Review Article

Trends in dietary habits of the elderly: The Indonesian case

R Boedhi-Darmojo MD, ProfMed

Department of Internal Medicine, Geriatric Unit, Medical Faculty, Diponegoro University Semarang, Indonesia

Based on community surveys of the elderly of their nutritional habits in big cities throughout Indonesia and in urban and rural areas, the following observations are reported: (i) the elderly tend to reduce their food intake by themselves, in calories, carbohydrate, fat, protein content (15–30% less); (ii) they even reduce their traditional fatty food by themselves in spite of their already low fat intake daily (30–40% less); (iii) they very seldom eat snacks between meals (6.7–25.5%) of the respondents only; (iv) they tend to eat (very seldom – never) new 'trendy foods' (78–95%) such as hamburger, pizza, fried chicken etc., which are available in big cities; (v) the elderly usually eat just enough before satiety (84.3%); (vi) the majority of the elderly usually eat rice or other local staple foods, with mostly vegetables every day (50–80%), especially the traditional *témpé* (soybean cake) and *tahu* (soybean curd) and green vegetables (80%); fruits are consumed less than vegetables (40%); (vii) milk consumption still needs to be improved; (viii) fish consumption, the best healthy animal protein source, still needs to be promoted to the whole country, especially to the elderly on Java island; and (ix) an urban–rural difference was noted, the urban elderly having a higher intake of calories, fat and protein. Gender differences were practically not observed, except the higher calorie intake in men. The following findings support the aforementioned observations. The elderly have a lower mean body mass index (BMI); only 15.9% are overweight and only 4.5% are obese, although it is admitted that there are many elderly people who are underweight and malnourished. They also have lower mean cholesterol, triglyceride and haemoglobin values, but a higher prevalence of glucose intolerance, hypertension, coronary heart disease etc. is reported in many studies. In conclusion, the elderly in general have good eating habits, and they adjust their food intake to the reduced daily physical activities they perform. However, the consumption of eggs and fish (as low-cost protein sources) needs to be improved. Hence overeating and obesity are not a problem for the Indonesian elderly people, although it is admitted that undernutrition will be a problem unless properly anticipated. They usually prefer to eat the already healthy traditional food, especially the still popular vegetable source of protein and anti-oxidants. They eat the traditional food, *témpé* and *tahu*, making them a stronghold against diet 'westernization', and they should be used as a good example for the younger generation. Reduced calorie intake among the elderly is also observed in Japan, but not yet in most European elderly populations.

Key words: dietary habits, elderly, healthy ageing, Indonesia, nutrition.

Introduction

Indonesia, an archipelago of more than 17 508 islands covering an area as large as Europe, has a population of 207.5 million. The population is not evenly distributed and therefore the population density of Java is 892 people per km^2, whereas that of Kalimantan (Borneo) and West Irian is less than 20 people per km^2. Java is the most populated island (121.4 million) but it occupies only 6.5% of the whole land area. Moreover, Java is the most industrialized island and the seat of the Central Government, with Jakarta as the capital city.

The most recent reported life expectancy at birth was 62.6 years for men and 66.7 years for women.[1]

It is admitted that at the present time the situation of the Indonesian elderly needs improvement, especially as regards the educational aspect, but the situation will be gradually improved.

In the year 2020 Indonesia will be one of the five countries with the highest number of elderly people in the world, after China, India, USA and the former USSR.[2]

Indonesia is well known for its cultural diversity. It has more than 300 ethnic groups, each possessing their own cultural identity in the form of custom, language and dialects, dress, colours, food and even in their names. Nevertheless, there are still many similarities among these customs and traditions.

Food is similar among most Indonesians. The national staple food is rice (95%), consumed alongside nearly the same macronutrients such as the sources of protein, fat and vegetables etc., differing only in the use of spices and other ingredients to serve on the table.

