THE EFFECT OF HONEY GIVING ON WEIGHT GAIN OF TODDLERS IN MAMUJU DISTRICT

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ABSTRACT

The results of Riskesdas in 2013 show that malnutrition-less problems in Indonesia is still a public health problem of high prevalence. Among the 33 provinces, there are three provinces very high prevalence categories Including items, namely West Sulawesi, West Papua and East Nusa Tenggara. In West Sulawesi, the prevalence of malnutrition-less by the indicator W / A is ≥ 30%, whereas According to WHO (2010) the prevalence is very high if ≥ 30 percent. Various Efforts to improve nutritional status have been undertaken by the government but until now the problem of malnutrition is still a major nutritional problem. Honey in addition to having nutrients needed by the body, but Also contains anti-bacterial substances that can be used as a preventative disease (Nadhila, 2014). The purpose of this study is to Determine the effect of giving honey on weight Increase of children under five in Mamuju sub-district in 2017. This type of research is quasi experiment with non-randomized control group pretest-posteest design. This research was conducted in Mamuju District on 30 samples. The sample was divided into three groups: first group as a group of intervention group was given honey once a day before breakfast, control group that is second group given honey once daily after meal, and other control group given honey twice daily that is morning and afternoon , Intervention is done for 2 weeks (14 days). The results Showed that there was an effect of honey on the weight gain of children under five in the intervention group ie honey once before breakfast (P <0.05) in the first week with both interventions. The minimum weight gain for children 1 year and above 0.2 kg is shown in groups 1 and group III. It is expected that the socialization of the need for giving honey to toddlers, especially before breakfast by related parties.

Keywords: children, nutritional status

INTRODUCTION

The achievement of national development needs including the available human resources are strong, independent and qualified. The world's attention to a child's life cannot be ignored because children are an asset under construction, since children are still in the process of growth and development, both physically, spiritually, and socially. One effort to improve growth and development of children is to improve nutrition. Good nutrition will produce quality human resources (Pradanti, M & K, 2015)

Malnutrition problem-less in Indonesia is still a public health problem of high prevalence. Among the 33 provinces, three provinces, including the very high prevalence categories, namely West Sulawesi, West Papua and East Nusa Tenggara. In West Sulawesi prevalence of malnutrition or less according to the indicators W/A of ≥ 30%, whereas according to the WHO (2010) prevalence is very high if ≥ 30 percent (Riskesdas, 2013).

The World Health Organization (WHO) estimates that 54% of child deaths caused by poor nutritional state due to concomitant diseases acute respiratory infections (ARI) pneumonia, diarrhea and measles. While nutrition problem in Indonesia resulted in more than 80% of childhood deaths (WHO, 2011) The prevalence of infant malnutrition and the lack of an indicator Millennium Development Goals (MDGs) to be achieved in a region (district/city) in 2015, namely the decrease in prevalence of toddler malnutrition to 3.6% or malnutrition in children under five to 15.5% (Bappenas, 2010). Achievement of the MDGs is not maximized and not evenly distributed in each province. The magnitude of the prevalence of infant malnutrition and malnutrition in Indonesia between provinces is quite diverse. (Basic Health Research, 2013).

The results showed that honey can inhibit the growth of bacteria Streptococcus pyogenes and Streptococcus aureus. Streptococcus pyogenes is the cause of strep throat illness with symptoms of fever and sore throat. Results of other studies indicate that honey contains antibacterial compounds are flavonoids (Nadhilla, 2014).

This study aims to look at the effect of honey against weight gain in children under five in Sub Mamuju.

METHODS

This is a type of quasi-experimental study (Quasi experiment) with the design of non-randomized control group pretest-posttest. Grouping members of the sample in the treatment group and the control group performed non-random. The intervention group was toddlers aged 1-5 years who received honey as much as 1 teaspoon before breakfast, while the control group is toddlers aged 1-5 years who received honey as much as 1 teaspoon after breakfast, and a control group that others get honey 1 teaspoon twice a day, morning and evening. Honey treatment was conducted for 2 weeks or 14 days.

The location of research carried out in the district of Mamuju implemented in 2017. The study population is children under five who

are in the district of Mamuju in West Sulawesi province in 2017. The sample in this study were children aged 1-5 years Toddlers totaling 30 people, were taken by purposive sampling Toddlers who have less nutritional status according to indicators W/A, Toddlers parents are willing to cooperate during the investigation and have the willingness to follow the procedure until finished by signing the informed consent. Exclusion criteria namely; Toddlers who have a normal nutritional status, or suffering from serious illnesses.

Data on general characteristics Toddlers taken through direct interviews with parents of toddlers. Data about weight toddlers done by measuring weight indicator W/A. Data processing is computerized. Then the data is presented in tabular form and narrative.

