The Effect Nutrition Messages Through Whatsapp Messenger Applications on Food Intake and Albumin Level In Surgery Patients At Bantul Hospital Yogyakarta

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Abstract— Background. Nutrition status has been known to have a very important role in the process of wound healing surgery. The condition of malnutrition in hospital for patients is also known to affect the length of hospitalization period, changes in clinical conditions, increased use of hospital support resources, and increased risk of complications.

Objective. The objective of this study was to determine the effect of nutritional messages using WhatsApp messenger application to feed intake and surgical patient albumin levels in Bantul Regency Yogyakarta.

Methods. This study used quasi-experiment with Posttest only with control groups Design. The research Used 66 respondents divided into 33 respondents treatment group and 33 respondents of the comparison group. Independent t-test with 95% CI was employed as the statistical test.

Results. There was a significant difference in mean food intake of surgical patients who were given a nutritional message using WhatsApp messenger apps with those who were not using WhatsApp messenger at alpha 5% with a p-value of 0.026. There was no difference in mean serum albumin values among surgical patients who were given a nutritional message using WhatsApp messenger apps with those who were not using WhatsApp messenger at alpha 5% with p 0,527.

Keywords: Nutrition, Whatsapp Messenger, Surgery Patients.

1. INTRODUCTION

Nutritional problems that occur in hospitalized patients in the hospital have been reported in a 1974 publication in the article "The Skeleton in the Hospital Closet," by Charles Butterworth, Jr., MD, which was published in Nutrition Today. This article triggers the change in practice, where it is necessary to immediately diagnose and manage undernourished patients and prevent unknown malnutrition (Butterworth, 1974).

Malnutrition is a condition where the body experiences malnutrition both macronutrients and micronutrients. Malnutrition can occur in the community and in patients who are hospitalized. The problem of malnutrition in treated patients is still a serious issue, occurring in most patients in all ages ranging from neonates to geriatric patients, this situation requires the attention of health workers in the diagnosis, management and prevention of malnutrition in hospitalized patients (Theresa A. Fessler, 2009).

Estimating the prevalence of malnutrition in patients who are hospitalized is indeed quite

difficult. Over the past 34 years, researchers have used different measuring instruments to define malnutrition. There is no gold standard or one way of evaluating nutritional status that can be accepted by all people in determining malnutrition in all conditions. Research has been developed in various communities that differ in terms of socio-economic status, education level, age group and mild severity of illness. Based on many studies that have been reported, it is estimated that 13% to 69% of patients treated in hospitals are malnourished. Factors that cause these conditions, especially food intake and disease conditions, especially surgery. Malnutrition is associated with increased length of stay, increased morbidity and mortality, impaired heart and lung function, reduced immune function and growth disorders in infants and surgical patients. The prevalence of malnutrition occurs in 44% or more in hospitalized patients. The criteria for malnutrition use anthropometric measurements, serum albumin levels and hematocrit levels. Serum albumin levels are indicators that are widely used to determine the criteria for malnourished patients in several studies. (Kelly et al 2000; Kondrup, 2004; Correia& Campos, 2003; ASPEN, 2004; Fuhrman, 2004; Pagana&Pagana, 2006). Currently assessing malnutrition in hospitalized patients also uses Body Mass Index (BMI), subjective global assessment (SGA), or other components such as weight loss and food intake (Whirter JP, Pennington, 1994; Kelly, 2000; O'Flynn, et al, 2005; Kondrup et all, 2002; Pirlich et al, 2005; Correia&Campos, 2003; Singh et al, 2005; Krystofiak R, Mueller, 2007).

The study, which began in 1998 to 2003 in British England of 2,283 patients, where malnutrition was identified through weight loss, lack of intake, healing and wound infection, decreased malnutrition from 23.5% in 1998 to 19.1% in 2003 (O 'Flynn J, Peake H, Hickson M, Foster D, Frost G, 2005).

