

Cases of Nutritional Adequacy Rates and Strategies for Improving Middle-Aged Elderly Nutrition in Aceh

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Abstract

Elderly is one of the processes of a person who has entered the final stage of the life phase. Groups categorized as elderly experience a process called the aging process. The nutritional adequacy rate is the average daily nutritional adequacy. Nutritional adequacy is an indicator of food security at the household level and can be measured by the adequacy of energy, protein and fat. The study aims to analyze the cases of nutritional adequacy of the elderly. The method used a quantitative method using a cross-sectional approach that is complemented by interview techniques using a food recall questionnaire. This study shows that the average level of adequacy of energy and macronutrients (carbohydrates, protein, and fat) is included in the good category, while fiber still needs to be improved because it is included in the insufficient category. The nutritional status of respondents was mostly normal, although some were in the obese category. To maintain a healthy body, an elderly person needs to do routine activities and have food quality by showing the suitability of food intake based on recommendations, namely the existence of a variety of food groups, nutritional adequacy according to needs, moderation, and overall balance.

Keyword: elderly, nutrition, status

INTRODUCTION

Elderly is everyone aged 60 years and over who looks different from other age groups. Aging is a natural and inevitable process. In general, everyone will experience the process of getting old, and old age is the last cycle of human life. The period when a person experiences physical, mental and social decline so that they can no longer carry out daily tasks is unpleasant for most elderly (Senjaya, 2016).

Changes such as decreased physical function in the elderly are part of the life cycle of the elderly and can affect physical, psychological, spiritual and psychosocial health. Nearly 15% of the world's population aged 60 years and over suffer from mental disorders, especially dementia and depression. The number of elderly (elderly) in Indonesia continues to increase due to declining fertility rates and increasing life

expectancy of the population. According to the Ministry of Health of the Republic of Indonesia (2013), the provinces with the highest proportion of elderly people above 10% are East Java Province (10.40%) and the City of Surabaya in Gubeng District has the highest elderly population (42.19%). (Alamsyah & Andrias, 2016).

An increase in the number of elderly will have an impact on all types of life. The main effect of an increase in the elderly population is an increase in the dependency of the elderly. This dependence is caused by a decrease in the physical, psychological and social abilities of the elderly, which is manifested in four stages of weakness, limitation, functional decline, disability and underdevelopment, and decline with the aging process. The effects of the decline process caused by the aging process can also affect the quality of life of the elderly.

An increase in the number of elderly must be balanced with an increase in the quality of life of the elderly. In addition to being able to live longer, the elderly must be able to live healthy, productive and independent lives so that they do not become a burden on families and the government, but can become valuable assets for the country in the development process (Nurhidayati *et al.*, 2021).

A large increase in the number of elderly people in the future will have both positive and negative impacts. The positive influence is whether the elderly are healthy, active and productive. Meanwhile, the negative impact is that if the elderly experience health problems, it will become a burden for the majority of the elderly population, resulting in increased medical service costs, reduced income, increased disability, lack of social support, an unfriendly environment, etc. to the elderly population. Therefore, an increase in the number of elderly must be balanced with an increase in their quality of life (Lidya *et al.*, 2022).

As a result of the aging process, an increase in the elderly population can increase the risk of health problems in the elderly, one of which is nutritional problems. Nutritional problems that often occur in the elderly are over nutrition (obesity) and under nutrition (wasting). In Indonesia, the incidence of nutritional problems in the elderly is quite high, with about 31% malnutrition and only 1.8% obesity (Sartika *et al.*, 2011).

The nutritional status of the elderly is influenced by energy and protein consumption patterns, health status factors, knowledge, economy, environment, and culture. Factors triggering the emergence of nutritional problems may vary according to region or community group. In addition, it is influenced by socio-economic factors, mental health factors, cultural-religious factors, and factors of decreased physical function/ physical function. Lack of physical activity can also lead to overweight in older adults. Being overweight is caused by an increase in internal energy stores adipose tissue forms, usually in the abdominal cavity or buttocks, due to decreased energy expenditure (Wulandari *et al.*, 2015).

