Knowledge and Nutritional Status of Elderly

Siti Z Nasution¹, Cholina T Siregar¹, Reni A Ariga¹, Muhammad R Haykal², Lufthiani¹, Widya D Purba¹

¹Faculty of Nursing, University of Sumatera Utara, Medan 20155, Indonesia
²Faculty of Law, University of Medan Area, Medan 20155, Indonesia
*Corresponding author: siti.zahara@usu.ac.id / zahara_nasution@yahoo.co.id

Abstract. Old age is someone who has reached more than 60 years of age and has limitations in making a living to meet their daily needs. Elderly are individuals who have experienced an aging process and decreased endurance making it vulnerable to disease. Problems that often occur in the elderly are malnutrition and infection. Elderly who cannot meet their daily needs independently tend to experience underweight. Besides being influenced by knowledge, habits are also very important in shaping the health of the elderly. The purpose of this study was to identify the knowledge and nutritional status of the elderly in the Medan City area. The research design used is descriptive with a total of 30 elderly respondents. Data collection is done by interviewing respondents one by one. The results of the study found that the majority of the elderly have less knowledge about nutrition and the majority of the nutritional status of the elderly is in the poor category. Researchers advise the community, especially the elderly, to be active in activities held by local health workers to gain and improve knowledge, especially those related to the nutritional needs of the elderly.

1. Introduction
The success of development is the dream of a nation that can be seen from the improvement of living standards and life expectancy. But an increase in life expectancy can cause epidemiological transitions in the health sector. This is caused by an increase in morbidity due to degenerative diseases. One health transition is an increase in the elderly population and a decrease in mortality and a decrease in the number of births and an increase in life expectancy resulting in changes in demographic structure. Based on the United Nations report in 2000-2005 the life expectancy is 66.4 years (the elderly population in 2000 was 7.74%), there will be an increase in 2045-2050 which is expected to be 77.6 life expectancy (population the elderly in 2045 is 28.86%) [1].

Increased life expectancy has increased the number of elderly people. The proportion of the elderly in Indonesia increases from year to year, 20.24 million people are registered, which is equivalent to 8.03% of the total population of Indonesia. The number of elderly women is greater than elderly men, which is 10.77 million elderly for elderly women and 9.47 million elderly men [2]. The increase in population needs special attention, especially in improving the quality of life. The morbidity data for elderly people in Indonesia tends to increase from year to year, in 2011 the morbidity rate was 28.48%, in 2013 it was 29.98% and in 2014 the morbidity of the elderly population increased to 31.11%. This condition certainly must get attention from various parties [3].

An increase in the proportion of the elderly population results in an increase in the number of dependents for the country. Biologically, the elderly are individuals who have experienced an aging process and their immune system has decreased, making them more vulnerable to disease. Diseases that occur in the elderly are very closely related to infectious diseases and malnutrition. Nutritional status is a condition that results from a balance between consumption and absorption of nutrients and the use of...
these substances or physiological conditions resulting from the availability of nutrients in the cellular body [4]. Nutrition problems that occur in the elderly arise due to wrong eating behaviour, which is an imbalance between nutrition consumption and recommended nutritional adequacy. Increasing age is not an obstacle for the elderly to get good and quality nutrition [5].

Several studies have shown that nutritional problems that occur in the elderly are undernutrition and excess nutrition which causes overweight / obesity. Obesity or overweight is caused by excessive consumption patterns, especially consuming foods that contain lots of fat, protein and carbohydrates that are not in accordance with the body’s needs and lack of physical activity that facilitates excess weight [6]. Ref. [7] in his study, said that the normal adult body weight limit was determined based on body mass index values. In Indonesia, body mass index is a useful tool for monitoring nutritional status in adults, especially those related to underweight and overweight. In other words maintaining a normal weight allows one to achieve a longer life expectancy. In line with this, as a concern for the elderly, the government has established services for the elderly through an integrated service post for the elderly that is useful for providing health services and monitoring the health status of the elderly. In addition, the elderly will get a variety of useful information so that they can increase their knowledge in improving their health. Integrated service posts for the elderly are very effective to be used as health facilities for the elderly to monitor and maintain the health status of the elderly and improve the quality of life of the elderly [8].