Correspondence address: Professor R Boedhi-Darmojo, Department of Internal Medicine, Geriatric Unit, Medical Faculty, Diponegoro University, Dr Kariadi Hospital, 16 Dr Sutomo Street, Semarang, Indonesia.
Tel/Fax: +62 24 844 6758
Email: geriatriundip@yahoo.com

Health aspects of the elderly

According to the World Health Organization (WHO) Five Country Epidemiological Study of the Elderly (n = 1203), in the Indonesia country report the diseases or complaints most suffered by the elderly were, respectively, (in order of frequency): disease of bones and joints (rheumatism), hypertension, cardiovascular disease, lung disease (bronchitis/dyspnoea) diabetes mellitus, falls, stroke/paralysis, lung tuberculosis (TBC), bone fractures, cancer. Women in general suffered more of these complaints except for bronchitis. Visual hearing and chewing problems were suffered by a great percentage of the elderly but only a small percentage could afford spectacles (30.2%), hearing aids (0.9%) or dentures (11.0%). In spite of that, 95% of the elderly respondents did very well as regards the physical activities of daily living (ADL), whereas the numbers of those performing well in the instrumental ADL (75–82%) were only slightly reduced. The authors conclude that in general the rural elderly were in better condition than the urban elderly, being in general more active and healthy and having a better social life.[3,4]

The concept of healthy ageing

In the light of present knowledge the goal of gerontology and geriatrics is not only longevity but also healthy ageing. Healthy ageing is influenced by endogenic as well as exogenic factors, which are frequently very difficult to separate because they are frequently related to each other (Fig. 1).

(1) Endogenic ageing begins with cellular ageing, followed by tissue or anatomical and functional ageing of the various organs and systems of the body.

(2) Exogenic factors can be divided into environmental factors and the lifestyle of the individuals. Both can be regarded as risk factors that can accelerate the process of the endogenic factors of ageing.

During the ageing process all four ways of implement good health, promotion of health, prevention of disease, and curative and rehabilitative activities must be simultaneously accomplished. Promotion and prevention have priority: the earlier they are practised the better will be the results.

The goal is also to avoid and minimize the risk factors of degenerative diseases, which are very common among the elderly, in order to avoid the pathologic processes that play a role in increasing morbidity and mortality in the elderly.[5]

In this connection, nutritional factors and good eating habits can play an important, maybe even the most important, role in reaching the goal of healthy ageing.

Sociocultural, socioeconomic aspects and social policy in care of the elderly

The World Health Organization, at its 35th World Health Assembly (1982) adopted a resolution (WHA 35.28) which, among others, requested member states to include the elderly within national strategies for achieving health care within country health plans. The emphasis was laid for the formulation and implementation of the policies for promoting the well-being of the elderly.

Based on the socioeconomic and sociocultural conditions of the country and recommendations of studies that have been done, so far, the care of the elderly in general should be accomplished as part of 'family centred development'. For the last 7 years the most promoted state policy has been the so-called 'family welfare' movement, which includes the elderly.[6]

Based on this, a national committee on the welfare of the elderly has been formed (1993), which involved the participation of Ministers of Social Welfare, Health, Education and Culture, Population, Religious Affairs, Labour Force and Women's Role, supported by the NGOs, complete with experts on gerontology and geriatrics.

Finally, in 1998 a law relating to the welfare of the elderly was issued by Parliament, and is now being socialized and propagated. Worldwide the family is the primary caregiver of the elderly. This reality transcends culture, politics and economic circumstances in spite of wide variations in the way that care is provided in different societies. Families play a critical role especially in developing countries, where the elderly population is increasing rapidly. But in all societies families are typically generous in providing care.

In Indonesia the extended family system is still practised and the families regard the placing of the elderly in an 'old people home' as the last alternative.[3]

Pertaining to employment and income of this population segment, a study disclosed the following facts: 25.7% of men and 16.7% of women derived their income from paid employment, only a small number (1.4%) could live on their savings while 78.3% admitted to living at subsistence level;

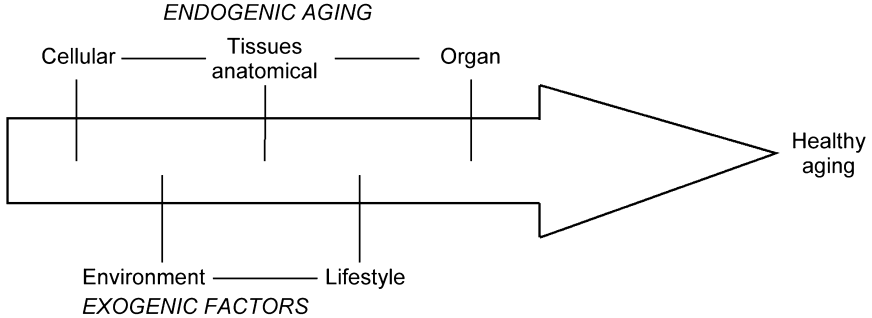

Figure 1. Model of healthy ageing and its factors.

