BALANCE DIET PRACTICES RELATED TO NUTRITIONAL STATUS AMONG ELDERLY IN SOUTH TANGERANG, INDONESIA

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Abstract

About 85% form 114 million adult and elderly in the world was died due to overnutrition. In Indonesia, balance diet practices that consuming foods in accordance with the Recommended Dietary Allowance (RDA) and appiled the principles of balance diet is still an health problem. The objective of this study is to analyze the relationship between balance diet practices towards nutritional status of elderly in South Tangerang, Indonesia.

A cross sectional study was counducted in this research. As many as 114 eldery was taken in two primary health care region that are Ciputat and Kranggan using accidental sampling, with 2 Patronage Integrated Post (Posbindu) in every region during Maret-July 2016. Multiple logistic regression was used to analyze the most significant independen variable (age, sex, education, knowledge, attitude, and balance diet practices) that related to nutritional status.

A total of 56.1% elderly have good nutritional status. About 35.1% elderly were overnutrition, with 12.3% overweight and 22.8% obesity. Only 8.8% who have underweight. Multiple regression logistic analysis shows the balance diet practices is the most varible that significantly related to nutritional status (p value 0.000). The elderly who applied the balance diet practices 3.1 times more likely (95% CI: 1,353-6,721) to have malnutriton than the elderly who does not applied balance diet.

Balance diet practices related to nutritional status among elderly in South Tangerang. Balance diet information and education through easily accepted media such as peer education method is required as a preventif and promotive effort to address malnutriton among elderly.

Keywords: Balance diet practices, nutritonal status, elderly, peer education

INTRODUCTION

The cause of death in the world comes largely from non-communicable diseases (NCDs). The surge in the elderly population due to the increasing prevalence of non-communicable disease. Approximately 85% of the 14 million adults and elderly people in the world die of non-communicable disease related to excess nutrients. Most deaths from NCDs occurred in developing countries (WHO, 2013). Indonesia faced multiple nutritional problems is the prevalence of excess nutrients that continues to increase as obesity, hypertension, and diabetes mellitus, but the prevalence of malnutrition has increased, such as anemia (National Health Survey, 2013). The low adoption of balanced diet practices in community causes a variety of nutritional problems. Elderly with nutritional

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and health status of health and quality of life of the elderly poor can be a burden on the state (Fatmah, 2012; Larson, 2002).

Balanced diet practices is a behavior that apply consumption of food in which the composition of daily food containing nutrients in the type and amount of body needs, taking into account the principle of four pillars, namely diversity of food, physical activity, behavior of clean and maintain a normal weight to prevent nutritional problems (Ministry of Health, 2014). Balanced nutrition is needed, especially in the elderly group. Sclanker (1998) describes that age causes a decrease in the function of various organs and tissues of the body, especially the digestive system. The nutritional needs of the elderly differ from adult groups mainly on limiting the consumption of sugar, salt, oil, fat and high-purine foods, vegetables and fruits, as well as with physical activity. All covenants pattern of food consumption and other healthy lifestyle is listed in Balanced Nutrition Guidelines (PGS), which was confirmed by Government Regulation No.41, 2014.

The prevalence of NCDs is increasing dramatically in almost all countries in the world, especially in developing countries. For example, obesity occurs due to excess energy intake and fat (Franca, et al, 2009). In Malasyia, showed the prevalence of obesity is the largest in Southeast Asia, reaching 45% of the total population in 2013. This figure exceeds the global figure for obesity which is about 30%. Likewise in Indonesia Riskesdas data showed pervalensi obesity in adult males and the elderly increased from 2007 to 2013 is 13.9% (2007), 2010 (7.8%) and 19.7% (2013). Increased sharper as many as 18.1% indicated in adult and elderly women's group, namely from 13.9% (2007), 15.5% (2010), and 32.9% (2013). This makes the need for a stronger basis of balanced diet guidelines to prevent NCDs.

The health of elderly provided in Law No. 36, chapter 138, clause 1 and 2. The elderly have to live healthy and productive socially and economically so as not to be a burden to the country to facilitate and ensure the availability of health care facilities. Promotion of balanced diet generally use extension requires the cadres of integrated guided post (Posbindu) or health workers. So, the health promotion method focuses on community empowerment, explore local culture, and integrated with other health programs such as peer education. South Tangerang has increasing a number of elderly continuosly. But, the number of elderly who attained the primary health care still less than 10%. There are more than 100 integrated guided post (Posbindu) with 501 active cadres, but the practice is still low-balanced diet practices and nutritional problems. This study aims to assess the effectiveness of the promotion of balanced nutrition to increase knowledge, attitude, behavior, nutritional status and health of the elderly with the peer education method.