2. MATERIALS AND METHOD

This study was an experimental study using posttest only with a control-group design. Respondents involved were surgical patients who were at risk of experiencing malnutrition who were treated at PanembahanSenopati General Hospital Bantul during the period from May to October 2017. The samples were selected by a simple random sampling technique of 66 respondents divided into two groups, 33 respondents in the treatment group and 33 respondents in the group control. Nutritional messages containing pre-and post-operative dietary material, goals for consuming food for healing, recommended foods to eat, choice of food for surgical patients and after-surgery diet instructions accompanied by interesting images were given to respondents via the WhatsApp Messenger (WA) application on android mobile phone. Feed intake of respondents was assessed using the leftover food visual assessment format developed by Comstock18 Assessment of leftovers was carried out every three times a day while eating the main foodie lunch and dinner meals were

carried out both in groups given nutritional messages through WA and in groups control. Before the statistical analysis is performed, the normality test of the data is carried out first using the Kolmogorov-Smirnov test. Normality test obtained the data with normal distribution, and the analysis continued with independent t-test with 95% CI.

3. RESULTS AND DISCUSSION

Characteristics of Respondents

Characteristics of respondents seen from age, inthe treatment group were in the average age of 28.27 years with SD 15.43 years, the youngest was 13 years and the oldest reached 72 years. In the average age group of respondents 36.18 years with SD 16.34 years, the youngest age is 14 years and the oldest is 70 years. The age factor plays a very important role in triggering the condition of malnutrition in patients.

Malnutrition is the main cause of declining health, especially in the elderly as a risk group, 33% of people over 65 years of age who are hospitalized are diagnosed with malnutrition or at risk of malnutrition. The older the age the risk of malnutrition is increasing (BAPEN, 2013). Patient characteristics also need to be considered because malnutrition will cause damage at the cellular, physical, and psychological levels (Holmes, 2007; Kubrack, 2007). The lightweight of the damage depends on many factors including the patient's age, sex, type and duration of illness, and nutritional intake. At the cellular level malnutrition affects the body's ability to fight disease because the immune system decreases so that in malnourished patients the infection becomes heavier and more difficult to overcome (Scrimshaw, N.S & Dan Giovanni, J.P, 1997)

Table 1 Distribution of Characteristics of Sex of Respondents in Bantul Hospital in 2017

No	SEX	Treatment Group n=33		Control Group n=33	
		Sum	Percentage	Sum	Percentage
1.	Male	18	54.5	20	60.6
2.	Female	15	45.5	13	39.4

The effect of nutritional messages through WA on albumin levels nutritional status was also influenced by the patient's food intake, so in this study, the patient's food intake was assessed by calculating the remaining food in the patient's tray and the results were obtained in Table 2 below :

Table 2. Feeding Respondents in Bantul Yogyakarta Hospital in 2017

Variable	Treatment Group (n=33)				Control Group (n=33)			
	Min	Max	Mean	Std Dev.	Min	Max	Mean	Std Dev.
Food intake	54.17	100	85.07	10.11	54.17	100	80.50	10.19

The results of statistical analysis showed that the average food intake in surgical patients given nutritional messages using the Whatsapp Messenger application was 85.51% with SD 10.28% while patients who did not use the WA application had an average intake of 79.89% with SD 9.73%. The statistical test results obtained p = 0.026, it could be concluded that there was a significant difference between food intake in patients given nutritional messages using WA compared to those who did not use WA. Many factors influence the occurrence of acute malnutrition, according to Barker BA, Gout, BS, and Crowe TC (2011) factors in the individual include: age, depression, diseases (such as cancer, diabetes, heart, gastrointestinal), inability to buy or cook food, inability to swallow or chew, limited physical mobility, sensory damage (eg smell, taste / taste), treatment measures (ventilation, surgery, installation of drainage), and drug therapy. Factors from the organization including inadequate nutritional intake, lack of medical staffs to help eat, and lack of important nutrients.

