

## The Effect of Acceptability of Dadih-based Functional Bread on Food Intake and Weight Gain of Pregnant Women in Padang City

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### ABSTRACT

The aim of this study was to analyze the acceptability of dadih-based functional bread and its effect on food intake and weight gain pregnant women. The study design was a quasi-experimental randomized controlled trial involving 88 pregnant women who were given bread (50 g) and filled with dadih-based vla (30 g) six times a week for three months. Acceptability was assessed using the Comstock method and food intake was assessed using the 2x24-hour recall method. Data were analyzed using chi-squared and independent t-tests. There is a relationship between the acceptability of bread with dadih vla and food intake ( $p < 0.005$ ). The results showed a significant difference in weight gain ( $p < 0.005$ ) between the control and intervention groups that was provided with the dadih-based vla, a typical Dutch dessert sauce. Dadih contains high calories, fat, and protein, which could help increase maternal weight. Respondent who consumed bread with dadih vla were able to meet the nutritional needs adequately.

**Keywords:** acceptability test, dadih functional bread, food intake, weight gain

### INTRODUCTION

Nutritional problems in Indonesia are still relatively high. The prevalence of Chronic Energy Deficiency (CED) risk in pregnant women is 17.3%. Lack of nutritious food intake is one of the direct causes of nutritional problems, which can later lead to babies with low birth weight (MoH RI 2018). Diversification of functional local foods based on composite flours can be an essential breakthrough to accelerate the reduction of stunting and meet maternal nutritional adequacy by transforming the food into an alternative carbohydrate source (Helmizar 2022).

One local food that can be used to produce a nutritious food is dadih. Dadih is fermented buffalo milk and it will produce microbiota from the bacteria it contains. Pregnant women who consume functional bread combined with dadih-based vla, a typical Dutch dessert sauce, during pregnancy may have improved nutritional status, body weight, and fetal weight (Rahim 2022). The aim of this study was to analyze the acceptability of dadih functional bread and its effect on weight gain in pregnant women.

### METHODS

This research is quasi-experimental with a randomized controlled trial. A total of 88 subjects with gestational age of 12 to 20 weeks were divided into two groups: an intervention group that received functional bread made from composite flour (red bean flour, soybean flour, and corn flour) with dadih-based vla and a control group that received control bread with original vla. Product acceptability was tested using the Comstock method, food intake was assessed using 2x24-hour recall, and weight was measured using digital scale. Pregnant women consumed one piece of bread (50 g) in the intervention groups containing total fat 4 g, protein 5 g, carbohydrate 23.8 g, Fe 2 mg, energy 153 kcal, and dadih vla (30 g), containing total fat 2.6 g, carbohydrate 9.75 g, and energy 67.1 kcal. The control bread containing total fat 3.7 g, protein 4 g, carbohydrate 31.29 g, and energy 176 kcal, and control vla containing total fat 2.21 g, protein 1.19 g, carbohydrate 8.14 g, and energy 56.65 kcal, for 12 weeks. The ethical approval for this study was issued with reference number 945/UN.16.2/KEP-

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**Data analysis**

Statistical analysis was performed using SPSS version 25.0. Results of descriptive analysis as show in Table 1 are presented as means and standard deviations for continuous variables and percentages for categorical variables. Fisher's exact test was used to assess the relationship between the acceptability of dadih functional bread and food intake, and independent t-test was used to assess difference in weight gain in pregnant women with 5% level of significance.

**RESULT AND DISCUSSION**

The study result showed high acceptability of bread (>75%) with as many as 47.7% of mothers meeting their daily energy needs from the functional bread consumption (>77% RDA) (Gibson 2005). The acceptability of vla was also high (>75%) with as many as 61.4% of mothers meeting their daily energy needs from dadih-based vla (>77% RDA). The high acceptability of functional bread was due to its soft texture and naturally sweet taste from the composit flour (red bean and maize flour). The acceptability of dadih-based vla was high because dadih-based

vla has a thick texture and a naturally sour taste coming from the addition of dadih. The texture and taste of both the bread and the vla were thought to increase the acceptability of them. Based on the results of statistical analysis tests using Chi-squared test, it was found that there was a relationship between the acceptability of dadih functional bread and the energy intake of the intervention group (p=0.026) (Table 2).

The weight gain in the pregnant women in the intervention group was higher than that in the control group, with a difference of 4.07 kg. The statistical test results showed a significant difference in weight gain between the two groups (p<0.005).

**CONCLUSION**

The supplementary food has been adjusted to the nutritional adequacy, daily energy and protein requirements of pregnant women. Dadih functional bread was well accepted by pregnant women. There was a greater increase in weight gain in the intervention group than in the control group. Therefore, functional bread and dadih vla can be an alternative solution to meet the nutritional needs of pregnant women and can be redeveloped into other products with longer shelf life and better characteristics.

Table 1. Distribution of subject characteristics

Characteristics	Intervention group (n=44)		Control group (n=44)	
	n	%	n	%
<b>Mother's education</b>				
Primary School	1	2.3	2	4.5
Junior High School	2	4.5	3	6.8
Senior High School	20	45.5	20	45.5
College	21	47.7	19	43.2
<b>Mother's job</b>				
Housewife	32	72.7	30	68.2
Civil servants	6	13.6	2	4.5
Self-employed	6	4.5	10	22.7
Average age of mothers (year)	28.75±4.11		29.30±5.07	

Table 2. The relationship between the acceptability of dadih functional bread and energy intake

Acceptability	Energy intake									
	Intervention group (Functional bread)					Control group (Original bread)				
	Adequate (75% RDA)		Non-Adequate (<75% RDA)		<i>p</i>	Adequate (>75% RDA)		Non-Adequate (<75% RDA)		<i>p</i>
	n	%	n	%		n	%	n	%	
<b>Bread</b>										
Consumed >75%	21	47.7	10	22.7	0.026	39	88.6	3	6.8	0.056
Consumed <75%	7	15.9	6	13.6		1	2.3	1	2.3	
<b>Vla</b>										
Consumed >75%	27	61.4	14	31.8	0.007	38	86.3	2	4.5	0.210
Consumed <75%	1	2.3	2	4.5		1	22.7	1	2.3	

RDA: Recommended Dietary Allowances

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#### DECLARATION OF CONFLICT OF INTERESTS

The authors assert that there are no conflicts of interest.

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