Adequate access to healthy food is especially important for older adults. People in their 70s have the same nutritional needs as people in their 50s. Unfortunately, their physical appetite continues to decline and their eating habits become erratic, so efforts must be made to continue to consume nutritious food. Nutritional status is a component consisting of several food inputs to achieve nutritional adequacy and can be seen using the body mass index (BMI) (Hanum, 2022).

METHOD

The method used in this mini research is a quantitative method using a cross-sectional approach. Respondents in this study were elderly people in the Lhokseumawe, Bireuen, Nagan Raya, Aceh Utara and Banda Aceh areas with the criteria the inclusion set is: aged 46-65 years; willing to be a respondent, elderly who can communicate well and have no hearing loss. Food record questionnaire for consumption data filled in by the researcher via WhatsApp voice call with the respondent. Nutritional adequacy is known by comparing consumption with the adequacy of the respondents. The category of nutritional adequacy for energy and macronutrients (carbohydrates, protein and fat) is divided into three categories, namely less, good and more, while fat is divided into two categories, namely enough and more. Energy and nutritional adequacy was determined based on the age range using the nutritional adequacy rate (RDA) corrected for the respondent's actual body weight. The reference for calculating energy and nutritional adequacy uses the 2019 RDA criteria.

RESULT

The type of data collected is data obtained through interview techniques via WhatsApp voice calls. Weight and height data obtained by direct measurement. Nutritional status is determined using the body mass index (BMI) with reference to the Indonesian BMI classification. Based on the results of observations using the 24-hour food recall questionnaire method over a span of 1 week and through nutrition calculations with nutrisurvey software, the following data is obtained:

Table 1. Respondent Lhokseumawe District of nutritional adequacy level for 1 week

Nutritional Substance	Adequacy	Consumption	Level Adequacy (%)	Category Adequacy
Energy (kcal)	2036.3 kcal	1723.6 kcal	85%	Enough
Protein (grams)	60.1 g	54.7 g	91%	Enough
Fat (grams)	69.1 g	67.5 g	98%	Enough
Carbohydrate (grams)	290.7 g	229.5 g	79%	Enough
Fiber (grams)	30.0 g	9.8 g	33%	Not Enough
Vitamins (mg)	60.3 mg	100.0 mg	60%	Not Enough

Table 1 showed that the nutritional adequacy of respondent Lhokseumawe District for 1 week. After calculating using the nutrisurvey software, it was found that the average level of adequacy of energy, protein, fat and carbohydrates (Table 1) of respondent Lhokseumawe District was in the sufficient category. The average level of fiber and vitamin adequacy of respondents was in the less category, namely 33% and 60%.

Table 2. Respondent Bireuen District of nutritional adequacy level for 1 week

Nutritional Substance	Adequacy	Consumption	Level Adequacy (%)	Category Adequacy
Energy (kcal)	2036,3 kcal	1320,6 kcal	65%	Not Enough
Protein (grams)	60,1 g	56,6 g	94%	Enough
Fat (grams)	69,1 g	49,3 g	71%	Enough
Carbohydrate (grams)	290,7 g	166,0 g	79%	Enough
Fiber (grams)	30,0 g	7,8 g	26%	Not Enough
Vitamins (mg)	45,6 mg	100,0 mg	46%	Not Enough

Table 2 showed respondent Bireuen District's nutritional adequacy for 1 week. After calculating using nutrisurvey software, it was found that the average level of energy, fiber and vitamin adequacy of respondent Bireuen District was in the less category. The average level of adequacy of fat is 71% and carbohydrates are 79%, which are quite the same as the adequacy of protein, which is in the sufficient category, namely 94%.