In developing countries, medical conditions and lack of food are the main factors to malnutrition. Malnutrition in the elderly occurs in 5-12% in the community, 30-61% of the elderly are hospitalized, and 40-80% of the elderly are treated in the long term. Age is associated with less energy intake. Generally, one in five elderly in the community consumes less than 1000 Kcal/day, compared with adult consumption of 2100-2300 Kcal/day and energy intake for young adults reaching 2700 Kcal/day (W.O.Seiler et al, 1999).

Many methods have been suggested, especially those relating to the role of professional health workers, including developing local policies for the management of malnourished patients involving various disciplines, all of which can support patient nutrition improvement (YouGov, 2011). The Red tray method is one alternative to overcome malnutrition for hospitalized patients, by placing labels on patients' places with striking colors, will attract the attention of both patients and health workers involved in the care of these patients (Mardalena, I &Istianah, U, 2015). Nutritional booklet in surgical patients is one of alternatives that can be used by hospitals to maintain or improve the nutritional

status of surgical patients treated amid limited human resources to conduct individual counselling for these patients.

In this study, the final results of the assessment of respondents' nutritional status were assessed from serum albumin. The results showed that in the treatment group of 32 respondents the lowest serum albumin level was 3.78 g / dL, the highest serum albumin level was 5.01 g / dL with an average serum albumin level of 4.46 g / dL with a standard deviation of 0.32 g / dL. As the comparison, the group of 28 respondents showed the lowest serum albumin level of 3.66 g / dL, the highest serum albumin level of 5.48 g / dL, the serum albumin level was 4.59 g / dL with a standard deviation of 0.46 g / dL. Serum albumin levels in this study can be seen in table 3 below:

Table 3. Levels of Serum Albumin Respondents in Bantul Yogyakarta Hospital in 2017

Variable	Treatment Group (n=32)				Control Group (n=28)			
	Min	Max	Mean	Std Dev.	Min	Max	Mean	Std Dev.
Serum Albumin	3.78	5.01	4.46	0.32	3.66	5.48	4.59	0.46

The results of statistical analysis using independent t-test showed that the average serum albumin level in surgical patients given nutrition messages using the Whatsapp messenger application was 4.497 g / dL with a standard deviation of 0.367 g / dL. The results of statistical tests obtained a value of 0.527, it could be concluded that there was no significant difference in albumin levels in patients using WA with those who did not use WA. In this study the strategy applied was the method of giving nutritional messages through WA, it turned out that this method was not proven to significantly increase the patient's albumin levels. Patients who are given less attention to eating problems will decrease their albumin levels as Saryono, et al. (2006) found that mean patient albumin levels decreased from 2.88 g / dL to 2.52 g / dL significantly (p = 0.003) after one to two weeks being treated at the Hospital. Many factors influence albumin levels, factors that can increase albumin levels include: dehydration, marasmus, transfusion and exogenous albumin, while factors that can reduce albumin levels include: Overhydration / ascites / eclampsia; liver failure; inflammation / infection / metabolic stress; nephropathy syndrome, burns, loss of protein, post-traumatic / surgical status; kwashiorkor; collagen disease; cancer; corticosteroid use, bed rest; zinc deficiency; and pregnancy (Banh le, 2006). Albumin is also influenced by other factors besides nutrition and is strongly correlated with mortality and morbidity. Albumin is also a marker of effective nutritional status and is sensitive to changes in food intake. Increasing nutritional intake will consistently increase albumin levels instead of decreasing food intake causing lower albumin levels (Banh Le,

2006). Malnutrition has been reported to cause the length of day to be extended, patients treated with malnutrition have an average length of stay of 4 days compared with patients who are not malnourished (Middleton, et al, 2001)

CONCLUSION

The results of statistical tests in this study obtained p = 0.527 meaning that at alpha 5% there was no significant difference in serum albumin levels of patients given nutritional messages using the WA application compared to without using the WA application, while for food intake the statistical test results obtained p = 0.026 meaning that at alpha 5% there is a significant difference in food intake of patients given nutritional messages using the WA application compared to without WA. For health workers to be able to use WhatsApp messenger application as one of the alternative methods that can be used to increase the eating intake of surgical patients

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