14.1% rated their living conditions as more than enough, while 7.6% rated their living conditions as poor. We had a strong impression that their health, independence, productivity, and socioeconomic situation is positively influenced by their level of education.[3]

Studies on nutritional aspects in the elderly

Susanto (1998), in her master's thesis on nutrition, studied randomly selected elderly people in seven health centres in Semarang (n = 242, 60–82 years), their daily calorie consumption was only 1222 cal in men and 1000 cal in women (far less than the recommended daily allowance (RDA)) with a macronutrient intake of carbohydrate (CH) 52%, protein 14%, and fat 35%. The cholesterol intake was >300 mg/day in only 9% of people. Susanto found a positive correlation between body mass index (BMI) and serum cholesterol, tryglyceride intake, but an inverse relationship with high-density lipoprotein cholesterol (HDL-C) . The mean BMI in men and women was 19.2 and 21.6 kg/m^2, respectively. The mean total cholesterol values of men and women were 199.3 ± 35.7 and 220.9 ± 46.7 mg/dL, respectively.[6]

Other reports on randomly selected elderly people by Ibrahim (1997) in South-Jakarta (n = 304) found higher values, the daily calorie intake being CH 62.5%, fat 22.9% and protein 14.8%, while only 10.7% of the respondents consumed cholesterol at >300 mg/day. The daily calorie intake was 1491.7 cal in men and 1183.8 cal in women, respectively. There were more obese women (BMI > 30) than men, the figures being 25.7% and 16.7%, respectively. Most of the respondents were at the ideal weight (50.3%) and 5.9% of people were underweight. The mean BMI was 23.8 kg/m^2 in men and 24.7 kg/m^2 in women, which was higher than the figures reported from Semarang (Central Java) by Susanto (1997).[6] Ibrahim reported also the results of blood examination of these elderly people as follows: mean total cholesterol (TC) 233.1 ± 50.3 mg/dL, mean HDL-C 65.7 ± 30.6 mg/dL and tryglyceride (TG) 119.5 ± 68.8 mg/dL, with no significant differences in men and women, although the women had higher TC and HDL-C levels.[7]

In the National Workshop on Food and Nutrition (1998), Satoto *et al.* presented a study on overweight, obesity and degenerative disease epidemiology and management. This was carried out in 12 big cities throughout Indonesia (n = 2660) and the subjects were 55 years and over. The mean BMI of the randomly selected respondents was 21.3 ± 3.6 kg/m^2 for men and 22.2 ± 4.4 kg/m^2 for women, respectively. The overweight people (BMI > 25) comprised 11.7% of the men and 18.7% of the women, while 2.7% of the men and 5.6% of the women were obese (BMI > 30).[8]

Van Staveren *et al.* reported, from their observations in the SENECA Project, that cases of obesity (BMI > 30) in European countries comprised more than 30% in both men and women, Moreover, they reported also a tendency of increasing cholesterol values with a rise in BMI, but an inverse association with HDL-C values.[9]

