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## Analysis of Factors Affecting Nutritional Status of Elderly at State Nursing Home and Non-Governmental Organization

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**Abstract:** The purpose of this study was to analyze the factors that affect the nutritional status of the elderly in state nursing home and Non-Governmental Organization (NGO). This study used a cross-sectional method in which the number of respondents were 35 elderly people in the state nursing home and 25 elderly people in the NGO. Pearson correlation test results showed an association between emotional support, self-esteem support, appetite, carbohydrate adequacy and health status on nutritional status of the elderly. Results of regression with forward method showed that the dominant variable affecting the nutritional status, the type of institution, emotional support, appetite and carbohydrate adequacy. Appetite was the most influential factor on the nutritional status. The allocation of the government budget for NGO also need to be considered, not just focused on the state nursing home. For state nursing home and NGO should further strengthen and improve the programs that already exist relating to the improvement of the nutritional status of the elderly, such as counseling or education to elderly about the importance of balanced nutrition and physical activity, more in-depth communication on an individual basis especially for the elderly who experience psychosocial problems such as depression or lack of life satisfaction, increase productivity activities that stimulate the elderly so that they feel more valued and more motivated in life.

**Key words:** Elderly, NGO, nutritional status, state nursing home

### INTRODUCTION

Elderly population in 2010 reached 23.9 million people (9.8%) and estimated in 2020 will stretch to 28.8 million (11.34%) (Depsos, 2007). According to statistical data of Indonesia in 2013 the life expectancy of the Indonesian population (men and women) rose from 67.8 years old in the period 2000-2005 to 73.6 years old in the period of 2020-2025. The increasing life expectancy of the population causing the number of elderly people is increasing from year to year.

Projected life expectancy in South Kalimantan in the period of 2010-2015 is 69.2 years old and in the period of 2020-2025 is projected to increase to 72.1 years old (BPS, 2013). In fact, judging from the number of social welfare issues in a group of abandoned elderly in South Kalimantan in 2010 range from 18.815 elderly and increased in 2011 to 30.291 elderly. In Banjarmasin these numbers also increased from 380 elderly people in 2010 to 458 elderly in 2011 (BPS Kalsel, 2011).

The increasing number of elderly, which also requires greater attention to these groups, one of which related to nutritional problems. The role and function of NGO that care for the elderly is necessary, so that together could help the government deal with social welfare issues that will have an impact on improving the nutrition and health of the elderly.

Nutrients deficiency pose a potential threat to the health of the elderly population (Sharkey *et al.*, 2002). Increasing age raises some changes both physically and mentally, with good nutritional status of the elderly is expected to remain healthy, fresh and passionate in the work. In addition, productive age can be improved so that they are still actively involved in the development (Fatmah, 2010).

This study would like to learn more about the factors that affect the nutritional status of the elderly in state nursing home and NGO including the role of social support at each institutions, primarily associated with an increase in the productivity activities that affect the nutritional status of the elderly.

### MATERIALS AND METHODS

**Respondents:** The population in this study was all residents of state elderly nursing home Panti Sosial Tresna Werdha Budi Sejahtera (PSTW) and all assisted elderly at non-government organization Karang Lansia Sejahtera (KL) in Banjarmasin. Examples are determined based on the inclusion criteria, namely women aged  $\geq 55$  years, do not have a hearing loss, can communicate well and willing to be interviewed as sample. After selected based on the inclusion criteria, there are 25 elderly in PSTW and 35 elderly KL who are sampled in the study.

**Data types and collection method:** Primary data includes respondent characteristic data such as (name, age, educational level, occupation, marital status, residential status, desire to join the institutions, the visitation frequency of family, exercise habits, types of sports activities); data of social support related to emotional support, instrumental, information and self-esteem, including whether there is an effort to increase productivity; psychosocial aspects data associated with the level of depression and life satisfaction; appetite data; food consumption data (level of energy consumption, protein, fat, carbohydrates, vitamins and minerals); physical activity data; health status data (related to the ailment history of the elderly include: the type of disease, pain frequency and duration of illness); data of genetic factors (parent's lifespan); as well as anthropometric data (height, weight and length fathoms). Secondary data includes data of a general overview of each institution, including the schedule of the elderly in the respective institutions.

