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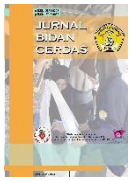

Canira Malolo: An Alternative Treatment for Striae Gravidarum in Postpartum Mothers - A Pre-Experimental Study

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ABSTRACT

Introduction: Postpartum women have several problems both physiologically and psychologically. Physiological changes during pregnancy often cause problems during the puerperium, one of which is skin problems, namely striae gravidarum. **Purpose**: To make Canira Malolo spread from Cacao, Virgin Coconut Oil, and aloe vera, and to know the Effectiveness of Canira Malolo against striae gravidarum in postpartum mothers in Polewali Mandar Regency. **Methods**: This study used a pre-experimental study design with the one group pre-test – post-test design. The sample size is 10 people using purposive sampling technique with inclusion criteria: Postpartum women who have striae gravidarum on the abdomen, have no history of oil allergies, have no open wounds and are willing to become research samples. Data analysis used the Wilcoxon Signed Ranks Test. The study was conducted in May – December 2022. **Results:** The results showed that Canira Malolo's intervention was effective in reducing the appearance of striae gravidarum in postpartum mothers with a p value=0.025. **Conclusion:** Canira Malolo made from cacao, virgin coconut oil, and aloe vera can be used as an alternative for treating Striae Gravidarum in postpartum mothers.

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INTRODUCTION

Postpartum mothers have several problems both physiologically and psychologically. Physiological changes during pregnancy often cause problems during the puerperium, for example skin problems, namely striae gravidarum or stretch marks. Striae gravidarum is a linear scar tissue on the skin due to stretching of the skin that exceeds its elasticity limit that occurs during pregnancy and weight gain during pregnancy (Ida Miharti & Fitrishia, 2020). Striae gravidarum occurring in pregnancy is considered to be the most common connective tissue change in pregnancy with reported incidence rates usually ranging from 52-90% in women (Brennan, Clarke, Newell, & Devane, 2018).

The cause of Striae gravidarum in general and its epidemiology are not known with certainty. The strongest risks are weight gain during pregnancy, young mother's age, and family history. Striae gravidarum generally appears at 24 weeks of gestation and has the characteristics of stripes at least 5 cm long, with a reddish, purplish color and will gradually change to white or hypopigmented atrophic lines in the postpartum

period. These striae gravidarum lines can be either thin lines or wide lines. Scientists have stated that several hormones, such as estrogen, relaxin, and adrenocorticoid hormones, decrease the density between collagen fibers and increase the ground substance, which causes stretch areas known as striae (Hasnita & Octazuria, 2019).

Striae gravidarum can appear on the abdomen, breasts, thighs or upper arms and is clearly visible from the 6th – 7th month of pregnancy. The effect of striae gravidarum causes itching, burning, dryness and emotional disturbances or psychological problems, especially for mothers who are very concerned about appearance so that it can interfere with social life (Violina Harnanti, Yulianto Listiawan, Astari, & Sandhika, 2019). Various treatments including topical retinoids, laser therapy and chemical peels have been studied (Zulaekha 2022). Topical tretinoin ≥0.05% has shown up to 47% improvement and fractional non-ablative lasers have consistently shown 50 to 75% improvement in treated striae distensae lesions (Farahnik, Park, Kroumpouzos, & Murase, 2017). However, some of these treatment methods certainly require expensive cost.

There are several natural ingredients that can be used to reduce striae gravidarum. VCO (Virgin Coconut Oil) can remove striae gravidarum where coconut oil has a high moisture level and can help keep the skin hydrated. The lauric acid content is also easily absorbed deep into the skin layers which has a positive effect on collagen production. VCO has anti-inflammatory properties and can help reduce healing time for existing striae gravidarum. One study showed that applying VCO to the stomachs of pregnant women for 8 weeks showed a decrease in the number of straie gravidarum in pregnant women (Fenny, 2020).

Another natural ingredient that can be used to reduce striae gravidarum is aloe vera. Aloe vera contains 99% water, glucomannan, sterols, amino acids, lipids and vitamins. Several studies have shown that the aloe vera plant has good antioxidant content. Antioxidants are important substances that protect cells from oxidative damage. Aloe vera contains polysaccharides that work together with essential amino acids and protein-breaking enzymes so that they can replace damaged cells and improve skin conditions (Maan et al., 2018).