Changing trends in dietary habits in the elderly population

The author has stated that the elderly are usually reluctant to change their traditional diet into the new modernized and westernized diet that is more popular among the younger generation. This fact is also observed by Kamso and Purwantyastuti (1997) in their report that evaluated the results of health services to the elderly in metropolitan Jakarta, using randomly selected elderly people (n = 556).[10] They found that the majority of the elderly people reduced the quantity of their intake of beef/meat (23.7%), chicken (26.9%), eggs (29.4%), fat (30.1%), fish (29.0%), vegetables (28.2%), fruits (19.9%), rice/noodles/bread (17.5%), coffee (43.6%), tea (35.8%) and milk (36.0%). Relatively the consumption of vegetables and fruit is stable, being 41.9% and 47.3%, respectively. The researchers thought that the reduction of food was due to budgeting problems, but it appears that it is also observed among the well-off elderly people. It is also to be regretted that they also reduce the intake of good sources of protein such as fish, eggs, and milk. The researchers have observed this same trend in dietary habits in other big cities in Indonesia that they have studied and analysed. However, vegetables (mostly greens, legumes, carrots, tomatoes etc.) and fruits (mostly banana, papaya and all kinds of local fruits) are still popular among them. Eggs, fish (fresh, smoked or salted), and poultry are still consumed although not every day or frequently. Fish consumption is more popular especially in the eastern part of Indonesia and Sumatra. Alcohol abuse is not a problem among the Indonesian elderly people; in Jakarta only 1.9% of men and 0.2% of women are regular alcohol drinkers. This may be due to the religion of Islam, which prohibits followers from drinking alcohol.[4,10]

It is not surprising to know that the elderly very seldom or never eat modern or so-called 'trendy food' such as hamburger, pizza, fried chicken etc., which is available in every big city. A total of 75–90% never eat this kind of food; they even avoid the traditional fatty food, both of which are very popular among the younger people.[7,10]

Kusumanti *et al.* more recently studied the eating habits of urban and rural elderly people in Semarang City and a village nearby (n = 302), with simple stratified random selection. They observed a nearly similar reduction in daily food consumption. In people over 50 years of age '*tahu*' and '*témpé*' were still popular and were consumed daily by 88% and 80% of elderly people, respectively. Protein and fat of animal origin were seldom consumed, while only 6.7–8.0% admitted to eating snacks between their main meals. 'Trendy food' is almost never eaten by them. (The Jakarta elderly enjoy more snacks (25.5%) between their meals.) After analysis, an urban–rural difference was noted; the urban elderly have a slightly higher intake in calories, fat and protein, while gender differences were not observed, except that the men have a higher consumption of calories.[11]

Besides low-cost protein such as fish and eggs, which the elderly poor can afford, in Indonesia the vegetable protein sources *témpé* (fermented soybean cake) and *tahu* (soybean

curd) are very popular. They are frequently, even daily consumed by 53.0–88.0% and 50.1–82.0% of the elderly, respectively. *Témpé*, a native product of Indonesia, is now widely studied in Indonesia and other industrialized countries such as Germany and Japan with promising results. Mari Astuti, at the International Témpé Symposium in Bali, reported that *témpé* (soybean inoculated with *Rhizopus oligosporus* or *Rhizopus oryzae*) contains vitamin E, isoflavonoids and superoxide-dismutase (SOD), which play a role as anti-oxidant enzymes as functional food for degenerative disease prevention (Fig. 1).[12]

Studies on micronutrients in Indonesian elderly are not numerous. Hussaini quoted by Boedhi-Darmojo during a nutritional workshop on traditional food, observed that in general the consumption of calcium and iron was lower than the RDA, while only vitamin A and C were consumed in abundant amounts. He found cases of anaemia in 39.1% of men and 35.3% of women.[13]

Conclusion and recommendation

(1) The Indonesian elderly people are growing in number and need special service and attention. In general they feel healthy enough but the majority are socioeconomically dependent.

(2) A favourable changing trend in dietary habits is observed, in that they reduce their consumption of calories, fat and protein, as if to adjust their food intake to match their reduced daily physical activity.

(3) Overeating and obesity are not a problem as yet, but undernutrition (underweight and undernourishment) is still prevalent and needs to be anticipated. In general, the calorie intake is two-thirds that of the RDA.

(4) Fat consumption is not high and protein intake is also low. The consumption of more fish and fish products should be further promoted.

(5) The consumption of the still popular low-cost traditional vegetable protein sources, such as *témpé* and *tahu* should be maintained and encouraged.

(6) Campaigns to promote good healthy eating habits with balanced macro- and micronutrients should be instituted and propagated by the government hand in hand with the NGOs.

(7) More studies on micronutrients in the elderly are needed to maintain health, productivity and independence/self-reliance as long as possible.

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