

Undernutrition and dietary pattern in Sri Lankan institutionalised elderly

K. M. Rathnayake^{1,2}, M. P. P. M. Wimalathunga¹, M. Weech², K. G. Jackson²
and J. A. Lovegrove²

¹Department of Applied Nutrition, Faculty of Livestock, Fisheries & Nutrition, Wayamba University of Sri Lanka, Makandura (60170), Sri Lanka and ²Hugh Sinclair Unit of Human Nutrition and Institute for Cardiovascular and Metabolic Research, Department of Food and Nutritional Sciences, University of Reading, Reading, UK, RG 6 6AP

The elderly population has been increasing gradually over the past few decades globally. In Sri Lanka it accounts for 9.2% of the total population⁽¹⁾, which is the fastest growing elderly population in South East Asia⁽²⁾. It is well-documented that worldwide there is a higher prevalence of malnutrition in the institutionalised elderly compared with the free-living elderly⁽³⁾. The study aim was to assess undernutrition, dietary diversity and lifestyle risk factors associated with undernutrition in an institutionalised Sri Lankan elderly population.

The study was of cross-sectional design followed by a stratified sampling method. A total of 311 elders (≥60 years) from 12 homes for the elderly were recruited in six provinces in Sri Lanka. Predicted risk factors of undernutrition were assessed through an interviewer administered questionnaire. A single 24-h dietary recall was performed to determine the dietary diversity of subjects. Height, weight, mid upper arm circumference (MUAC) and calf circumference (CC) were measured. BMI was used to assess undernutrition. The dietary diversity was assessed by a food variety score (FVS; a simple count of food items consumed, dietary diversity score (DDS; a simple count of food groups consumed out of 12 groups considered) and dietary serving score (DSS; number of portions of different food groups in conformity with dietary guidelines of Sri Lanka⁽⁴⁾). Multivariable logistic regression analysis was performed to assess the risk factors associated with undernutrition.

The mean (SD) age of the study population was 74.4 (7.8). The prevalence of undernutrition was 30% (Table 1). Mean (SD) FVS, DDS and DSS of the study population were 8.7 (1.5), 7.3 (1.2) and 10.9 (2.0), respectively. Mean daily intakes of fruit, vegetable, meat, fish, eggs and pulses and dairy portions were below the national recommendations (Table 2); whereas the mean consumption of sugar exceeded the national recommendations. Only the mean intake of starch was within the recommendations (Table 2). Carbohydrate was the highest contributor to the diet. Food allergies (OR = 8.0; 95% CI 3.9–16.2), skipping meals (OR = 3.8; 95% CI 2.0–7.5) and lack of leisure activities (OR = 3.1; 95% CI 1.5–6.7) significantly increased the risk of undernutrition, whereas the use of dentures decreased the risk (OR = 0.20; 95% CI 0.06–0.69).

Table 1

| Factor | Mean | SD | % (n) |
|--------------------------|------|-----|----------|
| BMI (kgm ⁻²) | 21.5 | 4.8 | – |
| <18.5 | 16.6 | 1.4 | 30 (94) |
| ≥18.5 | 23.6 | 4.1 | 70 (217) |
| MUAC (cm) | 23.4 | 3.5 | – |
| <21 | 19.4 | 1.3 | 23 (72) |
| ≥21 | 24.6 | 3.0 | 77 (239) |
| CC (cm) | 28.3 | 3.7 | – |
| <31 | 26.7 | 2.7 | 74 (229) |
| ≥31 | 32.8 | 2.1 | 26 (82) |

Table 2

| Food Groups | Average intake (portions/d) | Sri Lankan recommendations (portions/d) ⁽⁴⁾ |
|---------------------------|-----------------------------|--|
| Starch | 8.24 | 6–11 |
| Fruits | 0.46 | 2–3 |
| Vegetables | 1.49 | 3–5 |
| Meat, fish, eggs & pulses | 1.56 | 3–4 |
| Dairy | 0.55 | 1–2 |
| Added sugar | 3.71 | Sparingly |

In conclusion, the prevalence of undernutrition in the elderly was high, and both the quantity and quality of diets failed to meet national recommendations. Food allergies, skipping meals and lack of leisure activities all contributed to undernutrition. Therefore, there is an urgent need to implement nutrition interventions as part of geriatric care to reduce undernutrition and improve the diets of the institutionalised elderly population in Sri Lanka.

1. Central Bank of Sri Lanka (2013) *Economic and Social Statistics of Sri Lanka*.
2. Rajapakse S, Maithripala C, Ibrahim S *et al.* (2012) *Int J Gerontol* **26**, 351–66.
3. Smoliner C, Norman K, Wagner K-H *et al.* (2009) *Br J Nutr* **102**, 1663–7.
4. Nutrition Division, Ministry of Health (2011) *Food Based Dietary Guidelines for Sri Lanka*, 2nd ed.