

Nutritional status of elders in Galle district, Sri Lanka

De Silva K¹, Liyanage C², Wijesinghe C², Perera B²

¹Allied Health Science Degree Programme, ²Department of Community Medicine, Faculty of Medicine, University of Ruhuna, Galle, Sri Lanka.

Correspondence: Prof. Bilesha Perera
e-mail: pperera@indiana.edu

ABSTRACT

Introduction: Geriatric population in Sri Lanka is a potentially vulnerable group for malnutrition. The present study was carried out to assess the nutritional status of elderly in Galle and to identify the relationships of their nutritional status with gender, age, area of residence, level of education and income.

Methods: A cross sectional study was done using a sample of elders aged 60 years and above living in Galle district. An interviewer administered questionnaire was used to collect data. Mini Nutritional Assessment (MNA) tool was used to assess nutritional status.

Results: A total of 396 elders participated in the study. Mean age of the participants was 69 years ($SD = 7.2$) and the majority were females ($n = 268, 67.7\%$). MNA showed that 0.5% elderly were malnourished and 30.8% were at risk of malnutrition. Older age ($p < 0.05$), lower monthly family income ($p < 0.01$), low level of education ($p < 0.01$), and living in rural areas ($p < 0.05$) were found to be possible risk factors of malnutrition.

Conclusions: Nutritional status is considerably poor in the elderly in Galle district. Therefore, geriatric nutritional interventions in low income older age elders in rural population segments in the area are needed.

Keywords: Elders, nutritional status, Sri Lanka

Introduction

Ageing is a universal phenomenon. The number of elders (aged 60 years or over) is increasing rapidly worldwide (1). Globally, the number of elders is expected to be more than doubled, from 841 million people in 2013 to about 2 billion in 2050, and about two thirds of the world's elders live in developing countries (1, 2). Sri Lanka, a country which has shown an increasing life expectancy at birth and declining mortality rates in the past few decades, is likely to experience a significant increase in its elderly population in the near future (3). In 2012, the proportion of the population aged 60 years and older in Sri Lanka was approximately 12.2% (4). It is estimated that this proportion would increase up to 16.7% by the year 2021 and by 2041, 1 out of every 4

individuals in the country will be an elderly person, making Sri Lanka's population the oldest in the South Asia region.

The World Health Organization (WHO) states that nutrition has a profound influence on morbidity and mortality in the elderly across the world. About two third of the elderly population globally is at risk of nutritional deficiencies (5). In many developing countries, there is a double burden of malnutrition that includes a high prevalence of both underweight and overweight or obesity (6). In Sri Lanka, a study on prevalence of under-nutrition and low dietary diversity revealed that about 30% of institutionalized elders were undernourished (7). Another study on the prevalence of adult obesity in Sri Lanka has shown that a considerably high proportion of elders were

overweight or obese and that the overweight or obesity in elderly women (60.0%) was higher than that of elderly men (43.8%) making elderly women a highly vulnerable group to experience poor health status (8). Thus, nutrition is an important element of health which affects the aging process in elders. Hence, the aim of the study was to describe nutritional status and associated factors in the elderly population in Galle district, Sri Lanka. Such data are imperative to design cost effective nutritional strategies to improve the overall health and well-being of elders in the country.

Methods

Community-based descriptive, cross sectional study design was used in this study. Throughout the study an older person was defined as those *who are 60 years or more*. In the government as well as most of the private institutions in Sri Lanka the retirement age is between 55 and 60 years and this is the reason for taking 60 as the cut-off age in this study. An interviewer administered questionnaire was used to collect data. A previous study conducted in Kandy had indicated that 37% of elders have good nutritional status (9). Based on that, the sample size required for the study was 350 (10). A multistage, stratified random sampling method was used to recruit the subjects. Out of the total of 19 Assistant Government Agent (AGA) divisions in the district of Galle, one urban and two rural AGA divisions were selected randomly for the survey considering the socio-cultural differences between urban and rural elders. Only 3 AGA divisions in the district were run by town councils and those AGA divisions were generally considered as urban AGA divisions. Two Grama Niladhari Divisions (GND) were selected randomly from each AGA divisions selected, and from the lists of the households at each selected GND, approximately 66 elders were randomly selected for the survey.

The questionnaire consisted of basic socio-demographic variables and Mini Nutritional Assessment (MNA) scale (11). MNA is an effective, easily administered, validated and widespread tool designed to identify elders who are malnourished or at risk of developing malnutrition. It has 18 questions in four dimensions; anthropometric assessment, general assessment, dietary assessment and self

assessment. The total score of MNA is 30; scores above 23.5 are considered as well-nourished, 17 to 23.5 as risk of malnutrition and <17 as malnourished (11). The MNA has been translated into Sinhala, and validated and used in Sri Lanka (9). Ethical clearance for the research was obtained from the Ethics Review Committee, Faculty of Medicine, University of Ruhuna, Galle.

Results

A total of 396 elders participated in the study. The minimum age of the participants was 60 years and maximum age was 93 years. The mean age of the participants was 69 years ($SD = 7.2$). It was observed that the majority of the study subjects were in the age group of 60-69 years ($n = 224, 56.6\%$) while 43.4% ($n = 172$) were in the age group 70-100 years. Majority of the subjects were females ($n = 268, 67.7\%$) and Sinhalese ($n = 393, 99.2\%$). About 66% ($n = 262$) were from rural areas.

The mean score of the nutritional status as measured by the MNA was 24.7 ($SD = 2.6$) with a range of 16 to 29. Based on this assessment two subjects (0.5%) fell into mal-nourished category and another 122 (30.8%) subjects into "at risk of being malnourished" category.