RESULTS

Table 1. Distribution of respondents by father and mother's education, father's occupation and mother, and the number of family members in 2017

variables	group I		group II		group III	
	total	%	total	%	total	%
Father's Education						
SD	4	40	1	10	3	30
JSS	3	30	3	30	5	50
SLTA	3	30	6	60	1	10
PT	0	0	0	0	1	10
Mother's education						
SD	5	50	2	20	3	30
JSS	3	30	1	10	5	50
SLTA	2	20	7	70	2	20
Father's job						
PNS	0	0	1	10	1	10
fisherman	5	50	0	0	3	30
entrepreneur	4	40	7	70	1	10
farmer	0	0	0	0	1	10
trader	0	0	0	0	1	10
Etc.	1	10	2	20	3	30
Mother's Job						
IRT	9	90	8	80	9	90
Honorary	1	10	2	20	1	10
Number of Family Members						
≤ 4	4	40	8	80	2	20
> 4	6	60	2	20	8	80

The results showed that the last educational father were highest in group I was elementary as many as four (40%), while the last education are highest in group II is senior 6 (60%), while the last education are highest in group III is junior as 5 (50%). The results also showed that maternal education Highest in group I was SD 5 (50%), maternal education mostly in the second group are high school 7 (70%), and the mother's education the highest in group III is junior 5 (50%) , Most father's work in group I and group III were fishermen as much, 5 (50%) in group I and 3 (30%) in group II, and most work in group II is self-employed as many as seven (70%). As most mothers work is good IRT in group I were 9 (90%), the second group of 8 (80%), and group III were 9 (90%). Furthermore, the number of family members> 4 more than ≤ 4 in group I of 6 (60%) and group III, 8 (80%), then the number of family members ≤ 4 more than <4, namely 8 (80%) in group II , There is a significant difference in the number of family members of the three groups (p = 0.021).

Table 2.Rata average weight before the intervention in all three groups
The District of Mamuju 2017

Age (months)	group I	group II	group III	*P*
12-24	7:40	7.78	7.98	0164
25-36	10:10	9:54	9.83	
37-48	10.95	0:00	11:40	
49 -60	13:00	12.70	10:50	

Table 3. Average weight before and after intervention 1 week
In group 1 in the district of Mamuju 2017

Age (months)	before Intervention	Week I	Average increase	*P*
12-24	7:40 ± 1:13	7:50 ± 1:13	0:10	0084
25-36	10:10 ± 0:10	9.90 ± 0:20	-0.20	
37-48	10.95 ± 0:49	10.65 ± 0.64	-0.30	
49 -60	13:00 ± 0.62	12.97 ± 0.67	-0.03	

Table 4. Average weight one week and two weeks after intervention
in group II in the district of Mamuju 2017

Age (months)	Week I	Sunday II	Average increase	*P*
12-24	7.68 ± 1:05	7.83 ± 1:15	0:15	0389
25-36	9:36 ± 1:32	9:46 ± 0.97	0:10	
37-48	-	-	-	
49 -60	13:10 ± 0:00	9:15 ± 1.8	-0.2	

Table. 3 Average weight after the first week and the week intervention II
in group III in District Mamuju 2017

Age (months)	Week I	Sunday II	On average Improvement	*P*
12-24	7.95 ± 0.70	7.92 ± 0.97	-0.05	0368
25-36	9:58 ± 0.66	9.90 ± 0.77	0:07	
37-48	11.60 ± 0:00	11:50 ± 0:00	0:10	
49 -60	10:50 ± 0:00	10:40 ± 0:00	-0.10	

The results showed that there was no perbeedaan weight before the intervention in all three groups. The results showed that there are significant honey treatment of weight gain in children under five in the first and second week after the intervention in group I, while group II and III of the honey treatment, there is no influence of weight gain in children under five.

DISCUSSION

The average weight before the intervention in all three groups was not different (p> 0.05). After 1 week of the honey treatment, weight measurements then in group I showed no difference in body weight after administration intervention 1 teaspoon honey 1 times before breakfast (p> 0.05). This happens because there are some children who show symptoms of illness (heat) at the time weighed. According to the theory of disease in children will affect their appetite so that food intake is reduced resulting in decreased body weight in addition indeed increased nutritional needs due to increased metabolism due to illness. It also occurs in group II and group III where there is a difference of weight before the intervention by one week after the intervention.