Table 3. Respondent Nagan Raya District of nutritional adequacy level for 1 week

Nutritional Substance	Adequacy	Consumption	Level Adequacy (%)	Category Adequacy
Energy (kcal)	2036,3 kcal	1120,1 kcal	55%	Not Enough
Protein (grams)	60,1 g	41,9 gr	70%	Enough
Fat (grams)	69,1 g	36,7 gr	53%	Not Enough
Carbohydrate (grams)	290,7 gr	154,4 gr	53%	Not Enough
Fiber (grams)	30,0 gr	5,2 gr	17%	Not Enough
Vitamins (mg)	19,7 mg	100,0 mg	20%	Not Enough

Table 3 shows the nutritional adequacy of respondent Nagan Raya District for 1 week. After calculating using the Nutrisurvey software, it was found that the average level of adequacy of energy, fat, carbohydrates, fiber and vitamins (Table 3) for respondent Nagan Raya District was in the less category. The average protein adequacy level is good which is in the sufficient category, namely 70%.

Table 4. Respondent Aceh Utara District of nutritional adequacy level for 1 week

Nutritional Substance	Adequacy	Consumption	Level Adequacy (%)	Category Adequacy
Energy (kcal)	2036,3 kcal	1357,3 kcal	67%	Not Enough
Protein (grams)	60,1 g	38,0 gr	63%	Not Enough
Fat (grams)	69,1 g	20,1 gr	29%	Not Enough
Carbohydrate (grams)	290,7 gr	253,8 gr	87%	Enough
Fiber (grams)	30,0 gr	4,3 gr	14%	Not Enough
Vitamins (mg)	9,9 mg	100,0 mg	10%	Not Enough

Table 4 showed the nutritional adequacy of respondent Aceh Utara District for 1 week. After calculating using the nutrisurvey software, it was found that the average level of adequacy of energy, protein, fat, vitamins and fiber (Table 4) of respondent Aceh Utara District was in the less category. The average level of carbohydrate adequacy is good which is in the sufficient category, namely 87%.

Table 5. Respondent Banda Aceh of nutritional adequacy level for 1 week

Nutritional Substance	Adequacy	Consumption	Level Adequacy (%)	Category Adequacy
Energy (kcal)	2036,3 kcal	1673,3 kcal	82%	Enough
Protein (grams)	60,1 g	69,6 gr	116%	Enough
Fat (grams)	69,1 g	55,8 gr	81%	Enough
Carbohydrate (grams)	290,7 gr	223,0 gr	77%	Not Enough
Fiber (grams)	30,0 gr	4,7 gr	16%	Not Enough
Vitamins (mg)	3,5 mg	100,0 mg	3%	Not Enough

Table 5 showed that the nutritional adequacy of respondent Banda Aceh for 1 week. After calculating using Nutrisurvey software, it was found that the average level of energy, protein and fat sufficiency (Table 5) of respondent E was in the sufficient category. The average level of adequacy of carbohydrates, fiber and vitamins is not good which is in the less category, namely 77% 16% and 3%.

Nutritional status is the body's condition due to food consumption and use of nutrients. Nutritional status is an expression of a state of balance or manifestation of internal nutrients several forms of variables, and optimal nutritional status is a balance between intake and nutritional needs (Hasrul et al., 2020). Old age is the final stage of life, and every elderly person must go through this stage. As we get older, all organ functions peak, so what is happening now is a decrease in organ function (Boy, 2019). The aging process is associated with functional changes in the body.

With age, there is a change in body composition, namely loss of muscle mass and bone mass. Changes associated with the aging process occur after the age of 50. These changes appear significant in weight loss of 1-2% per year and a decrease in strength of 1.5-5% per year (Lintin & Miranti, 2019). There are two types of aging, namely (1) primary aging; is a natural aging that adjusts to age, is influenced by endogenous factors, and changes start from cells, tissues, organs and systems in the body; (2) secondary aging; Secondary aging is not regulated according to actual age and is influenced by external factors, namely the environment, social culture and lifestyle. External factors can also affect internal factors, so that the risk factors are identified. This risk factor causes pathological aging (Setiorini, 2021).

To compensate for the decline in the physiological functions of the elderly and the various problems that accompany this period, the elderly must be given adequate nutrition to suit the activities of the elderly (Setia Budi et al., 2020). Balanced nutritional intake is very important for healthy and sick elderly people to maintain their quality of

life and during rehabilitation to prevent further illness complications (Hidayat & Usman, 2020).

