre catchment area in rural Puducherry, south India. Information on socio demographic characteristics, morbidities and perception on their nutritional status were obtained. Anthropometric measures such as weight and arm span were measured by trained medical graduate as per the standard guidelines. Bodymass index (BMI) less than 18.5 kg/m² was considered as under-nutrition.

Results: Of total 296 elderly in the study setting, 271 (92%) participated in the study. The prevalence of under nutrition among the elderly was 24.8% (95% CI: 19.7–30.3). More than half of the elderly (58.7%) perceived their nutritional status as poor; of them 28.9% were actually under-nourished. Mean (SD) BMI scores were higher for elderly women compared to that of men [elderly women vs men: 22 (4.6) kg/m² vs 21 (3.8) kg/m², p = 0.03]. In multivariate analysis, being an elderly male, age more than 70 years and per capita income less than 1000 INR were found to be significantly associated with under-nutrition.

Conclusion: In this rural area, one fourth of elderly were under nourished. Urgent inter-sectoral measures including food security programs are required to address this huge nutritional problem in this vulnerable group.

© 2016 Published by Elsevier Ireland Ltd.

1. Introduction

According to Census 2011, the population of elderly (aged 60 years and above) in India is 103.8 million and it is projected to increase to 301 million by 2051 (Population Composition Census India, 2011). Increased life expectancy has led to increase in ageing population of India and thereby the health system is challenged with chronic health and nutritional problems of elderly. Various physiological changes like reduced metabolic rate, loss of appetite, difficulties in chewing resulting from tooth decay and also other factors like social neglect and co-morbidities make elderly more vulnerable for under-nutrition (Kikafunda & Lukwago, 2005;

Ramage-Morin & Garriguet, 2013). Changing trend towards nuclear family patterns and economic insecurity makes elderly people still more vulnerable to malnutrition especially in rural areas (Ramage-Morin & Garriguet, 2013). Several studies have shown that chronic energy deficiency (CED) among elderly is associated with increased number of hospitalizations and mortality (Bose, Bisai, Das, Dikshit, & Pradhan, 2007; Pednekar, Hakama, Hebert, & Gupta, 2008). Also, under-nutrition has significant negative association with activities of daily living such as mobility, continence and autonomy over feeding (Kikafunda & Lukwago, 2005). Prevalence of under-nutrition among elderly varies from 14% to 52% with varying prevalence among sub groups. It was higher among people aged 70 years or more and elderly men (Arlappa et al., 2009; Singh, Lakshminarayana, & Fotedar, 2008; Yadav et al., 2012). Due to changes in skeletal system during the process of aging, anthropometric measurement among elderly becomes difficult and thus obtaining reliable measures of under nutrition among elderly remains a challenge (Aggarwal, Gupta, Ezekiel, & Jindal, 2000;

* Corresponding author at: Department of Preventive and Social Medicine (P&SM), Jawaharlal Institute of Postgraduate Medical Education and Research, Puducherry-6, India.

E-mail address: palanicm@gmail.com (C. Palanivel).

Jamir, Kalaivani, Nongkynrih, Misra, & Gupta, 2013b). World Health Organization (Technical Report Series) recommends use of arm span, triceps thickness and mid arm circumference as alternate measurements for assessing the undernutrition as height cannot be measured precisely due to skeletal changes in this age group (Status, 1995). Mini Nutritional Assessment (MNA) tool is used as a reliable tool for assessing malnutrition among elderly especially to find elderly at risk of malnutrition (Guigoz et al., 1997). However, challenges involved in administering the tool among people with low level of literacy and lack of experts in mental health to assess the status of dementia and depression makes this tool to be less utilized especially in rural settings.

For planning nutritional programmes for elderly and also to assess the impact of ongoing welfare measures for elderly, measurement of burden of under nutrition is important. Though nationwide surveys like National Family Health Surveys (NFHS) and United Nations Population Fund (UNFPA) captured health status of elderly, nutritional status was not assessed in these surveys (National Family Health Survey, 2006; UNFPA, 2011). Community based estimates on prevalence of under nutrition among elderly in India are limited (Bayapa Reddy, Reddy, Pallavi, Reddy, & Sireesha, 2014; Jamir, Kalaivani, Nongkynrih, Misra, & Gupta, 2013a). Therefore we aimed to estimate the prevalence of under-nutrition using anthropometric measures among elderly in a rural area of south India and the factors associated with it.