After the second week of the intervention carried back weight measurements. The results showed that there are significant honey treatment of weight gain of 1 (one) week after intervention by two (2) weeks after the intervention (P <0.05) in group I (giving honey before eating). Honey has an antibacterial ability against pathogenic bacteria Staphylococcus aureus one. Antibacterial ability is due to the three systems namely honey osmolality, acidity (gluconic acid), and inhibin compounds (hydrogen peroxide). However, the antibacterial ability of each of honey differ depending on the geographical location and interest as a source of nectar bee honey. Further research suggests that in addition to being antibacterial, honey can also serve as a wound healer (Nadhilla, 2014). The ability of honey to increase the body's resistance to disease will affect the frequency or duration of illness of the child so that even if a child is sick, but the illness will not be as heavy as if the child does not eat honey that weight gain can run normally despite the drop will not decline as much as if not be given honey. From laboratory studies and clinical trials, pure honey has a bactericidal activity that can fight some enteropathogenic organisms, including species of Salmonella, Shigela, and E. coli.

According to research results Cholid, Santosa, and Suhartono in 2011 which showed that there was difference in the frequency of diarrhea between the two groups occurred on day 2, day 4 and day 5 (p <0.05). The mean length of acute watery diarrhea in the supplemented group honey 59.46 hours (± 3.89), control group 71.20 hours (± 3.89), with p = 0.036. Treatment day 3 supplemented group experienced healing honey 50%, control group 25%.

Group II and group III showed no difference in weight loss between 1 week to 2 weeks after intervention after intervention when family members between the three groups there is a difference, in which the first group have an average family size of> 4 than ≤ 4. The results of this study in line with Cholid, Santosa, and Suhartono in 2011 which showed that there is no difference in weight gain in the intervention group honey treatment.

Giving honey with more frequency not guarantee better results than the honey treatment with a lower frequency. This is evident from the results of this study indicate that there is the effect of honey against weight gain in children under five in group I (giving 1 teaspoon honey 1 times a day before breakfast) is P <0.05. As in group III (giving honey 1 teaspoon 2 times a day morning and afternoon did not show any effect on weight gain in terms of socioeconomic status is almost the same between the two is the number of family members alike more above> 4, father's occupation equally at most fishermen, mothers also work equally URT, education even fathers and mothers in the first group at most elementary education, while in group III fathers and mothers most is junior. Family socioeconomic could describe the meal intake of family including a toddler, so in this study did not look at food intake over a 24-hour recall but socio-economic status of the family can represent a child's intake of both groups showed similarities.

The results are consistent with the results of research conducted by Nugraeny, Sumardha (2015) who conducted a study of 12 children under the age of 1-5 years. The results showed the effect of giving as much as 1 teaspoon of honey after eating of weight gain in children under five. Differences in this research is a long intervention on Nugraeny research and Sumardha is 4 weeks whereas in this study is 2 weeks or 14 days were carried out on three groups. In which the intervention group was the first group that is giving honey before eating, while the control group is the second group that is giving honey after meals and group III, the honey treatment twice a day.

According to the department of health RI (2009) increase in the minimum recommended weight gain among children under the age of 1 year and over is 0.2 kg per month. If the study is only held for 2 weeks it is expected that a minimum of weight gain was 0.1 kg for 2 weeks. The results showed that the weight gain in the intervention group (giving honey before eating) are in accordance

with the increase in minimum weight is 0.1 kg in children aged 12-36 months, then 0.25 kg in children aged 37-48 months, and 0.07 kg in children aged 49-60 months in the intervention group. As for the control group after eating honey treatment, there is an increase of 0.1 kg in children aged 12-36 months, but the decline in the group as much as -0.2 in children aged 49-60 months.

These results indicate that administration of honey before eating effective in increasing body weight toddlers. According to the experts that the consumption of honey before eating better than after a meal. Honey is a food that contains various nutrients such as carbohydrates, proteins, amino acids, vitamins, minerals, dextrin, plant pigments and aromatic components. Even the results of expert research Nutrition and food, honey contains carbohydrates highest among other livestock products as milk, eggs, meat, cheese and butter around (82.3% higher) Every 100 grams of pure honey is worth 294 calories or the ratio of 1000 grams of honey pure equivalent to 50 chicken eggs or 5.675 liters of milk or 1680 grams of meat. From the results of a recent study found the substances or compounds that are highly complex in the honey which reached 181 species. Sugar found in honey is absorbed directly by the blood to produce energy quickly when compared to regular sugar. Honey consumed after a meal will be mixed with food. Sucrose sugars and carbohydrates that are wet or mixed with water then over a period of time will proceed in a chemical called fermentation. Fermentation will produce gas and increased levels of stomach acid that makes the nausea and bloating. Consumption of honey before eating is more effective because it is more easily absorbed by the body, while the consumption of honey after eating will cause negative effects of fermented honey.

CONCLUSION

The results of this study indicate that there is the effect of honey once a day before breakfast of weight gain in children under five.

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