Nutritional status shows health status which can be expressed by body mass index (BMI). Early detection of the nutritional status of the elderly is an important part of health monitoring. Various studies have found a relationship between nutritional status and functional impairment. Malnutrition in the elderly is a global problem. Malnutrition is associated with several aging syndromes, including cognitive decline. Therefore, studies on the relationship between nutritional status, physical activity, or oxidative stress are needed (Dainy et al., 2018).

According to (Kushargina & Afifah, 2021) nutritional status is a condition that occurs in the body due to consumption. Many factors affect nutritional status. Nutritional status can be assessed directly or indirectly. Direct assessments can be divided into four categories: anthropometric, clinical, biochemical, and biophysical, and indirect assessments can be divided into three categories: consumption surveys food, vital statistics, and ecological factors. The nutritional status of the female respondents was categorized as obese, obese and normal, while the male respondents were all classified as normal.

Normal nutritional state occurs when the body receives sufficient nutrients to use them efficiently so that body growth, brain development and work capacity are at optimal levels. Fat nutritional status was found to be $>25-27 \text{ kg/m}^2$ (26.8 kg/m^2). According to (Syahfitri *et al.*, 2017) being overweight or obese is a condition of being overweight body fat, which accumulates in such a way that it is bad for health, thereby reducing life expectancy and increasing health problems. However, there were also female respondents with normal nutritional status (21.48 kg/m^2) and (24.16 kg/m^2). The nutritional status of the male respondents was within the normal range, namely $18.5-25.0 \text{ kg/m}^2$.

According to (Baihaki, 2017), in determining a person's nutritional status a clear measure is needed to assess whether a community is experiencing malnutrition. excretion of substances that are not used to maintain health, life, growth and normal function of organs and energy production (Rahayu, 2019). The Recommended Amount of Adequacy (RDA) is the average adequacy of a person's daily nutritional intake based on group, age, sex, body size, and activity. There are also those who are very, very focused on Islamic food. Allah SWT looks at the problem of food and eating activities In calculating the recommended nutritional adequacy, the diversity of needs of each individual is usually taken into account, so that the RDA is the average value achieved by the community under predetermined indicators.

Moreover, food is a substance that living things eat to provide energy and nutrients. Nutrition in Islam comes from the Arabic word "al-Gizzai" which means food and its health benefits, and can also be interpreted as the essence of food that is beneficial to health. Nutrition is the process by which the body makes use of the food it normally consumes, through digestion, absorption, transport, storage, metabolism and excretion of substances that are not used to maintain health, life, growth and normal function of organs and energy production (Rahayu, 2019).

There are also those who are very, very focused on Islamic food. Allah SWT looks at the problem of food and eating activities His creatures very seriously. Food etymologically is *tha'am* which means "food". Allah SWT is concerned with the fact that when a person eats, it makes him feel good and satisfied, but sometimes humans ignore the benefits of food for survival, not the other way around or "live to eat". So in this case the author wants to examine some of the literature on food from an Islamic and health point of view (Andriyani, 2019).

According to (Hanur *et al.*, 2019), Islam regulates every aspect of human life, including the health sector, one of which is nutrition. 8 food, vital statistics, and ecological factors. Islam regulates that its people eat food that is halal, of good quality and not excessive. This is stated in several verses of the Qur'an which explain the rules of eating and drinking. "O people! Eat from (food) that is lawful and good that is found on earth, and do not follow the steps of Satan. Indeed, satan is a real enemy to you" (QS. Al-Baqarah: 168). "O son of Adam! Wear your nice clothes every (entering) the mosque, eat and drink, but don't excessive! Verily, Allah does not like people who are exaggerated" (QS. Al-A'raf:31).