From the results of a survey conducted at an integrated service post in Medan City, researchers saw that there were some elderly people who experienced weight loss. Researchers also see the lack of elderly knowledge in meeting balanced nutrition. The elderly said they did not know about his health and did not know about good nutrition for him. The purpose of this study is to identify the knowledge and nutritional status of the elderly in the area of Medan City, Indonesia.

2. Research Method

2.1. Materials

The population in this study were all elderly people from in the Medan City Region, Indonesia, The age of 60 years and over who attended the Integrated service post for the elderly in Medan City. While the samples in this study were 30 elderly people who were chosen by the researchers in accordance with the inclusion criteria, namely the elderly who were actively participating in the Integrated service post for the elderly, were cooperative and were willing to become research respondents.

2.2. Methods

This research has been conducted at the Integrated service post for the elderly in December 2018 by researchers. Parameters which has been studied are: Characteristics of Respondents, Elderly Knowledge about Nutrition Needs, and Elderly Nutrition Status. Elderly is a biological phenomenon that cannot be avoided by every individual. According to Law No. The IV Year 1965 article 1 states that a person can be said to be elderly after reaching the age of 55 years, does not have or is powerless in making a living independently for the necessities of daily living so that he receives a living from other people. Whereas according to Law No. 13 of 1998 concerning elderly welfare, the elderly is someone who has reached the age above 60 years [9].

Elderly is someone who is over 60 years old and has limited power in earning a living to meet their daily needs [10]. Ref. [11] classifies the elderly in several types that depend on character, life experience, environment, physical, mental, social and economic conditions. These types include:

a. Optimistic type
   The elderly are relaxed and jovial, adjustments are quite good, looking at the elderly in the form of being free from responsibility and as an opportunity to obey their passive needs.

b. Constructive Type
   Have good integrity, can enjoy life, have a high tolerance, ridiculing, flexible and self-conscious which is usually seen since young.

c. Dependency Type
This elderly can still be accepted in the community, but is always passive, not ambitious, still self-conscious, has no initiative and is impractical in acting.
d. Defensive type
   Elderly people who don't give up easily, are serious, like to fight and can be role models.
e. Frustrated Angry Type
   Angry elderly, impatient, irritable, always directing others, showing bad adjustments and often expressing the bitterness of his life.
f. Hostile Type
   Elderly people who always consider other people to cause failure, always complaining, being aggressive and suspicious.
g. Desperate Type, Hate and Blame Yourself
   Do not believe in the ability of oneself that is owned, feel isolated and aloof.

According to the World Health Organization [12] the limitations of the elderly are as follows:
   a. Middle age is 45-59 years
   b. Elderly people, that is 60-74 years
   c. Continue to old age, that is 75-90 years old
   d. Very old age, that is age> 90 years

The impact of fulfilling nutrition on the elderly will maintain the condition of the elderly to be healthy, not easily attacked by diseases and maintain nutritional status [13]. The consumption of food needs in the elderly varies according to body needs, where the need for carbohydrates, fats and protein is a nutrient that produces energy depending on the Basal Metabolism Rate (BMR) and its activities. BMR is influenced by age, sex, temperature, disease environment and body composition. Any excess energy that is not needed for metabolism will be converted into fat and stored in adipose tissue. Energy adequacy per person per day for men aged 60 years and over is 2200 calories/day, while for women 1500 calories/day [14].

Consumption of protein sources in the elderly is needed for the formation and repair of all tissues in the body including blood, enzymes, hormones, skin, hair and nails. The energy numbers shown depend on the type and amount of vegetable and animal foods consumed by humans every day. Animal protein contains saturated fats, while vegetable protein contains unsaturated fats. Protein adequacy for men aged 60 years and over is 55 gr/day, while for women of the same age is 40 g/day.