#### Data processing and analysis

**Levels of depression:** Level of depression was measured using a geriatric depression scale (Seikh and Yesavage, 1986) short version consisting of 15 questions. Each respondent's answer to the question was given a score of 1 and 0 with a maximum score of 15. Some questions are inverse questions (opposite). Levels of depression were grouped into 4 categories: normal (0-4), mild depression (5-8), moderate depression (9-11), severe depression (12-15). Respondents' answers to open-ended questions are used as a support in every answer of a closed question.

**Life satisfaction:** Life satisfaction are measured from 5 aspects like feeling happy with their activities, feeling of a meaningful life, success in achieving the goal of life, feeling of having a positive self-image and an optimistic attitude (Neugarten *et al.*, 1961) each of which consists of 5 questions. Respondents' answers to each question is converted into a ratio by summing all the answers to get a composite score. After getting the score of each variable, then the scores are grouped into three categories, namely low, medium and high. Determination of the cut-off of the variable life satisfaction and social support by using the class intervals formula:

$$\text{Class interval} = \frac{\text{Maximum score} - \text{Minimum score}}{((1 + 3.3 \log)[(\text{maximum score}])]}$$

Based on the class interval life satisfaction, it is categorized low if the scores of respondents are in class interval at 5-10, medium at 11-15 and high at 16-20. As for overall life satisfaction is categorized low if the scores of respondents were in class interval at 25-50, medium at 51-75 and high at 75-100.

**Social support:** Social support is consists of emotional support, instrumental support, informational support and support of self-esteem (Cutrona, 1996) with 8 questions related to emotional support, 7 questions on instrumental support, 6 questions on information support and 4 questions on self-esteem support. The answers of each question are summed then score results also categorized by class interval. Emotional support was low if the score of respondents answer in class intervals at 8-16, medium 17-24 and high 25-32. Instrumental support was low if the score of respondents answer in class intervals at 7-14, medium 15-21 and high 22-28 high. Support information was low if the score of respondents answer in class intervals at 6-12, medium 13-18 and high 19-24. And self-esteem was low if the scores of respondents answer on class intervals at 4-8, medium 9-12 and high 13-16.

**Appetite:** Appetite data were obtained subjectively by using motivation to eat questionnaire (MEQ), by asking the subject to express feelings of appetite. Subjects were asked to mark on a line scale range of appetite associated with the question of the desire to eat, hunger and prospective consumption (how much food can be spent) (Anderson and Woodend, 2003). The range of scores on the questionnaire is from 0 (very weak, not at all hungry, or none at all) to 100 (very strong, very hungry, or a lot of), then the appetite is calculated by the formula:

$$\text{Appetite score} = \frac{\text{Desire to eat} + \text{hunger} + \text{prospective consumption}}{3}$$

Based on class intervals the appetite categorized was low if appetite score at 0-33, medium 34-67 and high 68-100.

**Food intake:** Food intake was calculated based on a 24-h recall in the form of URT converted into weight (g), then nutritional content was calculated using food composition list. The data that calculated is energy content and nutrients including: protein, fat, carbohydrates, vitamin A, vitamin C, iron and calcium. The percentage rate of energy consumption and nutrient sample was determined by counting the number of energy and nutrient intake based on the results of the recall and then compare it with the energy and nutrients Recommended Dietary Allowance (RDA). The level of energy adequacy and nutrient consumption can be calculated by the following formula (Hardinsyah and Briawan, 1994):

$$\text{Energy and nutr. adequacy} = \frac{\text{Energy and nutr. intake from recall}}{\text{RDA}} \times 100\%$$

Where:

Nutr: Nutrients

RDA: Recommended dietary allowance

Categories energy sufficiency level (Depkes, 1996) that high deficiency, <70% RDA; moderate deficiency, 70-79% RDA; mild deficiency 80-89% RDA; normal, 90-119% RDA and over energy adequacy  $\geq 120\%$  RDA. As for the adequacy of vitamins and minerals are categorized into two, less (<70% RDA) and adequate ( $\geq 70\%$  RDA) (Gibson, 2005).