The results presented in the table 1 show that a slightly higher percentage of elderly men were at higher risk of being malnourished compared to elderly women. However, there was no significant difference between the groups. Senior elders (those aged 70 years and above) were at higher risk of being malnourished compared to the elders aged between 60-69 years ($\chi^2 = 5.70, p < .01$). Also, the elders who were residing in rural areas were at higher risk of being malnourished compared to the elders who were residing in urban areas ($\chi^2 = 3.73, p < .05$).

Analysis of Variance (ANOVA) was used to investigate whether nutritional status was associated with level of education, monthly income and dependency status (Table 2). Elders who had good income and higher educational qualifications were less likely to have poor scores of nutritional status. Those elders who were not economically dependent on others had a good nutritional status compared to the elders who were economically dependent on others.

Table 1: Nutritional status of the subjects by gender, age and residential area

| Character | Malnourished | Risk of being malnourished | Normal |
|--------------------------|--------------|----------------------------|-------------|
| Gender | | | |
| Male (n = 128) | 1 (0.8%) | 43 (33.6%) | 84 (65.6%) |
| Female (n = 268) | 1 (0.4%) | 79 (29.5%) | 188 (70.1%) |
| Age | | | |
| 60-69 yrs (n = 224) | 0 (0.0%) | 58 (25.9%) | 166 (74.1%) |
| 70-100 yrs (n = 172) | 2 (1.2%) | 64 (37.2%) | 106 (61.6%) |
| Area of residence | | | |
| Urban (n = 132) | 0 (0.0%) | 32(24.2%) | 100 (75.8%) |
| Rural (n = 264) | 2 (0.8%) | 90(34.1%) | 172 (65.2%) |

Table 2: Mean scores of nutritional status by levels of education, income and dependency status

| Variables | Categories | N | Mean | SD | p value* |
|-------------------|--------------------|-----|-------|------|----------|
| Educational level | No education | 26 | 23.98 | 2.12 | 0.001 |
| | Up to grade 1 - 5 | 114 | 24.00 | 2.53 | |
| | Up to grade 6 - 10 | 135 | 24.80 | 2.77 | |
| | Passed O/L | 80 | 25.50 | 2.57 | |
| | Passed A/L | 36 | 25.18 | 2.18 | |
| | Degree Level | 05 | 26.60 | 0.96 | |
| Monthly income | No income | 46 | 24.07 | 3.18 | 0.001 |
| | Less than 5000 | 184 | 24.37 | 2.52 | |
| | 5000 - 10000 | 74 | 24.95 | 2.69 | |
| | 10001 - 20000 | 44 | 25.14 | 2.46 | |
| | More than 20,000 | 48 | 25.89 | 1.95 | |
| Dependency | Not a dependent | 136 | 25.19 | 2.33 | 0.001 |
| | On children | 215 | 24.54 | 2.59 | |
| | On husband | 27 | 25.07 | 2.49 | |
| | On wife | 05 | 22.60 | 4.61 | |
| | On relations | 10 | 23.40 | 3.76 | |
| | On others | 03 | 20.50 | 3.46 | |

* One way ANOVA

Discussion

Adequate and balanced diet is vital for maintaining good nutritional health in the elderly, because the physiological changes that occur in the body as people get older may pose a threat to their health if their nutritional status is poor. Results of this research indicate that about 31% of elders in the sample were at risk of malnutrition. This finding is somewhat low compared to the observed findings in the region; in an Indian study the rate was 60.4% and in an Iranian study conducted on the elderly living in nursing homes the rate was 38.7% (12, 13). Further, no gender difference in the rate of malnutrition was observed in our study although many studies conducted on nutritional status of elders in South Asia had shown gender differences of nutritional status in the elderly (12-14). For example, a study conducted in Assam, India (14) found that the elderly women were at higher risk of being malnourished compared to the elderly men (45.6% vs 21.7%). Non-discriminatory attitudes of Sri Lankan towards women, financial independence experienced by a significant proportion of elderly women who had been engaged in paid jobs before retirement and gender equality in the participation in the formal educational system in the country may have been the reasons for this observation (15), but further research is needed to confirm our assertions.

As seen in studies conducted in other countries in the region (14, 16, 17) an increasing age is found to be independently associated with poor nutritional status in our study too. Aging is associated with the decline in a number of physiological functions that can impact nutritional status, including impaired digestion, difficulties in chewing and swallowing, loss of sensory perception, and impaired metabolism (1, 5, 6). These physiological changes together with psychological health issues such as depression, dementia and anxiety and social issues such as social isolation and bereavement can diminish the nutritional status of senior elders (1, 5-7). It appeared that the elders who were not economically dependents were less vulnerable to poor nutritional status probably because those elders may have decision making powers in food intake (14). Elders living in rural areas seem to be a disadvantaged group. It has been reported that poverty is one of the root causes of malnourishment found among the elderly in many of the developing countries (14, 18) and Sri Lanka is no exception (19, 20).

The Sri Lankan Government provides many services and facilities to improve the health of the elderly through government institutions, Provincial Councils, Local Government Institutions and Non Government Organizations (NGO) despite severe resource constraints which is common to many developing countries. In this study, rural senior elders were found to be at higher risk of being malnourished. Our observations support one of the policy decisions taken by the national nutrition policy in Sri Lanka. This policy has emphasized the need of nutritional interventions for underserved rural and plantation communities in the country (3, 7).

Conclusions

The MNA among elderly in the present study revealed that, nearly one third of the sample was at risk of malnutrition. Findings indicate that poverty, age and living area are among the vital issues that would need consideration in the development of evidence base strategies and policies for improving the nutritional status of elders in Sri Lanka.

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