ORIGINAL ARTICLE

The Relationship Between Protein Intake and Vitamin D With the Quality of Life of the Elderly

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ABSTRACT

Introduction: The cumulative effect of nutrient deficiency in the elderly results in weakness and other morbidity factors so that it can have an impact on the quality of life of the elderly. The purpose of this study was to determine the relationship between protein intake and vitamin D with the quality of life of the elderly. **Methods:** This is a quantitative-study with a descriptive cross-sectional research design involving 146 elderly from the Klaten district Indonesian using a purposive random sampling method. Data on Protein intake and vitamin D intake was measured by 24 hours recall quesionare. Quality of life was measured by the WHOQOL-BREF questionnaire. **Results:** Test results show that intake of protein and vitamin D has a significant relationship with quality of life. The results of the logistic regression analysis as a whole influence of all variables on quality of life indicated by the value of R Square (0.248). It can be concluded that the variables tested affect the quality of life by 24.8% and there are 75.2% of other factors that affect quality of life. **Conclusion:** Elderly people who have adequate intake of protein and Vitamin D tend to have a better quality of life compared to older people with less intake.

Keywords: Protein, Vitamin D, Quality Of Life, Elderly

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INTRODUCTION

The elderly population around the world has increased in the nearest future, the number of elderly people globally in 2019 was 702.9 million, Asia 395.3 million, Southeast Asia 45.3 million and in Indonesia aged ≥60 years 25 , 66 million inhabitants (1,2). The expancion in the amount of old individuals should be offset with a increment in the personal satisfaction of the old with the current objective of guaranteeing that the older are more beneficial, healthy and independent in the following years so that they do not become a burden to the family and government (3,4).

Old individuals are frequently in danger of encountering deficient stock of nutrients due to physiological, metabolic, and age factors that affect nutrient and fluid intake (5,6). Lack of nutritional intake in the elderly will have an impact on nutrient deficiency, namely lack of high-quality protein intake, as well as vitamin D deficiency which can lead to reduced muscle mass, adversely affecting health and malnutrition (7,8). That somebody who is at risk of experiencing malnutrition will encounter more low quality of life (9). Quality of life (QOL) is a multi-province concept that includes an individual's subjective evaluation of positive and negative life (10). Therefore, the aim of this study was to determine whether protein intake and vitamin D intake were associated with quality of life in the elderly. We hypothesized that the relationship between protein and vitamin d intake with the quality of life of the elderly.

MATERIALS AND METHODS

Subject

This cross-sectional study was conducted in the working area of the Juwiring Community Health Center, Klaten Regency, Central Java Province, Indonesia. This study used age ≥60 years with a sample size of 146 healthy elderly. The sampling method used the purposive random sampling method which was conducted in January - February 2020. This study was conducted with

the approval and permission of the Health Research Ethics Commission of Sebelas Maret University No.043 / UN27.06.6.1 / KEPK / EC / 2020 and written informed consent was obtained. of all subjects.

Protein Intake, Vitamin D and Quality of Life

Protein and vitamin D intake was obtained through interviews using the 24-hour recall form once. Quality of life is obtained from interviews using the WHOQOL-BREF questionnaire (2011).

Statistic Analysis

The data for the intake of protein and vitamin D in the elderly used the Nutrisurvey 2007 tool. After the data was collected, the data analysis was carried out using Statistical Product and Service Solution (SPSS) version 22. The effect protein and vitamin D intake using multiple logistic regression analysis.

RESULTS

The research subjects were 146 elderly consisting of 24% male and 76% female.The subject's income is dominated by those with an income of less than Rp. 1,500,000 (83.6%) below the district minimum wage Klaten Regency of Rp. 1,947,821. The data is as shown in Table I.

Table I : Distribution of object characteristics based on gender, age, occupation, education and income.