**Physical activity:** Physical activity data was collected through interviews using International Physical Activity Questionnaires (IPAQ) then categorized based on guidelines process and IPAQ data analysis (2005) then divided into 3 categories of physical activity, namely:

- 1: Low: If respondents' answer do not belong to the category of moderate or severe categories
- 2: Moderate: If there is one respondent's answer, such as: (a) 3 days or more of respondents do strenuous physical activity longer than 20 min/day; (b) 5 days or more respondents perform regular moderate physical activity or walking at least 30 min/day; (c) 5 or more days in the form of a combination of physical activity such as walking, moderate or vigorous physical activity routine for at least 600 min/week
- 3: High: If there is one respondent's answer, such as: (a) strenuous activity for least 3 days and if accumulated at least 1500 min/week; (b) 7 days or more of physical activity such as a combination of walking, moderate or vigorous physical activity routine for at least 3000 min/week

**Health status:** Health status data was collected based on morbidity scores obtained by multiplying the duration of sick days with sick frequency for each type of disease. Morbidity score was low if the score of respondent's answer in class intervals at 0-20, medium 21-40 and high 41-60. High health status scores showed low morbidity. Health status categories were divided into 3, namely: low if morbidity scores 41-60, moderate if morbidity scores 21-40 and high if morbidity score 0-20.

**Anthropometric data:** Anthropometric data was the result of weighing and measuring body height or fathoms length, then processed to obtain the nutritional status of the respondents. In certain conditions, the elderly can not stand up straight, then the height can be predicted in several ways, explicitly by measuring the fathoms length. Fatmah (2008) recommended tallness prediction model of elderly women using the fathoms length by the formula:  $28\ 312 + 0784$  fathoms length. Nutritional status of the elderly is determined based on the calculation of body mass index (BMI) using the formula:

$$\text{BMI} = \frac{\text{Weight (kg)}}{\text{Height (m)}^2}$$

Nutritional status was categorized into 6, which is very lean (IMT <17 kg/m<sup>2</sup>), underweight (IMT 17.0-18.4 kg/m<sup>2</sup>), normal (IMT 18.5-24.9 kg/m<sup>2</sup>), overweight (IMT 25.0-26.9 kg/m<sup>2</sup>), obese (IMT  $\geq 27$ -28.9 kg/m<sup>2</sup>) and severely obese (IMT  $\geq 29$  kg/m<sup>2</sup>) (Kurniasih *et al.*, 2010).

**Genetic factors:** Genetic factors was collected through interviews using a questionnaire with questions related to the lifespan of the parents, stratified by age lifespan group then presented descriptively in the form of tabulation.

**Statistical analysis:** Data was analyzed using Microsoft Excel 2013, SPSS version 16.0 for Windows and SAS version 9.1 for Windows. Statistical analysis was done with different test of Independent Samples T-test, Pearson correlation and linear regression. Stages of multivariate analysis with linear regression using forward method, namely: (1) the variables have a significance level of  $p < 0.25$  into modeling regression analysis as candidate variables (2) variables with a significance level of  $p < 0.05$  is the dominant variable affecting the dependent variable.

## RESULTS

Based on the results of statistical tests of Independent Samples t-test age differences of father's life span, the level of depression, feelings of meaningful life, success in achieving the goal of life, having a positive self-image, optimistic attitude to life, a total life satisfaction, instrumental support, informational support, physical activity, protein adequacy, fat adequacy, iron adequacy and vitamin A adequacy among the elderly in PSTW and KL ( $p < 0.05$ ). While the lifespan of the mother, feeling happy with activities, emotional support, self-esteem support, energy adequacy, carbohydrate adequacy, calcium adequacy, vitamin C adequacy, nutritional status and health status do not differ significantly ( $p > 0.05$ ). The mean and standard deviation for each variable in PSTW and KL can be seen in Table 1.

The problem of depression in the elderly in most PSTW included in the category of minor depression as many as 40%, while in KL mostly elderly included in the category of not depressed as many as 62.9%. Elderly included in the category of major depression in PSTW as many as 8%, while in KL no elderly people who are included in the category of major depression. How to deal with depression include increasing physical activity and socializing with others. Physical activity has a very strong effect in improving mood, even as effective as antidepressants. While socialization has a major role to eliminate depression obtained through the support of others (Robinson *et al.*, 2014).