This verse explains that humans need to consume halal food in a balanced way. This is in line with the theory studied in nutrition, namely the principle of nutritional balance. Balanced nutrition is a daily food composition that contains the type and amount of nutrients that meet the body's needs, taking into account the principles of variety or variety of foods, physical activity, hygiene and ideal body weight (Karpin & Mahmudatussa'adah, 2018). One of the main pillars of balanced nutrition guidelines is consuming a variety of foods, including sources of carbohydrates (can come from whole grains and tubers), sources of vitamins and minerals (can come from vegetables and fruit), and sources of protein. (which can come from animal and vegetable side dishes) and limit sugar intake, salt, and oil. Clearly, the Qur'an has examined the principle of balanced nutrition in the following verses: "And the king said (to the leaders of his people), "Indeed I dreamed of seeing seven fat cows being eaten by seven thin cows; seven green (seven) stalks of wheat and (seven) dry stalks. O you who are eminent! Tell me about the interpretation of my dream if you can interpret the dream." (QS. Yusuf: 43).

Wheat plants and seeds which are included in the cereal food group contain a source of carbohydrates. Second, fruits are also mentioned in the Quran as a source of vitamins and minerals, namely grapes, bananas, dates, figs, olives and pomegranates.

Based on the verse above, the Qur'an stipulates that humans must consume halal and high-quality foods found on earth, such as grains, fruits, vegetables, meat, seafood, milk, nuts, beans nuts and spices. According to (Robi'aqolbi *et al.*, 2021) this is in accordance with the theory of balanced nutrition, where there is no single type of food that contains all the types of nutrients the body needs perfectly. However, Allah has commanded his people not to overeat, which means that it is also in accordance with the concept of balanced nutrition, namely the proportion of food that is appropriate, in sufficient quantities, not excessive and done regularly.

In the Qur'an, maintaining a healthy diet can be done in moderation to meet the body's nutritional needs, and eating halal food regulated by Islam can lead to a quality and

healthy life. The main guide of the people Islam also explains that every food that comes in must be halal thayyiban (halal and good). Halal food is food that can be eaten by Muslims in accordance with the provisions of the Al-Qur'an and As-Sunnah. Wheat plants and seeds which are included in the cereal food group contain a source of carbohydrates. Second, fruits are also mentioned in the Quran as a source of vitamins and minerals, namely grapes, bananas, dates, figs, olives and pomegranates. Scientific Journal of Teacher Training and Education Students Meanwhile, thayyiban food is a food that has advantages in terms of access, nutritional content, etc. (Naufal *et al.*, 2022).

Maintaining a diet can be done by choosing to eat healthy foods, namely foods that are nutritionally balanced and adapted to the needs of the body, as well as variety, where a variety of foods can provide greater health benefits. By acquiring knowledge about food and nutrition, as well as applying good consumption behavior based on knowledge possessed, maintaining a diet should not be a hassle (Husnah, 2022).

To maintain a healthy body, the elderly need to carry out their daily activities and obtain quality food by demonstrating adequate food intake according to recommendations, namely the presence of various food groups, the adequacy of nutrients needed, moderate and overall. balance.

The 60-70 age group tends to experience changes in older adults, including physical, psychological, psychosocial, and spiritual changes (Anwar *et al.*, 2022).

Strategy of Nutrition Improvement in Middle Aged Elderly

The results of this research, it is necessary to formulate a strategy to improve the nutritional condition of the elderly in Aceh, including by increasing social protection, income security, and individual capacity. This strategy is pursued for example by developing lifelong skills education for the elderly; as well as developing programs to empower the elderly according to their abilities and interests. Improving the health status and quality of life of the elderly. This strategy includes improving nutritional status and a healthy lifestyle, expanding health services for the elderly, reducing the morbidity rate for the elderly, and expanding the scope of long-term care for the elderly. Development of an elderly-friendly community and environment. This strategy is implemented by increasing public understanding of aging issues; as well as improving infrastructure that is elderly-friendly—strengthening the institutional implementation of the old age program. This strategy was pursued, for example, by strengthening the accreditation system for aging institutions; and developing education, training, and certification systems for service personnel. Respect, protection and fulfillment of the rights of the elderly.

CONCLUSION

The average level of energy adequacy, macronutrients (carbohydrates, protein and fat) are included in the sufficient category, while fiber and vitamins are included in the insufficient category. Physiological changes that occur in the elderly will affect all aspects of life, including health. Improvement strategy that includes promoting a healthy lifestyle and aging issues .

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