

## THE EFFECT OF OLIVE OIL APPLICATION ON THE FADING OF STRETCH MARKS IN POSTPARTUM MOTHERS

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### ABSTRACT

Background Olive oil, containing fatty acids, hydrocarbons, carotenes, tocopherols, fatty alcohols, waxes, pigments or chlorophyll, and carotenoids, is known for its beneficial properties in addressing stretch marks.

Objective: To determine the influence of olive oil application on the fading of stretch marks in postpartum mothers. Methodology: This was a quantitative study utilizing a true experimental design with a pretest-posttest approach using a control group. The population consisted of 50 postpartum mothers in January 2023. A sample of 30 was divided into two groups. Purposive sampling with the Mann-Whitney U test was employed. The study was conducted from January to July 2023.

Result The average stretch mark severity among postpartum mothers before olive oil application in the working area of Seputih Banyak Primary Health Care, Central Lampung Regency, in 2023 was a mean of 5.07, categorized as severe. After olive oil application, the mean decreased to 1.60, indicating a change and reduction in stretch marks, categorized as mild. The statistical test results showed a p-value of 0.000 (<0.05), signifying an influence of olive oil application on the fading of stretch marks in postpartum mothers. The research findings also revealed that age during pregnancy, body mass index during pregnancy, and parity or the number of births influence the occurrence of stretch marks.

Conclusion There is a significant effect of olive oil application on the fading of stretch marks in postpartum mothers within the working area of Seputih Banyak Primary Health Care, Central Lampung Regency in 2023.

Suggestion : Enhancing pregnant mothers' knowledge regarding stretch marks and the utilization of olive oil in their management.

Keywords: Olive Oil, Stretch Marks, Postpartum Mothers

### ABSTRAK

#### PENGARUH PEMBERIAN MINYAK ZAITUN (*Olive Oil*) TERHADAP PEMUDARAN STRETCH MARK PADA IBU NIFAS

Latar Belakang Minyak zaitun dengan kandungan asam lemak, hidrokarbon dan bikarotin, tokoferol, fatty alkohol, waxes, pigmen atau klorofil dan karotenoid, sterol yang sangat baik untuk mengatasi *stretch mark*.

Tujuan Penelitian: Diketahui pengaruh pemberian minyak zaitun (*Olive Oil*) terhadap pemudaran *stretch mark* pada ibu nifas.

Metode Penelitian: Jenis penelitian kuantitatif dengan rancangan *true experimental* melalui pendekatan *pretest-posttest with control grup design*. Populasi 50 ibu nifas pada bulan Januari 2023. Sampel sebanyak 30 dibagi 2 kelompok. Teknik sampling menggunakan *purposive* menggunakan uji *mann whiteny u test*. Penelitian dilaksanakan Januari-Juli 2023.

Hasil Rata-rata *stretch mark* pada ibu nifas sebelum diberi minyak zaitun di Wilayah Kerja Puskesmas Seputih Banyak Kabupaten Lampung Tengah Tahun 2023 dengan *mean* 5,07 dengan kategori parah, Sesudah diberi minyak zaitun *mean* 1,60 mengalami perubahan dan penurunan *stretch mark* dengan kategori ringan. Hasil uji statistic menunjukkan p-value 0,000 (<0,05) artinya terdapat pengaruh pemberian minyak zaitun (*Olive Oil*) terhadap pemudaran *stretch mark* pada ibu nifas. Hasil penelitian menunjukkan bahwa usia saat hamil, indeks massa tubuh saat hamil dan paritas atau jumlah kelahiran mempengaruhi terjadinya *stretch mark*.

Kesimpulan Terdapat pengaruh pemberian minyak zaitun (*Olive Oil*) terhadap pemudaran *stretch mark* pada ibu nifas di Wilayah Kerja Puskesmas Seputih Banyak Kabupaten Lampung Tengah Tahun 2023.

Saran: Peningkatan pengetahuan ibu hamil terkait *stretch mark* dan penggunaan olive oil dalam penanganannya.

Kata Kunci : Minyak Zaitun (*Olive Oil*), *Stretch Mark*, Ibu Nifas

## INTRODUCTION

Stretch marks are scarring of the skin due to stretching during pregnancy and weight gain during pregnancy. About 90% of women have stretch marks especially in the last trimester of pregnancy. Some stretch marks disappear with time, while others stretch marks remain as permanent. (Susilawati, Julia 2017).

According to the World Health Organization (WHO) in 2018 the number of pregnant women experienced an increase of 5% from the previous year or around 300,900 with an incidence rate of 198,800 stretch marks or around 66% during pregnancy. (Widia, 2020).

Stretch marks which in the medical world are referred to as striae gravidarum (pregnancy lines) are caused by tearing of elastic bands (collagen fibers) in the skin. Striae gravidarum or stretch marks that appear on the skin of 50% to 90% of women during the second half of pregnancy can be caused by the action of deonocorticosteroids. (Bingan et al., 2016) Stretch marks sometimes cause an itching sensation. Stretch marks are often seen on the abdomen and buttocks and disappear into lighter shadows after childbirth. (Hani et al., 2010) Stretching in the abdomen that occurs at 28 weeks of pregnancy.

As a result of the many changes faced by mothers during pregnancy, including drastic changes in body shape and skin changes or striae gravidarum, it is not uncommon for mothers to feel anxious and depressed facing these changes. In the USA in 2004 out of 8000 pregnant women there were 21.9% who suffered from anxiety. In Indonesia, there are data on pregnant women who experience anxiety as many as 107,000 people (28.7%). Anxiety can be very dangerous in pregnant women, because it can affect the health of the fetus or the mother (USA, 2004; Susilawati, 2017).

