

EFFECTIVENESS OF GINGER KEPOK BANANA COOKIES CONSUMPTION TO DECREASE PREGNANT WOMEN EMESIS

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ABSTRACT

Nausea or vomiting commonly called morning sickness is common in early pregnancy. But if not treated further, it will turn into hyperemesis gravidarum which can threaten the health of the mother and fetus. This study aims to determine the effect of consumption of kepok banana ginger biscuits on the risk of decreased emesis in pregnant women. The research design uses quasi experiment, with pretest and post-test design with two experiments. This research was conducted in the working area of the Kahuripan Tasikmalaya Community Health Center, Indonesia, among first trimester pregnant women with 8-16 weeks gestational age who experience nausea, vomiting, with physiological pregnancy. The sampling technique used purposive sampling technique, with a total sample of 30 people in the intervention group and 30 in the control group. Data analysis was done using univariate and bivariate. The results showed that after pregnant women consumed 6 pieces of biscuits for 4 days, consumption of kepok banana ginger biscuits could reduce the emesis of pregnant women. Pregnant women are expected to consume kepok banana ginger biscuits to reduce nausea and vomiting.

Keywords: *Emesis, Pregnant Women, Banana Kepok Ginger Biscuits*

INTRODUCTION

Pregnancy is a major event in a woman's life. Pregnancy is a physiological state, which produces several normal and expected changes in all normal maternal organ systems. Pregnancy can be different for each mother, and it can even be different for one pregnancy to the next for the same mother (Srivastava, Verma & Prasad, 2019).

Pregnancy symptoms that affect a mother can be temporary. Nausea, vomiting in pregnancy is the most common complaint in early pregnancy and disturbs pregnant women. Combined HCG hormones and psychological factors are independently associated with nausea and vomiting during early pregnancy (Dekkers *et al.*, 2019). Nausea and vomiting affects about 85% of pregnant women. The most severe form, hyperemesis gravidarum, affects up to 3% of women and can have significant physical and psychological sequelae (McParlin, O'Donnell & Robson, 2016).

Management of nausea, vomiting in pregnancy can use various therapies such as anti-nausea,

vomiting drugs (ondansetron), but it should be noted that drug administration is not teratogenic during fetal organogenesis (Taylor & Ooi, 2018; Källén, 2019). Besides, some types of complementary medicine are generally consumed in our lives. Aromatherapy with lemon oil can show beneficial effects on nausea and vomiting among pregnant women (Fattah *et al.*, 2019). According to the results of the review, most of the methods that are effective in reducing the incidence of vomiting in pregnancy, including ginger and P6 acupressure can be recommended (Ozgoli & Naz, 2018). Many research results show that to eliminate nausea and vomiting in pregnant women in the first trimester, ginger and vitamin B6 are used for nausea (Sharifzadeh *et al.*, 2018; Marx, Kiss & Isenring, 2015). The results of the research of Kim, Lee, Jung (2018), ginger extract candy with *Salicornia herbacea L.* can reduce the nausea of vomiting in first-trimester pregnant women.

The most common way to avoid nausea first is to diet for example by eating very little but at regular interval and avoiding fatty foods that can stimulate nausea

(Lindblad & Koppula, 2016). Dietary recommendations during pregnancy are the same as recommendations for a normal healthy diet. Pregnant women must meet the nutrition of a balanced diet and need to be advised not to consume multivitamins and minerals in high doses. Kepok banana (*Musa paradisiaca L*) has a very good nutritional content, including providing fairly high energy compared to other fruits. Fresh kepok banana per 100 grams has an energy content of 109 kcal, protein 0.8-gram, 0.5 grams fat, 26.3-gram carbohydrate, along with food fiber, copper, and vitamin B1 (NilaiGizi.com, 2018).

Research show that addition of banana flour in the manufacture of ginger biscuits, is expected to add variety of flavors, giving a distinctive aroma and also being able to meet the nutritional needs of pregnant women from this product and making the resulting cookies as one type of functional food to help reduce nausea and vomiting in pregnant women. This also helps in the fulfillment of nutrition requirement for pregnant women. Previously, the determination of formulas and organoleptic tests had been carried out (Radiati & Kusmiyati, 2018).

METHODOLOGY

The research design used was a *Quasi Experiment* with a *two Group Pretest-Posttest Design* approach with a control group. The study was conducted in the work area of the Kahuripan Community Health Centres Tasikmalaya, Indonesia. The sample selection uses a *purposive sampling technique* with a total of 30 first trimester pregnant women 8-16 weeks gestational age, who experience nausea, vomiting, physiological pregnancy. Data collection techniques were carried out after acquiring research permit and then looking for prospective respondents who met the criteria. Research study was explained, and *informed consent* was taken. After the respondents agreed to participate, the intervention group was given banana ginger biscuits and biscuits without ginger for the control group. Observation sheets was distributed along with *checklist* sheets, they were previously explained the procedure for filling the forms. The rules of consumption were explained, namely 3 biscuits at 07.00 WIB and 3 biscuits at 19.00 WIB, observing adherence to consume biscuits without ginger and ginger biscuits in 4 days, every day during the observation period at 07.00 WIB and 19.00 WIB. Researchers contacted the respondent to make sure the respondent had consumed biscuits, so that the *checklist* sheet was faultless. Data analysis was done

using univariate and bivariate analysis.