Characteristic of Subject	Categories	n	%
Gander	Male	35	24
	Female	111	76
Age (Years)	≥ 60 -70	116	79.5
	≥ 70	30	20.5
Job	Doesn't Work	69	47.3
	private employees	7	4.8
	Labor	54	37
	Entrepreneur	16	11
Education	Not School	62	42.5
	Not Finished Primary School	17	11.6
	Primary School	40	27.4
	Junior School	15	10.3
	High School	5	3.4
	Collage	7	4.8
Income (IDR)	< 1.500.000	122	83.6
	1.500.000 – 2.500.00	17	11.6
	2.500.000 – 3.500.000	7	4.8
	> 3.500.000	0	0

In Table II, the bivariate analysis used is the rank spearman. protein intake showed that the elderly in this study tended to have protein intake in the weight deficit category. The correlation test between protein intake and quality of life showed that there was a significant relationship with a p value 0.001. This finding means that the better the protein intake in the elderly, the better their quality of life.

Table II : Bivariate Test Correlation Between Protein Intake and Vitamin D and Quality of Life of the Elderly.

Variabel	Quality Of Life				P Value
	Good		Bad		
	n	%	n	%	
Protein					
Over	15	83.3	3	16.7	0.001
Normal	18	66.7	9	33.3	
Mild Deficit	2	33.3	4	66.7	
Moderate Deficit	8	53.3	7	46.7	
Weight Deficit	21	26.3	59	73.8	
Vitamin D					
Enogh	15	83.3	3	16.7	0.001
Less	49	38.3	79	61.7	

Protein and Vitamin Dintake, p value <0,05 was considered as statistically signifiacant.

The results of vitamin D intake also showed that the average consumption of vitamin D in the elderly in this study tended to be less. The correlation test between vitamin D intake and quality of life showed that there was a significant relationship with a p value of 0.000. This implies that the better the consumption of vitamin D, the better the personal satisfaction of the old. Based on the results of multivariate test analysis using logistic regression (Table III), it shows that protein intake and vitamin D have a significant relationship with quality of life. The most dominant variable statistically was shown by the intake of vitamin D with an OR of 9,152. This means that elderly people with better vitamin D intake tend to have a 9 times better quality of life than elderly people who have lower vitamin D intake. Based on the results of logistic regression analysis as a whole, the effect of all variables on quality of life is indicated by the R Square value of 0.248, it can be concluded that the variables tested affect the quality of life by 24.8% and there are 75.2% other factors that affect the quality of life.

Table III : Multivariat Test Correlation Between Protein Intake and Vitamin D and Quality of Life of the Elderly.

Variabel	P	OR	IC 95%		R Square
			Lower	Upper	
Protein	0.000	1.853	1.437	2.388	0.248
Vitamin D	0.001	9.152	2.352	35.618	

DISCUSSION

This study was conducted to determine the relationship between protein intake and vitamin D intake on the quality of life of the elderly. The quality of life of the

elderly is closely related to protein intake and vitamin D intake. Table 2 shows that the largest protein intake in the elderly has a severe deficit. Protein intake below the nutritional adequacy rate (<1.0 g / kg / day) can negatively contrarily affect hold strength or physical function (11). Meeting protein requirements (25–30 g / meal) is a promising dietary strategy, but has not been investigated to help maintain function and muscle mass in the elderly (12,13). Higher protein intake was significantly essentially with higher quality of life (p = 0.049) (14).

Based on this study revealed a significant relationship between vitamin D intake and quality of life in the elderly (OR = 9,152). Vitamin D has been demonstrated tobe related with better muscle strength alternately, on the of chance that you are inadequate in vitamin D, it is related with debilitated strength and performance in muscles (15). Increasing the need for vitamin D in a person can be done by doing food fortification, giving vitamin D capsules, calcium and regular exposure to sunlight (16). With good nutritional needs, the nutritional status and health of a person will be good so that the quality of life will also improve (17). Age and gender are determinants of vitamin D status (18,19) and a person's quality of life (15).

High intake of protein and vitamin D can be used in the synthesis of muscle protein and consequently can increase muscle mass, muscle strength and can prevent sarcopenia and malnutrition (14,20). Elderly with good intake have a better quality of life (21).

CONCLUSION

Elderly people who have sufficient protein and vitamin D intake tend to will in general have a preferable quality of life than elderly people with insufficient nutritional intake. Therefore, to improve the quality of life of the elderly, it is expected to meet the intake and nutritional needs of the elderly, especially protein and vitamin D intake.

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