LITERATURE REVIEW

Many prevuous studies conducted on balanced diet promotion have been conducted. Nutritionally balanced diet in the elderly by limiting the consumption of salt, sugar and fat can improve the nutritional status of elderly (Dinkins and Mark, 2002). Rowahani (2011) had examined the balanced diet counseling with Pre Experimental design One Group Pre-Post Test is designed to look at changes in the nutritional status of 24 elderly people with more nutrition in Grogol, West Jakarta Petamburan. The study shows that change the nutritional status from overnutrition into normal nutrition as much as 20.8%. Fatmah (2012) also examined a similar case with the provision of intervention of balanced diet counseling, with 36 samples and 5 health workers in the same location. The results showed an increase of knowledge about balance diet at levels sufficient and good, before and after 3 months of training.

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METHODS

A cross sectional study was counducted in this research, during Maret until July 2016 in 2 Primary health care services in South Tangerang City, Banten Province Indonesia. This study ia a part of from Balance Diet Research which sponsored by Higher Education Grand Research.

As many as 114 eldery was taken in two 2 primary health care region that are Ciputat and Kranggan, with 2 Posbindu in each region. Both of Ciputat and Kranggan has similar demoghrapic characteristics. Sample was taken using accidental sampling technique. Sample size calculated using Hypothesis test for a proportion population (two sided-test). Sample were the elderly who ages ≥45 years old (pre elderly) and they can stand up straightly for nutritional measurement (height).

Measurement
Nutritional status of elderly as dependen variable was measured primarily using anthropometric measurement. This indicator was measured weight (kilogram) and height (meter) to assess the BMI (Body Mass Index) of ederly (kg/m^2) (Gibson, 2005). Independen variables (age, sex, education, knowledge, attitude, and balance diet practices) was measured using questionnaire that collected by direct interview.

Variables and Analysis
Multiple logistic regression with 95% confidence interval ($\alpha = 0.05$) was used to analyze the most significant independen variable (age, sex, education, knowledge, attitude, and balance diet practices) that related to nutritional status as dependen variable. Statictical Analysis was used SPSS versi 16.0

RESULTS

Nutritional Status
All of variables was to analyze decriptively. Table 1 shows the nutritional status of elderly. Nutritional status of eldery

Table 1. Nutritional Status (n=114)

Nutritional Status	n	%
Underweight (BMI < 18.5)	10	8.8
Normal	64	56.1
Overweight	14	12.3
Obesity	26	22.8
Total	114	100

A total of 56.1% elderly have good (normal) nutritional status. This results shows that a half of elderly in this sutdy have good nutrisional sttaus. But, Table 1 shows that elderly tend to have overnutrition. About 35.1% elderly were overnutrition, with 12.3% overweight and 22.8% obesity. Only 8.8% who have underweight.

Sociodemographic Characteristics

The percentage of elderly people aged ≥60 years is as much as 52.6%. This percentage is equal with percentage of elderly people aged <60 years (47.4%). Most of the elderly were women (80.7%). In this study, the elderly who do not have education as much as 9.6%, elderly with lower education (primary

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school and junior high school) is as much as 56.1%, and 65.7% elderly were higher education (senior high school and college) as much as 34.2%. Table 2 shows the sociodemographic of elderly.

Table 2. Sociodemographic Characteristics

Sociodemographic Characteristics	n	%
Age		
< 60 years old	23	47.4%
≥ 60 years old	91	52.6%
Sex		
Male	22	19.3
Female	92	80.7
Education		
No education	11	9.6
Primary School	26	22.8
Junior High School	38	33.3
Senior High School	20	17.5
Higher Education (College)	19	16.7

Table 2 shows that more than half of total elderly aged ≥60 years old (52.6%). As much as 80.7% elderly were female. The percentage of elderly who have low education higher (65.7%) than high education (34.3%).

Knowldege, Attitude and Balance Diet Practices

Table 3 shows that elderly who have less knowledge about balance diet still low, as many as 41.2%. More than half of elderly have good (fair and good) knowledge about balance diet. The percentage Elderly who practices balance diet at least during the last 6 months regularly during at least 6 months only 34.2%. The questions about balance diet practices consist of eating behavior such as breaskfast behavior, dietary fiber consumption, vegetables consumption, consumption of food with high calsium, sport activitiesand time duration of sleep, consumption of sugar, salt, and fat.