One of the efforts to increase the activity of the elderly in KL is through activities that support elderly people skills. This is in addition to help reduce depression also

increase the self-esteem of elderly, because they believe doing something useful and making the elderly feel appreciated. There are also regular activities such as gymnastics elderly, social gathering, the elderly health center and so on. Elderly in PSTW also have routine activities such as religious services, elderly exercise, elderly health center, but not all elderly follow routine activities such as religious lectures and exercises on the excuse of hard to move, whereas according to Cohen and Koeing (2003) that depression is one of the mental health problems can be handled one of them through spiritual or religious approach that can improve the happiness of the elderly. Activities that support the elderly in PSTW skills are still not routine.

Based on the results of interviews with the elderly the notion of meaningful life higher at the elderly in KL than PSTW associated with gratitude to those of the elderly and assume that the life they are living right now is good enough so that elderly feel satisfied with their lives. Elderly in KL stated that they were grateful to be close to his family and to receive adequate attention from the family even if the attention is not always a given, but with the support material such as frequently visited by family in KL makes elderly feel cared for and appreciated. Elderly in KL mostly stay at home alone, despite the lack of a decent living at home, but they already feel quite happy. Most of the elderly in KL admitted that they prefer to stay at home alone, even if invited by his son to live with. While the elderly in PSTW stated that the life they are living now is not the life they desire. If there is a choice could be closer to family, they would prefer to stay with family or at least close to the family.

The success of achieving the goal of life of the elderly in KL related to the statement that they are satisfied with what they have achieved so far and the most desire has been reached. Among these are the desire to witness their children live happily with his family and still pay attention to their parents. While the elderly in PSTW tend to feel less attention by the family that makes the elderly feel discontented with their lives.

Regarding the feeling of having a positive self-image, the elderly in KL feel more useful for those people like family, friends, or others. They are still earning through the activities carried out in KL like making crafts that although the results are not too much, but the results is enough to meet ends need for themselves and support their families. Elderly in KL feel more optimistic when thinking about the future, while the elderly in PSTW admitted resigned to what is happening, even though they tend to feel not to worry about the future because of the facilities provided at home.

PSTW have instrumental support better than KL because PSTW have routine operational funds from the government budget, such as meal service routine of 3 times a day, residential facilities, facility routine health checks once a week. While in KL medical examination

only once a month that is integrated with the elderly health center. Limited facilities in KL depends on the magnitude of funds obtained that can be derived from non-governmental, public aid or private company that is not yet predictable.

Support information includes health information such as information about health care, prescription drugs, the importance of exercising and maintaining a diet, as well as how to manage the finances of the elderly. Routine health check once a week in PSTW facilitate the delivery of information related to elderly health maintenance. However, that does not mean the elderly in KL are not satisfied with the support information provided, 100% of the elderly in the KL state that support the information given in medium category, especially related to how to manage the finances of the elderly. Although the result of the skills of the elderly in KL not so much, but the elderly in KL guided to manage their income through activities gathering once a month. The purpose of the gathering activities in addition to learn to manage finances can also increase social interaction among the elderly and manager of KL.

There was no much difference between self-esteem support in PSTW and KL. Self-esteem support in the higher category experienced by elderly in KL as many as 48.6% compared to 44% in PSTW.

Most of the elderly in PSTW (48%) have mild physical activity, it is due to the lack of activities they do, almost a full day they just sit back without doing any activity other than doing everyday activities such as washing their own clothes or kitchen utensils. Based on interviews, the elderly in PSTW stated that there was indeed an activity held by the institution such as routine religious preaching, gymnastic for elderly once a week but most of the elderly are not routinely follow the activity by reason of physical condition that is difficult to move due to aging. Unlike the case with the elderly in KL, beside actively contributed to the activities of daily household such as cooking, washing clothes, or help keep the grandchildren, the elderly in KL was also involved in routine activities such as gymnastics for elderly and elderly social gathering once a month, make a routine activity skills such as woven from Purun plants, used plastic collecting for once a week.

PSTW provide for the elderly 3 times a day meal consisting of rice, side dishes such as fish or eggs or meat, vegetables and fruit. Sources of protein itself has been met if the elderly always consume food that is given. In contrast to the elderly in KL who does not get meal facility by the institution. The elderly in KL provide their own food consumed daily. In interviews, most of the elderly are still not implementing a balanced nutritional diet, daily food menu there are only consisted of rice with a little fish or eggs as a protein source, the elderly are also rarely consume foods such as tempeh or tofu.