2. Materials and methods

A community based cross sectional study was conducted among elderly (aged 60 years and above). The study was conducted in rural field practice area of department of Community Medicine, Indira Gandhi Medical College and Research Institute, a tertiary care teaching institute in the Union Territory of Puducherry, south India. Of four sub centres under Primary Health Centre, one sub-centre was randomly selected for the study. Assuming alpha error of 5%, 20% relative precision and expected prevalence of under-nutrition as 30% and 15% non-participatory rate, a sample size of 258 was required. However, it was decided to study all elderly in the selected sub-centre area. The National Programme for Health Care of Elderly (India) and also the United Nations have used the cut-off of 60 years to define elderly age group and we followed the same definition in this study (Aging Watch at the UN: Global Action on Aging, 2002; Operational Guidelines for NPHCE: Ministry of Health and Family Welfare, 2011). The study protocol was reviewed and approved by institute ethics committee of Indira Gandhi Medical College and Research Institute, Puducherry. A house to house survey was conducted and all elderly were approached for the study. Elderly individuals who were bedridden and thus were unable to stand for measuring weight and arm span were excluded. Information on socio demographic characteristics, morbidities and perception on nutritional status were obtained by interviewing the elderly. Anthropometric measures like weight and arm span were measured as per WHO standard measurement guidelines for elderly (Status, 1995). All the measurements were done by single investigator. Weight and arm span were measured twice and average was taken. Body Mass Index (BMI) was calculated using formula; weight in kilograms/square of arm span in meters. Nutritional status was classified into normal, over nutrition and under nutrition according to WHO classification 2004 (WHO, 2004). Under-nutrition was further classified into mild (17.0–18.4 kg/m²), moderate (16–16.99 kg/m²) and severe under nutrition (<16 kg/m²) (Singh et al., 2008).

Data were single entered in EpiData version 3.1 and exported to STATA 11 for analysis. Results of malnutrition status were described as proportions with 95% confidence intervals. Anthropometric measurements like weight, arm span and BMI were

expressed as mean (SD). Possible association of socio-demographic characteristics with under-nutrition was assessed using bivariate analysis. Determinants of under nutrition (Independent effects) were identified using multi-variate logistic regression analysis, considering under-nutrition as dependent variable and gender, age, education, income, morbidity status and self-reported nutritional status as explanatory variables. Adjusted odds ratios with 95% confidence intervals were calculated. A p-value of less than 0.05 was considered as statistically significant.

3. Results

There were a total of 296 elderly in the study setting, of which 271 (92%) were included. Of 25 elderly not included in the study, 19 were unable to contact after two home visits and six were bedridden. Of total 271 elderly included in the study, 105 (38.7%) were males. Mean (SD) age of elderly men and women were 67 (6.3) years and 67 (5.9) years respectively. Majority (66%) of the elderly belonged to age group of 60–69 years; a little above half (51%) had no formal education and more than three fourths (81%) were living with their spouse or family (Table 1).

Anthropometric measures such as weight, arm span and BMI differed significantly among elderly men and women. Mean (SD) weight of elderly men was higher than that of elderly women [(60 (12.3) kg vs 52 (12.1) kg)] and the difference was statistically significant ($p < 0.001$). Similarly, mean (SD) arm span was significantly ($p < 0.001$) higher among elderly men [168 (8.8) cms vs 153 (8.7) cms] than women. However, mean BMI scores were higher (p value = 0.03) for elderly women compared to that of men (22 (4.6) kg/m² vs 21 (3.8) kg/m²). Since, each anthropometric index was measured twice by the same researcher; we estimated correlation between first and second anthropometric measures for each index to identify intra observer variation. The correlations between two measures were varied from 0.88 to 0.99 [Weight–0.98 and arm span–0.99].

The prevalence of under nutrition was 24.8% (95%CI: 19.7–30.3%), severe under-nutrition was 9.2% (95% CI: 6.0–13.3%) among all elderly. The proportion of overweight or obesity was 37.6% (95% CI: 31.8–43.7%) (Table 2). More than half of the elderly (58.7%) perceived their nutritional status as poor; of them 28.9% were under-nourished based on BMI.

In adjusted analysis, age group of the elderly, gender, income and presence of morbidities were independently associated with under-nutrition. Under-nutrition was more in men (27.6%) compared to women (22.9%) ($p = 0.02$). The trend of with reference to age showed an increase in under-nutrition with advancing age ($p = 0.007$). Prevalence of under-nutrition was substantially higher among people above 70 years of age compared to 60–69 years age group (37.5% vs 17.5%, $p = 0.007$). Similarly, elderly with income less than one thousand (INR) had significantly higher prevalence of under-nutrition. Prevalence of under nutrition was found to be less among elderly who reported any morbidity compared to among elderly who reported none. Education, marital status and living with spouse or alone and perceived nutritional status were not associated with under-nutrition.

4. Discussion

This study conducted in rural area of Puducherry, India reported high prevalence (25%) of under nutrition among elderly. Elderly male, age more than 70 years and per capita income less than 1000 INR were associated with under nutrition.

Studies from different parts of India had reported varying prevalence of under-nutrition ranging from 14% to 52% (Jamir et al., 2013a; Lahiri, Biswas, Santra, & Lahiri, 2015; Vedantam, Subramanian, Rao, & John, 2010). A study from Allahabad, India had

Download English Version:

<https://daneshyari.com/en/article/1902715>

Download Persian Version:

<https://daneshyari.com/article/1902715>

[Daneshyari.com](https://daneshyari.com)