Table 3. Knowldege, Attitude and Balance Diet Practices

Variables	N	%
Knowledge		
Less	47	41.2
(lack of knowledge about balance diet)		
Good enough (fair)	39	34.2
Good	28	24.6
Attitude		
Negative	32	28.1
Possitive	82	71.9
Balance diet practices		
No	75	65.8
Yes, practices regularly	39	34.2

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The Association of Sociodemographic Characteristics, Knowledge, Attitude, and Balance Diet Practices towards Nutritional Status of Elderly

Table 4. Bivariable Analysis

Variables	Chategory	P-Value
Sociodemographic Characteristics		
Age	< 60 years old	0.563
	≥ 60 years old	
Sex	Male	0.214
	Female	
Education	Low education	0.076
	High education	
Knowledge	Lack	0.048
	Good	
Attitude	Negative	0.681
	Possitive	
Balance Diet Practices	No	0.003
	Yes, practices regularly	

Table 4 shows the results of bivariable analysis using chi-square test. There are 2 variables that shows significantly association with nutritional status, such as knowledge (p = 0.048) and balance diet practices (p value = 0.003). The variable that shows p value >0.25 in candidate selection analysis were sex, education, knowledge, and balance diet practics

Table 5. Multivariable Analyisis

Variables	Wald	Nilai P	OR	95% CI
Education	8,475	0,023	2.1	1.932-8.432
Knowledge	7,536	0,042	1.9	1.687-8.772
Balance diet practices	3,814	0,000	3,1	1.353-6.721

The multivariable analysis using multiple logistic regression, shows that balance diet practices were the dominant variable which significantly association towards nutritional status of elderly (p value = 0.000). The elderly who practices balance diet regularly 3.1 times more likely (95% CI: 1,353-6,721) to have malnutriton than the elderly who does not applied balance diet.

DISCUSSION

Nutritional status and health of the elderly are generally affected by lifestyle, especially diet, physical activity, and stress (Tagewalkar, et. Al, 2012). The Ministry of Health of Republic Indonesia launched a Balanced Nutrition Guidelines in February 2014. This guidance is revised from some amendments balanced diet messages delivered since the first time with the slogan "4 healthy 5 perfect" (4S5S). This message refers to the Four Basic principles of the United States in the era of the 1940s, includes a diet that consists of staple food, side dishes, vegetables and fruits and drink milk to enhance the menu. Along with the development of science and nutrition problems in Indonesia, the principle 4S5S turned into Balanced Nutrition Guidelines. The fundamental difference between the slogan 4 Healthy 5 Perfect with Balanced Diet Guidelines are in PGS consumption daily diet should contain nutrients in the type and amount (portion) that fits the needs of each individual or age group. The new slogan is

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there any substitute 4S5S " Balanced Diet, Healthy Nation and Achievement". Visual of PGS consists of two forms: 1) cone-of balance diet (Tumpeng Gizi Seimbang), and 2) my eating plate, serving a meal (Piring makanku, porsi sekali makan).

This study shows that balance diet practices were the dominant variable which significantly association towards nutritional status of elderly (p value = 0.000). The elderly who practices balance diet regularly 3.1 times more likely (95% CI: 1,353-6,721) to have malnutriton than the elderly who does not applied balance diet. In the previous study, Rowahani (2011) shows that change the nutritional status from overnutrition into normal nutrition as much as 20.8% with balance diet counseling intervention. Fatmah (2012) also shows the results that knowledge about balance diet affected by balance diet counseling.

Nutritional status and health of the elderly are generally affected by lifestyle, especially balance diet, physical activity, and stress (Tagewalkar, et. Al, 2012). In addition, balance diet behavior can prevent elderly to get hypertension. Hypertension of adults and elderly approximately around 40% in the world (WHO, 2013). In Indonesia, the prevalence of hypertension was 25.8%, and as much as 30% in South Tangerang. The higher the pressure in the blood vessels, the heart must work harder to pump blood. If left uncontrolled, hypertension can lead to heart attack, heart enlargement and even heart failure, stroke, kidney damage, cognitive disorders, and overall health (Picon, et.al, 2013; De Menezes; 2014).

CONCLUSION AND RECOMMENDATION

Balance diet practices significantly associated with nutritional status of elderly in this study. This variables was the most significant variable that affecting towards nutritional status. However, further research is needed to examine the food intake as a factor directly related to the nutritional status of the elderly. Experimental study with effectively and simple methods is needed to increase knowledge and improve balance diet practices such as using peer education method as intervention.

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