Regarding the consumption of fat, elderly in KL only consume food with menu items such as rice and fish only. Although most of the fish consumed mixed with fried using oil as a source of fat but the amount of fish consumed is not conferring to the standard portion for one meal, so the fat content is still lacking. Consumption of eggs as a substitute for fish is usually less than or does not meet the standardized portion. In contrast to the elderly in PSTW, with the provision of a full menu every meal such as rice, eggs or fish and vegetables and fruits, allowing the elderly to meet the feeding intake including fat intake. Although based on interviews, not all elderly in PSTW able to spend all of the food provided each day as it relates to the lack of appetite.

The average level of adequacy of vitamin A in the elderly in PSTW included in enough categories, while in KL there are elderly people with less sufficient levels of vitamin A were (37.1%). Vitamin A deficiency in the elderly in KL due to inadequate intake of food sources containing vitamin A.

## DISCUSSION

There is a relationship between emotional support and nutritional status of the elderly. Emotional problems in the elderly with regard to social issues where social roles such as family, friends, or institution is required by the elderly to overcome loneliness experienced by vulnerable elderly, as a place to share happiness and sadness, they need people who understand the problems experienced by the elderly, a place to exchange ideas, which makes elderly people feel comfortable and feel needed and so forth. When elderly experiencing social problem, emotional support, that they should have, is not obtainable, then the elderly are vulnerable emotionally disturbed in the absence of a place to express emotions, this can affect the nutritional status of the elderly. According to Volkert (2013) age factor related to complex appetite regulatory system, so that the term is called anorexia as a result of the aging process experienced by vulnerable elderly associated with a decrease in food intake that can lead to malnutrition, it will get worse if there are any health problems or social problems.

There is a relationship between the self-esteem support and nutritional status of the elderly. Self-esteem support for the elderly in KL manifest in activities of institutions that strive to increase the productivity of the elderly through skill activities undertaken. The elderly in KL are encouraged to develop their own potential, self-contained, it can even help the family income. Although the income earned is not too much, but active and productive activities carry out make the elderly feel happy. Based on research of Sulandari *et al.* (2009) classified the elderly active and productive 100% of them stated that they were happy with the life they live today. While not classified as productive or less, only 52% of those who enjoy life at this time.

Citing the theory in the material of Prof. Rhenald Kasali (Nadia, 2013) that social welfare is not merely money, happiness is deciding what is felt from the heart. The older the less consumption and the health care needs will increase. An important element of health is happiness. When happy we are not always focused on ourselves, we tend to like people and want to share a fortune even with strangers. When gloomy, we become easily suspicious, aloof and focus on your own personal needs. So one strategy is to encourage the elderly to perform a variety of engaging activities and social activities.

The relationship of independent variables with the dependent variable nutritional status can be seen in Table 2 and the dominant variables that affect nutritional status can be seen in Table 3.

In addition to the self-esteem of elderly support agency in KL also obtained from families where the elderly still contribute to providing solutions when there are facing problems in the family, it makes the elderly feel appreciated. Support the self-esteem of the elderly in PSTW mainly accrue to the elderly who are still active and productive activities such as help bathing the corpse, helped clean up the trash and so forth. There are some elderly people who claim that what they did was considered important and was praised by social institutions and the managers stated that the orphanage management still believes in their abilities. Based on interviews with some of them activities such as embroidery or sewing skills are also contained in PSTW, but not yet routine.

Low self-esteem indirectly affect the nutritional status. The decline in self-esteem is associated with increased depression that tends to occur in old age (Rodda *et al.*, 2011). Low self-esteem is also associated with decreased life satisfaction. Results from several studies literature indicates that there is a positive relationship between self-esteem, satisfaction with life (Cecen, 2008; Dilmac and Eksi, 2008; Lai *et al.*, 2007; Leung *et al.*, 2005; Zhang and Leung, 2002). The decline in life satisfaction would increase depression. Low self-esteem, increased depression and eating disorders (eating disorders) have a negative impact on the nutritional status (Marshall and Lengyel, 2012). Loss of appetite itself is one of the signs and symptoms depression (Robinson, 2014). Decreased appetite in elderly decrease the intake of food, causing a decline in nutritional status.