3. Result and Discussion

3.1. Characteristics of Respondents
From the results of research that has been done, the majority of elderly aged between 60-74 years, the majority of elderly women or 73.3%. The majority of elderly respondents in this study (83.3%) were Muslim and most or 20% were Javanese. The majority of elderly respondents in this study lived with their spouse and children as much as 80%. The distribution and frequency of the results of this study can be seen in Table 1.
Table 1. Characteristics of Respondents

| Variable          | Frequency (n) | Percentage (%) |
|-------------------|---------------|----------------|
| **Age**           |               |                |
| 60-74 years old   | 30            | 100%           |
| **Gender**        |               |                |
| Male              | 8             | 26.6%          |
| Female            | 22            | 73.3%          |
| **Religion**      |               |                |
| Moslem            | 25            | 83.3%          |
| Christian         | 5             | 16.6%          |
| **Ethnic Group**  |               |                |
| Javanese          | 6             | 20%            |
| Mandailing        | 5             | 16.6%          |
| Aceh              | 4             | 13.3%          |
| Minang            | 5             | 16.6%          |
| Nias              | 1             | 3.3%           |
| Karo              | 4             | 13.3%          |
| Batak Toba        | 5             | 16.6%          |
| **Live with…**    |               |                |
| Partner           | 6             | 20%            |
| Partner & Child   | 24            | 80%            |

3.2. Frequency Distribution and Percentage of Elderly Knowledge

From the table above, it can be seen that the majority of the elderly have less knowledge related to nutrition that must be consumed with a percentage of 43.3%.

3.3. Frequency Distribution and Percentage of Elderly Nutrition Status

![Fig 1. Frequency Distribution and Percentage of Elderly Knowledge](image-url)
From the table above, it can be seen that the results of the study show that the majority of the elderly have poor nutritional status, that is less weight with 70% percentages of the 30 elderly respondents.

3.4. Elderly Knowledge about Nutrition Needs

The results of a study conducted by researchers of 30 elderly people who attended integrated service posts for the elderly in the Medan City area showed that the majority of elderly knowledge about nutritional needs and fulfilment was in the poor category of 43.3%. This shows that there are still many elderly people who do not understand the importance of nutrition for the body. The same thing happened with research conducted by Ref. [15] on "Nutrition Knowledge, Beliefs, and Elderly in Nizwa Eating Habits. Oman: Implications for Policy" which says that the majority of knowledge about malnutrition and nutritional imbalance in the elderly category low. Ref. [16] in his study "Nutrition Knowledge among Malaysian Elders" also said from the results of his study that as many as 73% of elderly people had poor knowledge about nutrition. The elderly said eating food without knowing the content owned by the food. This is influenced by the level of education of the elderly themselves. In contrast to research conducted by Ref. [17] on "Are Nutrition Knowledge Related and Attitudes Reflected in Lifestyle and Health among the Elderly? A Study in Five European Countries" which says that the elderly have good knowledge about nutrition.

Elderly knowledge is caused by several factors. One factor affecting the elderly is the limitations of the elderly in attending integrated service posts according to procedures. Many elderly do not participate in any activities carried out at integrated service posts. Elderly did not even participate in gymnastics held by cadres on the grounds they could not move much. Sometimes the elderly come to have blood sugar, uric acid, and cholesterol checked by health workers at the integrated service post. Elderly also does not attend counselling given by nurses. Some elderly people actually say that they never received counselling about nutrition from the nurse on duty. Many reasons are given by the elderly when asked why they do not follow the counselling given. Elderly said it was not too important to listen to what was said by the officers. there were also those who said they had to hurry home because they had to look after their grandchildren so they could not stay in the integrated service post to attend the activities. Some of them actually said they were bored with counselling given on the same topic. so they decided not to take counselling anymore. This is what makes the elderly do not understand the importance of good nutrition for themselves. However, there are still 30% of the elderly who have good knowledge about fulfilling nutrition for themselves. This was said because the elderly never missed activities at the Integrated service post for the elderly. Both physical activity and counselling are given specifically about nutrition for him. But not many of the elderly who apply their habits in life according to the knowledge that has been obtained from counselling. Most of the elderly who have good knowledge about nutrition is obtained from the label of food purchased. books and magazines about health and nutrition and are obtained directly from doctors [18]. Ref [19] also said that 99% of elderly
knowledge is in a good category. This is because it is influenced by the level of education of the elderly themselves.