Cacao is a plant that is efficacious for maintaining healthy skin. Cacao contains antioxidants contained in cocoa beans to help stimulate skin cells and can fade striae gravidarum. A study on the effect of applying cocoa bean extract on the amount of skin melanin pigment in Wistar rats, showed that cocoa bean extract reduced the amount of melanin pigment in the skin of Wistar rats (Yonathan et al., 2016). Cocoa butter is very good to use because it is rich in vitamin E and stearic acid which are beneficial for skin health such as moisturizing the skin, can ward off free radicals because they contain tocopherols and polyphenols (Prasatya, Suhendra, & Wartini, 2020). Based on this background, this study aims to make a spread made from cacao, virgin coconut oil, and aloe vera (Canira Malolo), and to determine the effectiveness of Canira Malolo against striae gravidarum in postpartum mothers in Polewali Mandar Regency, West Sulawesi.

METHODS

This study used a pre-experimental design with the one group pre-test – post-test design. The research was conducted from October to December 2022 at 5 Public Health Centers (Batupanga, Binuang, Wonomulyo, Katumbangan, Pambusuang), Polewali Mandar Regency, West Sulawesi. The population is all postpartum mothers in several working areas of the Puskesmas in Polewali Mandar district. Samples were postpartum women who met the sample criteria (childbirth mothers had Striae

gravidarum in the abdomen, had no history of allergies, had no open wounds and were willing to be samples). The number of samples at the beginning of the study was 30 people, calculated using the Sopiyuddin formula (Sopiyuddin Dahlan, 2020). Determination of the number of samples at 5 Community Health Centers in Polewali Mandar was carried out proportionally, the sample selection used a purposive sampling technique. After conducting the research, the number of samples was only 10 people because there were several samples that did not meet the criteria and dropped out during the research process.

Data collection techniques based on primary data and secondary data. The primary data is in the form of interviews and observations using instruments, namely questionnaires and checklist sheets. The research variable is Canira malolo with the objective criteria of being smeared (score=1) and not smeared (score=0), the striae gravidarum variable is measured according to OSAS (Observer Scar Assessment) Scale) includes color, relief and thickness indicators with objective criteria of real appearance with a score=0 (Color: clear albae/rubra, Relief: uneven surface, thickness: prominent), faint appearance with a score=1 (Color: pale albae/rubra, Relief: flat surface, thickness: not prominent). Giving canira malolo interventions to postpartum mothers is carried out every day for 2 weeks with a duration of giving 2 times a day in the morning and evening with a volume of 3-5 ml each time. The pretest was carried out before the intervention started, and the posttest was carried out after 2 weeks of using Canira Malolo. Secondary data was obtained from the health center regarding data on the number of postpartum mothers. Analysis of research data using the Wilcoxon Signed Ranks Test.

The process of making cacao, virgin coconut oil, and aloe vera spreads to become canira malolo is carried out in several stages. The first stage is preparing the raw materials for making VCO, cocoa butter/oil, aloe vera oil.

Manufacturing of Cocoa Powder

1. Remove the cocoa beans from the shell and then wash them thoroughly.
2. Cocoa beans are dried until the water content reaches 6 – 8%. The drying process is carried out using a drying oven for about 24 hours at 70-80°C, then continued at 100°C for 3-4 hours.
3. The purpose of the cocoa bean roasting process is to sterilize the cocoa beans and make it easier to separate the skin from the contents of the cocoa beans.
4. To change the solid cocoa beans into powder, a grinding process is required using copper.

Figure 1. Drying Cocoa Beans into Cocoa Powder

Production of Cocoa Butter/ Cocoa Oil

1. 600 grams of cocoa powder mixed with 2000 ml of water then boiled for ± 1 hour until the solution shrinks and releases oil.
2. Put the cocoa solution in the freezer for 4-6 hours.
3. After going through the process of freezing the solution and separating the cocoa oil, the cocoa solution precipitates and the cocoa oil coagulates.
4. The coagulated cocoa solution is separated in a container and steamed until it melts, after which it is filtered and separated from cocoa oil with water using a separatory funnel to produce 20 ml of cocoa oil.

Figure 2. Process for Making Cocoa Butte/Oil

Production Of Aloe Vera Oil

1. Peel the aloe vera using a vegetable peeler/knife to slowly peel off the green part of the leaf skin.
2. Match the gel with a spoon. Remove all the flesh and gel from the skin of the leaves until nothing remains into a clean bowl.
3. Blend the peeled aloe vera until smooth.
4. Use 400 grams of refined aloe vera mixed with 200 ml of VCO then cook until it boils until it shrinks for ± 30 minutes.
5. Separate the aloe vera oil from the dregs using a separatory funnel, and 150 ml of aloe vera oil is produced.

Figure 3. Process For Making Aloe Vera Oil

Production of VCO

1. Put the thick coconut milk into a plastic bag and then close the plastic bag with a rubber band, let it sit for ± 24 hours in the freezer.
2. After getting out of the freezer, let it rest for 12 hours at room temperature.