There is a relationship between the level of carbohydrate adequacy and nutritional status of the elderly. Carbohydrates are the main energy source in addition to fat and protein. This is in line with research Blaney (2009) that there is a relationship between nutritional status with sufficient levels of nutrients. There is a relationship between health status and nutritional status of the elderly. Nutritional status is directly related to health status, especially with regard to infectious diseases. This is in line with the framework of UNICEF.

Table 1: Means of parent's lifetime, depression score, life satisfaction score, social support score, duration of low physical activity and appetite score, level of energy and nutrient adequacy, morbidity score and BMI of the elderly

Variable	PSTW (n = 25)	KL (n = 35)	p-value
Father's lifetime (yo)	69±22	82±16	0.014*
Mother's lifetime (yo)	66±26	74±15	0.205
Depression level (score)	7.00±3.12	4.26±3.33	0.002**
<b>Life satisfaction (score)</b>			
Feeling happy with their activities	15.44±2.38	15.43±2.52	0.986
Feeling of a meaningful life	12.88±2.73	15.03±1.98	0.002**
Success in achieving the goal of life	12.60±1.50	15.34±1.47	0.000**
Having a positive self-image	13.64±2.32	14.97±1.42	0.015*
An optimistic attitude	11.92±2.10	13.09±1.82	0.030*
Life satisfaction total	66.48±9.36	73.86±7.53	0.002**
<b>Social support (score)</b>			
Emotional support	23.76±4.87	25.80±2.56	0.064
Instrumentals support	24.64±3.57	21.00±0.00	0.000**
Informational support	21.12±3.06	18.00±0.00	0.000**
Self esteem support	12.48±2.45	13.14±1.36	0.230
Physical activity in low category (minute/day)	912.36±88.16	738.09±204.11	0.000**
Appetite (score)	62.13±17.61	63.43±15.20	0.768
Energy adequacy (% RDA)	76.97±20.92	68.33±18.33	0.103
Protein adequacy (% RDA)	99.99±78.18	58.78±19.87	0.016*
Lipid adequacy (%RDA)	79.99±29.17	38.78±19.71	0.000**
Carbohydrate adequacy (%RDA)	72.99±22.15	81.07±25.40	0.197
Calcium adequacy (%RDA)	83.64±83.90	17.93±14.18	0.281
Iron adequacy (% RDA)	107.92±49.75	46.56±22.98	0.000**
Vitamin A adequacy (% RDA)	128.93±173.53	46.07±44.12	0.023*
Vitamin C adequacy (% RDA)	83.68±83.97	66.53±150.97	0.943
Morbidity score	7.72±17.37	2.74±7.73	0.190
Nutritional status (BMI)	22.76±6.13	20.83±4.06	0.177

Independent sample t-test, \*p<0.05, \*\*p<0.01

Table 2: Analysis results of correlation between type of institution, parent lifetime, level of depression, life satisfaction, social support, physical activity, appetite, the level adequacy of energy and nutrient, health status on nutritional status

Variable	R	p-value
Type of institution	0.036	0.147
Father's lifetime	0.018	0.302
Mother's lifetime	0.032	0.173
Depression level	0.003	0.659
Feeling happy with their activities	0.000	0.922
Feeling of a meaningful life	0.017	0.315
Success in achieving the goal of life	0.024	0.234
Having a positive self-image	0.007	0.525
An optimistic attitude	0.001	0.661
Total life satisfaction	0.010	0.408
Emotional support	0.070	0.042*
Instrumental support	0.015	0.351
Informational support	0.015	0.351
Self esteem support	0.070	0.043*
Physical activity	0.027	0.210
Appetite	0.007	0.032*
Energy adequacy	0.035	0.150
Protein adequacy	0.005	0.595
Lipid adequacy	0.003	0.668
Carbohydrate adequacy	0.080	0.029*
Calcium adequacy	0.008	0.496
Iron adequacy	0.033	0.163
Vitamin A adequacy	0.003	0.675
Vitamin C adequacy	0.000	0.825
Health status	0.065	0.049*