3.5. Elderly Nutrition Status

The results showed that 21 out of 30 elderly people (70%) had poor nutritional status. This result has been measured by comparing the weight and height of the elderly. Malnutrition in the elderly is also shown by the weight of the elderly who look thin. The results of a study conducted by Ref. [20] on "Assessment of Nutrition Status of the Elderly and the Correlation" found that of 360 respondents, 15% of them were found to be malnourished and 55% were at risk of experiencing malnutrition. Women are more at risk of experiencing malnutrition than men. The main cause of this is economic status which influences nutrition for the elderly. Ref. [21]. In his research "To Assess Nutrition Status among the Elderly and the Factors Affecting it. in the Urban Area. Bengaluru-Sectional-Cross Study" which also said there were 64 out of 182 (21.33%) respondents experiencing malnutrition. In this study, the effect of aging is a significant cause. economic status also influences and lives without a partner so respondents cannot control good nutrition for themselves. Likewise, a study conducted by Afolabi on "Nutrition Intake and Elderly Nutrition Status in the Southwest Region. Nigeria" in his research found that respondents on average experienced low body weight due to poor nutrition fulfillment. Women experience this more often than men. Economic status and the elderly who live without a partner also affect the fulfillment of nutrition From some of the studies above, it can be seen that there are similarities in the causes of lack of nutrition in the elderly. One reason is economic status. Older parents can no longer make money independently to meet their needs, so parents must rely on others. In addition, the elderly who live alone or without a partner also affect nutrition. Elderly women who say they are lonely because they live alone so they are not enthusiastic about preparing food menus, especially healthy ones. Elderly prefer to eat as is, which is not inconvenient for themselves in an effort to process food. In general, there are differences in the fulfillment of nutrition between the elderly who live in rural and urban areas. Regarding "Diet and Nutritional Status of the Elderly in Rural India" which says that the elderly who live in urban areas tend to have a better life than the elderly who live in rural areas due to limited resources, accessibility and quality social services and life care [22]. Rural elderly meet inadequate food needs both in terms of quantity and quality.

In addition, there are 16% of elderly who are overweight, causing obesity in their bodies. Supported by research conducted by Ref [15] on "Nutrition. Beliefs and Elderly Knowledge in Eating Habits. there are 45% of elderly people who are overweight or obese [15]. The elderly say they cannot control the food they consume and cannot choose the type of food that is good for consumption. This is also related to the knowledge of the elderly who are still lacking and unhealthy living habits. The elderly can eat up to 2 dishes at a time. This habit is what makes excess weight. In addition, judging from the demographic data of elderly people who only live with their partners, they tend to be more vulnerable to being overweight. This is also because couples are also unable and do not understand the nutritional status and effects that occur due to excess or lack of nutrition.

4. Conclusion

Based on the results of research conducted on 30 elderly people in the Integrated Service Post for the elderly in the Medan City area, it can be concluded that the knowledge of the elderly regarding the majority of nutrition needs is in the category of 43.3% of 30 elderly respondents. In addition, most of the nutritional status of the elderly is included in the less category with a percentage of 70%. This study advises the community, especially the elderly to participate in each series of activities at the Integrated service post for the elderly held by the Public Health Centre (Puskesmas) to improve their insights into knowledge especially about good nutrition for the elderly so as to improve nutritional status for the elderly.

References

[1] Kemenkes RI (2013). Profil Kesehatan Indonesia. Accessed on www.depkes.go.id/resources/download/.../profil-kesehatan-Indonesia-2013
[2] BPS (2014). Statistik Penduduk Lanjut Usia. Jakarta: Badan Pusat Statistik
[3] Kementerian Kesehatan RI (2016). Pusat Data Informasi Kementerian Kesehatan RI (Situasi Lanjut Usia di Indonesia). Jakarta accessed on www.depkes.go.id/folder/view/01/structure-publikasi-pusdatin-info-datin