RESULTS

Table 1: Distribution characteristic of Mother

Age of Mother	Group			
	Case		Control	
	N	%	N	%
<20	0	0	1	3.3
20-35	26	86.7	26	86.7
36-40	3	10.0	2	6.7
>40	1	3.3	1	3.3
Total	30	100	30	100

From the data in table 1 it was evident that the most of the mothers were in the age group of age category 20-35 years of the sample cases as many as 26 people (86.75%) and the least age group that is >40 years as many as 1 person (3.3%), whereas in the age control group the most samples were in the 20-35 year age category of 26 people (86.75%) and the least age group of >40 years by 1 person (3.3%).

Table 2: Distribution of Respondents by Characteristics of Emesis Gravidarum in Kahuripan Sub-District Tawang District Tasikmalaya City

Characteristics	Group			
	Case		Control	
	N	%	N	%
Stage				
Primi gravidarum	3	10	6	20
Multi Gravidarum	27	90	24	80
Total	30	100	30	100
Occurrence Time of Emesis				
Morning	23	76.7	24	80
Others	7	23.3	6	20
Total	30	100	30	100
Pregnancy Age				
8 Week	16	53.3	8	26.7
12 Week	1	3.3	7	23.3
13 Week	2	6.6	1	3.3
15 Week	2	6.6	3	10.0
16 Week	9	30.0	11	36.7
Total	30	100	30	100

Based on the results of research in the working area of the Kahuripan subdistrict, Tasikmalaya City, Indonesia, respondents based on parity in the case group with Primi gravidarum by 10% and multigravida by 90% whereas in the control group with Primigravidarum as

much as 20% and multigravida as much as 80%. Based on gestational age in the most cases group at 8 weeks gestation as many as 16 people (53.3%), while in the control group most at 16 weeks gestation were 11 people (36.7%). Based on the time of most emesis events in the morning, in the case group of 23 people (76.7%) and the control group of 24 people (80%).

Table 3: Cross Table Pre-Post (Before and After Given Biscuits)

Biscuits Giving	Effect of Ginger Banana					
	Emesis Status				P	95% CI
	Case / Gravidarum		No Emesis Gravidarum			
	N	%	N	%		
Cases / Ginger Banana	7	21.2	23	85.2	0.000	0.047
Control / Without Ginger	26	78.8	4	13.5		

In table 3 it can be explained that in the case group before being given banana ginger biscuits, the incidence of non-emesis gravidarum was 0% or all respondents experienced emesis gravidarum, and after being given ginger biscuits banana as much as 85.2% or 23 people did not experience emesis. In the control group before being given a biscuit without ginger, no morning sickness incidence is 0% or respondents experiencing morning sickness, and after being given a biscuit without ginger 78.8% still had morning sickness, and 13.5% did not experience morning sickness by the results of the analysis, it is known that the *p*-value of 0.000 with OR 95% CI 0.047, so that "There is an influence of banana ginger biscuits on emesis gravidarum".

DISCUSSION

Respondents who were involved in this study were pregnant women aged 20-35 years, multigravida with emesis or nausea, vomiting often occurs in the morning. For most gestational age was 8 weeks of age. In the intervention group, it turned out that pregnant women who were still experiencing emesis 21.1% than the control group with 78.8%. Statistically significantly different, with a *p*-value of 0.000, so it can be concluded that there is an effect of banana ginger biscuits on emesis gravidarum.

Emesis gravidarum or nausea and vomiting in pregnant women is the most common symptom in the first trimester around 50%-90% (Kaya *et al.*, 2016). This

is due to the increase in free radicals of Nitric Oxide (NO) and the release of neurotransmitters (serotonin) which can stimulate the vomiting center in the central nervous system. Processed drinks or foods made from ginger that contain zingerone antioxidant compounds that function as the capture of free radicals of Nitric Oxide (NO), inhibit the visceral afferent nerve input by acting as a 5-HT3 receptor antagonist (Pratiwi, 2017). Other research also suggests that ginger can exert potentially beneficial effects on nausea and vomiting as antagonism of 5-HT3 receptors (Marx *et al.*, 2015). Ginger herbal medicine (*Zingiber officinale Roscoe*) is effective for treating nausea, vomiting and stomach hypomotility. Cholinergic M3 and 5-HT3 and 5-HT4 receptor serotonergic are involved in this condition (Giacosa *et al.*, 2015).

Ginger can prevent nausea and vomiting because ginger can be a barrier to serotonin, a chemical that can cause the stomach to contract, causing nausea (Putri *et al.*, 2017). The results of this study are consistent with other studies which stated that ginger works effectively to treat the symptoms of nausea and vomiting that arise during pregnancy and even hyperemesis gravidarum, because ginger has the effect of relaxing and weakening the muscles in the digestive tract, thereby reducing nausea and vomiting in pregnant women. The use of various ginger products greatly helps pregnant women reduce nausea and vomiting that they complain of (Matthews *et al.*, 2015).

One other non-pharmacological therapy that is recommended for treating emesis gravidarum is banana. The spread of bananas is almost everywhere in Indonesia and has many benefits. One of which is as an anti-emesis gravidarum. Bananas contain vitamin B6 which is a vitamin that dissolves in water. Vitamin B6 can help increase the development of central nervous system cells in the fetus. With the right amount of vitamin B6, it will reduce morning sickness. One type of banana that is recommended for emesis gravidarum is Kepok banana (Ratih, 2017).

CONCLUSION

The available evidence suggests that ginger is a harmless and effective treatment for nausea and vomiting of pregnancy. However, we should keep in mind ginger quantity needed to be effective and also ginger quality is important from the perspective of safety.

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