Pearson correlation, \*p<0.05

Table 3: Dominant variable affecting the nutritional status

Variable	Parameter estimate	Partial R-square	p-value
Intercept	19.132		
Institution type	9.179	0.102	0.003**
Emotional support	-0.282	0.090	0.009**
Appetite	0.172	0.150	0.002**
Carbohydrate adequacy	-0.088	0.079	0.029*

Linear regression, \*p<0.05, \*\*p<0.01

Nutritional status of PSTW was higher than KL. The percentage of overweight nutritional status of severely obese in PSTW greater than KL respectively 16 vs. 11.4% and 12 vs. 2.9%. Based on the type of services provided related to the physical services (provision of food) is much different between PSTW and KL. Elderly in PSTW get food service 3 times a day while in KL is not provided the type of service related to the provision of food. Ease of access to get food in this case is more readily available to the elderly in PSTW than KL. Ease of access to food is predicted to lead to a lifestyle that lead to overweight and obesity (Lebel *et al.*, 2012). Lack of physical activity also triggers the formation of obesity. Based on the data of physical activity, more elderly PSTW doing light activity than KL is 48 vs. 31.4%. Emotional support tends to make a person feel comfortable, but also excessive when such support would negatively impact the people who were given support. Suppose that when the elderly are always able

to excite all the feelings that he considers inconvenient and always get emotional support from someone, the elderly tend to feel right about what he was doing because he was too carried away. Elderly tend to have more sensitive emotion related to the age factor and also the illness. Excessive emotion in the elderly linked to appetite. If it leads to negative emotions causes a decrease in appetite if persistent, it can lower the nutritional status.

Based on research by Drapeau *et al.* (2005) appetite effect on total energy intake, where the higher appetite then the greater total energy intake ( $p = 0.03$ ;  $r = 0.32$ ). Increased energy intake is sufficient, in the sense not excessive will improve the nutritional status of the elderly.

Sufficient levels of high carbohydrate is not necessarily going to improve the nutritional status of the elderly, since the elderly tend to have depleted tissues including muscle mass. In addition, the tendency of vulnerable elderly suffering from degenerative diseases are also associated with weight loss. The prevalence of DM of 15.8% obtained in the age group of 60-70 years old and elderly women had a higher prevalence than elderly men (Khairani, 2007). Regeneration as a result of weight loss related to illness the elderly according to Roberts *et al.* (1994), is quite difficult to repair. Weight loss tends to be greater in the elderly than in adults although given high dietary intake of energy (Roberts, 2000).

Carbohydrates are the main energy source, the consumption of carbohydrates, especially simple carbohydrates sources can increase the risk of developing diabetes mellitus (DM). According to Hauner *et al.* (2012) the high consumption of sugar-sweetened beverages (sucrose) increases the risk of diabetes mellitus type 2. According to Fatmah (2010) The carbohydrate-related diseases include diabetes, where there is deficiency of insulin, so glucose can not get into the cells that cause increased blood sugar. Heaps of glucose can not be utilized to produce useful energy for the cells that need it so it must be excreted through the kidneys into the urine, which can thus cause glukosuria. Because glucose can not be used as an energy producer, the result of fat and more protein is broken down to produce energy is required which in turn increases gluconeogenesis.

Excess glucose in the body's normal state is stored as glycogen in the liver and muscle energy reserves called glycogenesis which at times can be converted back into glucose when needed (glycogenolysis). A person with diabetes are not able to transfer glucose into muscle and fat cells so that the cells will starve and increased catabolism of fat and protein. This causes people with diabetes often feel hungry but can not be fat and even tend to be thin.

This study can be used as a reference for the government concerning the allocation of the budget that

is not only focused on the state nursing home but also for NGO to better optimize its role and function together to assist the government in addressing social welfare issues, especially issues related to elderly nutrition.

For social institutions and social agencies should further strengthen and improve the programs that already exist relating to the improvement of the nutritional status of the elderly, such as counseling or education to seniors about the importance of balanced nutrition and physical activity for the elderly, more in-depth communication on an individual basis especially for the elderly who experience psychosocial problems such as depression or lack of life satisfaction, increase productivity activities that stimulate the elderly so that the elderly feel more valued and more motivated in life and still be able to participate in development.

For other researchers, because the study was conducted with a cross-sectional design, in order to obtain a more in-depth answers and fundamental, it is necessary to have experimental or cohort design.

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