[4] Azizah. I.M (2011). Keperawatan Lanjut Usia. Yogyakarta: Graha Ilmu

[5] Emmelia. R (2017). Asuhan Keperawatan Gerontik. Yogyakarta: Pustaka Baru Press

[6] Almatseir. S (2011). Prinsip Dasar Ilmu Gizi. Jakarta: PT. Gramedia Pustaka Utama

[7] S.Kalaiselvi. Y Arjumand. R Jayalakshmy. R Gomathi. T Pruthu and C.Palanivel (2018). Prevalence of under-nutrition. associated factors and perceived nutritional status among elderly in a rural area of Puducherry. South India. Archives of Gerontology and Geriatrics Volume 65. July–August 2016. Pages 156-160. https://www.sciencedirect.com/science/article/abs/pii/S0167494316300437#

[8] C A Fett. E Ferriolli. M G C Souza. A D R Filho. M B M Lopes. N M C Martins and W C R Fett (2018). Correlation between muscle mass. nutritional status and physical performance of elderly people. Osteoporosis and Sarcopenia Volume 4. Issue 4. December 2018. Pages 145-149. https://www.sciencedirect.com/science/article/pii/S2405525518300712

[9] Kharisma. A.P (2015). Gambaran Asupan Energi. Zat Gizi Makro. Status Gizi Lansia dan Keadaan Fisik Lansia di Integrated service post Lansia RW 05 Kuranji. Kota Padang. Karya Tulis ilmiah. Padang

[10] Qurniawati. D (2018). Hubungan Perilaku Makan dan Status Gizi pada Lansia di Kecamatan Wates Kabupaten Kulon Progo. Penelitian

[11] Dewi. S.R (2014). Buku Ajar Keperawatan Gerontik. Yogyakarta: Deepublish

[12] WHO (2013). World Health Statistics. Accessed on https://www.who.int/gho/publications/world_health_statistics

[13] Wartonah (2003). Kebutuhan Dasar Manusia dan Proses Keperawatan. Jakarta: Salemba Medika

[14] Almatseir. S (2003). Prinsip Dasar Ilmu Gizi. Jakarta: PT. Gramedia Pustaka Utama

[15] Al Riyami. A. et al (2010). Nutrition Knowledge. Beliefs and Dietary Habits among Elderly People in Nizwa. Oman: Implications for Policy. Eastern Mediterranean Health Journal accessed on https://pdfs.semanticscholar.org/6875/c9132eb6c6efb76ad4f2262d3e5d0b80a6760.pdf

[16] Karim. N. A et al (2008). Nutrition Knowledge among Malaysian Elderly. Malaysian Journal of Health Sciences accessed on http://ejournals.ukm.my/jskm/article/view/2314

[17] Bielak. M.J et al (2018). Are Nutrition-Related Knowledge and Attitudes Reflected in Lifestyle and Health among Elderly People? A Study Across Five European Countries. Journal of PMC accessed on https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6079245/

[18] Olayiwola. I.O et al (2013). Knowledge of Population Ageing and Elderly Nutrition among Undergraduates in a Nigerian University. Journal of Education and Research accessed on www.ijern.com/journal

[19] Agarwalla. R. Et al (2015). Assessment of the Nutritional Status of the Elderly and its Correlates. Journal of Family & Community Medicine accessed on https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4317993/

[20] Ramya. M.S. et al (2017). To Assess the Nutritional Status among Elderly and Factors Influencing it. in an Urban Area. Bengaluru- a Cross-Sectional Study. International Journal of Community Medicine and Public Health. Accessed on https://www.ijcmph.com/index.php/ijcmph/article/viewFile/1210/1136

[21] Afolabni. W.A.O. et al (2018). Nutrient Intake and Nutritional Status of the Aged in Low-Income Areas of Southwest. Nigeria. Journal of JARC accessed on http://www.jarcp.com/938-nutrient-intake-and-nutritional-status-of-the-aged-in-low-income-areas-of-southwest-nigeria

[22] Arlappa. N. Et al (2016). Diet and Nutritional Status of the Older Adults in Rural India. Journal of Aging Research and Healthcare accessed on https://openaccesspub.org/jarh/article/336