3. Next formed 3 layers. The top is residue, the middle is VCO and the bottom is water. Pure oil (VCO) looks clear (clear) like plain water. In contrast to coconut oil after cooking it causes a cloudy color.
4. Pierce the center of the plastic (VCO) using a pipette, collect it in the container. Prepare a clean bottle, the top of which is filled with a funnel covered with filter cloth/tissue, oil dripping by drop into the bottle.

Figure 4. The Process of Making VCO

Production of Canira Malolo

1. Prepare all the ingredients: 1000 ml of VCO, 100 ml of aloe vera oil, 20 ml of cocoa oil
2. Mix all the ingredients and stir using a stiarel (stirrer) for 20 minutes, until a solution that has been thoroughly mixed is produced.
3. Put canira malolo in a sterile bottle and ready to use.

Figure 5. The process of providing the main ingredients for making Canira Malolo Products

RESULT

The initial analysis in the study was univariate analysis for the observed characteristics of the respondents, namely mother's age and education. The distribution of respondents based on general characteristics is presented in table 1 below.

Table 1. Distribution of Respondents by Age and Mother's Education

Variables	Number (n=10)	Percent (%)
Age		
20 - 35 years	9	90.0
>35 years	1	10.0
Education		
<High School	4	40.0
High School	5	50.0
> High School (College)	1	10.0

Based on Table 1 it shows that most of the respondents were in the age group of 20-35 years with 9 people (90%), and only 1 person (10%) aged >35 years. Meanwhile, for the category of mothers, the highest level of education was at the high school education level, with 5 people (50%).

Bivariate analysis in this study was to see whether or not there were significant differences in the administration of canira malolo on the appearance of striae gravidarum in postpartum mothers.

Table 2. Distribution of Postpartum Mothers Based on Striae Gravidarum Indicators Before and After Intervention

Indicator of striae gravidarum	Before		After	
	n	%	n	%
Color				
Red	4	40.0	2	20.0
Pale	6	60.0	8	80.0
Thickness				
Stand Out	9	90.0	3	30.0
Doesn't Stand Out	1	10.0	7	70.0
Surface/Relief				
Flat	5	50.0	3	30.0
Uneven	5	50.0	7	70.0

Table 2 shows that before the intervention was given to postpartum mothers, the indicator of striae gravidarum in terms of color was more pale as many as 6 people (60%) while there were 4 people who were red in color (40%). While the striae gravidarum indicator in terms of thickness is mostly in the prominent category with 9 people (90%). stretch mark indicators in terms of Surface/Relief with an average category of 5 people (50%) and an uneven category of 5 people (50%).

Table 3. Distribution of Postpartum Mothers Based on Appearances of Striae Gravidarum Before and After Intervention.

Category	*Striae Gravidarum*			
	Before (n=10)	%	After (n=10)	%
Obvious	9	90.0	4	40.0
Vague	1	10.0	6	60.0

Table 3 shows that before giving the intervention all mothers had stretch marks with a real appearance in 9 people (90%), whereas after being given the intervention most of the mothers had striae gravidarum with a faint appearance in 6 people (60%).

The normality test results for the stretch mark category values before and after the intervention were not normally distributed, so the Wilcoxon Signed Ranks Test was used to test the differences in the appearance of striae gravidarum before and after the intervention.

Table 4. Distribution of Postpartum Mothers Based on Differences in the Appearance of Striae Gravidarum Before and After Intervention

Striae Gravidarum	Mean (Minimum–Maksimum)	SD	p-value
Before Intervention/ Pre-test	0,1 (0-1)	0,3	0,025
After Intervention / Post-test	0,6 (0 -1)	0,5	

Based on Table 4, it shows that after carrying out the Wilcoxon Signed Ranks Test analysis, the results showed that there was a significant difference after giving the

canira malolo intervention to the incidence of striae gravidarum in postpartum mothers with a value of p=0.025.

Figure 6. Before intervention

Figure 7. After intervention

DISCUSSION

This research was conducted to overcome striae gravidarum in postpartum mothers in a non-pharmacological way using natural ingredients, namely VCO, Cocoa, and aloe vera which are mixed in several stages into a spread called Canira Malolo. Canira Malolo is the naming of the spread of the product from mixing the three ingredients of Cacao, Virgin Coconut Oil, and aloe vera, where the word canira stands for the three ingredients of Cacao, Virgin Coconut Oil, and aloe vera, while the word malolo means natural beauty in the Mandar area.

Based on the research results, information was obtained that postpartum mothers had never used Cacao, Virgin Coconut Oil, and aloe vera to treat striae gravidarum. Striae gravidarum itself does not threaten the mother's life but can have physiological and psychological effects on the mother (Damanik, Siregar, 2021). There are 2 types of striae gravidarum that occur in postpartum mothers, namely Striae rubra or acute stage and Striae Alba or chronic stage. In this study, before being given the intervention, most of the respondents who experienced striae gravidarum were striae alba, as many as 6 people, while in the striae rubra category, there were 4 people. Treatment for women with striae gravidarum can be treated pharmacologically with radiotherapy, ultraviolet light, laser, cryotherapy, electrosurgery, scalpel surgery, systemic and intralesional. Meanwhile, non-pharmacological treatment can be done topically using natural ingredients (Safitri, 2021).

Several studies have shown that striae gravidarum can be treated topically using herbal ingredients such as olive oil and turmeric, coffee grounds, lemon, aloe vera, potatoes, sugar, banana peels, VCO, cocoa butter/cocoa oil (Candrawati et al., 2021; Meisura, 2022). The results of this study indicate that there is an effect of giving the canira malolo intervention on the appearance of striae gravidarum in mothers, where out of 10 postpartum mothers who experienced striae gravidarum, before the intervention there were 9 mothers with a real appearance, but after the intervention the respondents with a real category were only 4 people the remaining 6 people experienced changes in the vague category. So the use of natural ingredients such as VCO cocoa and aloe vera in this study was quite effective in changing the appearance of striae gravidarum in postpartum mothers.

The research results of Mariasi et al (2021) state that cacao butter or cocoa oil can be used as a raw material for cosmetic products that have benefits for the skin. Cacao butter contains compounds that are useful for the skin such as stearic acid, oleic acid and Vitamin E. Cocoa oil is a product of the cocoa bean plant which contains total phenolics and flavonoids and contains natural antioxidants such as vitamin E so that it can protect the skin from inflammation. Besides that, the benefits found in cocoa beans, especially on the skin, are that they can remove dead skin cells, can soften and

help remove and repair dead skin cells on the skin (Mariasy, Siska Anastasia, Desnita, & Hadari Nawawi, 2021). This is also in line with Ramlan's research which suggests that fats and polyphenols from cocoa beans have quality characteristics that have lotion properties that can improve moisture, oil content and skin smoothness (Ramlah, 2017).

VCO can be used as an active skin moisturizing ingredient, where VCO contains high fatty acids, especially soluble acids and has a high phenolic content, VCO can act as an emollient and as an occlusive agent if used in the right concentration. The use of VCO in this study is in line with the study of Yulia Sari Kubis et al (2015) which showed that there was effectiveness in giving VCO to striae gravidarum in pregnant women, where Topical administration of Olive Oil with VCO (p=0.031) would significantly prevent the degree of Striae Gravidarum compared to the control group. placebo. the ingredients contained in VCO include lauric acid, oleic acid, α tocopherol, vitamin A, vitamin C, omega-3, moisturizer, and has a low water content (Yulia Sari Lubis, Thaufik, & Nurul Widyawati, 2015). While the results of this study were not in line with those of Pratami et al., there were no differences in striae gravidarum based on the number of stripes and the level of erythema between the groups using VCO (Pratami et al., 2014).

Aloe vera has many biological and physiological benefits, such as the ability to accelerate the healing of burns and cuts on the skin and prevent wrinkles on the skin. Aloe vera contains growth hormone which when interacting with growth hormone receptors on fibroblasts can stimulate cell proliferation activity and can increase collagen synthesis. The content of aloe vera can replace damaged cells and improve skin conditions (Intanwati, Wulandari, & Gurnita, 2022). In addition, Aloe vera can help smooth the surface of the skin, help relieve inflammation and itching and can also reduce stretch marks. This is reinforced by the results of research which states that Aloe vera activates Fibroblasts to produce collagen and elastin fibers which can reduce wrinkles and make the skin more elastic and maximize strokes on the mother's stomach (Yuspa & Febrianti, 2021). The use of Aloe vera in this study is in line with research conducted in Bukittinggi which states that administration of aloe vera (Aloe vera) is very effective for removing striae gravidarum (Hasnita & Octazuria, 2019).

CONCLUSION AND RECOMMENDATION

A smear preparation (canira malolo) has been made from VCO, cocoa and aloe vera to treat striae gravidarum in postpartum mothers. The results of the analysis found that there was a significant difference after giving the canira malolo intervention to the incidence of stretch marks in postpartum mothers with a p-value=0.025. This study suggests that the results of this study can be used in designing interventions to treat striae gravidarum in postpartum women with a larger sample and it is necessary to match the sample and use a control or comparison group so that it can be used to generalize the degree of stretch marks in postpartum women and control confounding variables that can affect the appearance of stretch marks such as diet, activity and mother's weight.

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