Stretch marks that arise due to pregnancy still occur in many developing countries, one of which is Indonesia, which reaches 95% with varying grades or levels. In Indonesia, this happens a lot because of the lack of health education for women who are pregnant so that they are less precise in handling stretch marks. Meanwhile, based on the Indonesian health profile in 2011, the number of pregnant women in Lampung province in 2011 was 186,372 people or 4.8% and those who experienced stretch marks were 5,355 people or 59.8% (BKKBN, 2014; Susilawati, 2016).

The occurrence of stretch marks is highly influenced by the dermis (skin) layer, as this layer is responsible for supporting the skin and keeping it smooth. The dermis is also home to blood vessels

that transport nutrients to the skin cells. The dermis layer is made of elastic tissue that allows the skin to stretch according to the body's needs. But when the body gets bigger in a short period of time, such as during pregnancy, these fibers weaken and eventually break due to thinning skin. Therefore, the appearance of stretch marks is characterized by the spread of blood vessels through the dermis (skin) layer to the thinned epidermal skin layer. (Elvariny, 2011).

Midwives have an important role in overcoming stretch marks, namely as educators and implementers, including providing supervision and health care for pregnant women or their fetuses. Midwives are obliged to provide education and treatment to pregnant women who complain about the discomfort they experience when they are pregnant due to the appearance of pregnancy lines (Kusmiyati, 2008).

Olive oil with fatty acid content (increases the absorption of substances carried), hydrocarbons and bicarotene (the main component of lubricating and smoothing substances), tocopherols (to maintain skin elasticity), fatty alcohols, waxes, pigments or chlorophyll and carotenoids, sterols (maintain collagen flexibility), has excellent benefits for overcoming stretch marks or pregnancy lines (Miller, 2012., Fakhroh, 2017).

Olive oil is a product obtained from mechanical extraction of *Olea europaea* L. fruit (belonging to the Oleaceae family) which contains 70%-80% fatty acids, its effect on the skin is to increase the absorption of substances carried (squalene,  $\alpha$  tocopherol, and sterols). (Pratami, 2014).

Other minor components in olive oil are hydrocarbons, such as squalene (the main component of lubricating and smoothing agents) and  $\beta$ -carotene. Olive oil also contains  $\alpha$ -tocopherol at 10.6% which is beneficial for maintaining skin elasticity, fatty alcohols, waxes, pigments (chlorophyll and carotenoids), and sterols which function to maintain collagen flexibility. This research is supported by research conducted by Susilawati (2017) with the title Effect of Giving Olive Oil on the Incidence of stretch marks in Pregnant Women at Private Practice Midwife "BPS" DA, Str. Keb Bumi Waras Bandar Lampung. The average value (mean) of stretch marks in pregnant women of 15 respondents who were not given olive oil was 2.93 with a standard deviation of 1.831 while the average value (mean) of stretch marks in pregnant women of 15 respondents given olive oil was 3.13 in a day with a standard deviation of 1.642.

The results of the pre-survey conducted on 10 respondents of postpartum women with stretch marks claimed that previously they never knew about the administration of olive oil can disguise Stretch Mark, then the respondents are willing if later researchers give olive oil with potato extract to disguise Stretch Mark. While from 10 respondents there were 4 who said that previously he had given olive oil.

Based on the description above, the researcher is interested in conducting a study that aims to determine the effect of giving olive oil on the fading of stretch marks in postpartum women in the Working Area of Seputih Banyak Primary Health Care, Central Lampung Regency in 2023.

**RESEARCH METHODS**

The research is a quantitative study. The research design employed a True Experimental design with a pretest-posttest approach using a control group design. The population for this study comprises all postpartum pregnant mothers in the Working Area of Seputih Banyak Primary Health Care, Central Lampung Regency, in January 2023, totaling 50 individuals. Sampling for this research was conducted using purposive sampling technique. The research will be carried out from February to July 2023. Univariate and bivariate analyses will be performed using the t-test.

**RESEARCH RESULTS**

**Respondent Characteristics**

Based on table 1 above, it can be seen that the characteristics of postpartum women in the Seputih Banyak Primary Health Care, Central Lampung Regency in 2023, by looking at the largest number of characteristics, age is not at risk 20-35 years 15 respondents (100%) both intervention and control groups, in the ideal BMI variable as many as 9 respondents (60.0%) intervention group, 14 respondents (93,3%) control group, the highest education is senior high school 10 respondents (66.7%) intervention group, 12 respondents (80.0%) control group, the most work housewife 9 respondents (60.0%) intervention group, 10

respondents (66.7%) control group and the most parity primipara 10 respondents (66.7%) intervention group, 9 respondents (60.0%) control group.

**Table 1**  
**Characteristics of postpartum mothers in the working area of the Seputih Banyak Primary Health Care, Central Lampung Regency in 2023**

| Characteristics    | F  | P (%) | F  | P (%) |
|--------------------|----|-------|----|-------|
| Age                |    |       |    |       |
| Not at Risk        | 15 | 100,0 | 15 | 100,0 |
| IMT                |    |       |    |       |
| Ideal              | 9  | 60,0  | 14 | 93,3  |
| Not Ideal          | 6  | 40,0  | 1  | 6,7   |
| Education          |    |       |    |       |
| Bachelor           | -  | -     | 1  | 6,7   |
| Diploma            | 1  | 6,7   | 1  | 6,7   |
| Senior High School | 10 | 66,7  | 12 | 80,0  |
| Junior High School | 4  | 26,7  | 1  | 6,7   |
| Occupation         |    |       |    |       |
| Merchant           | 4  | 26,7  | 1  | 6,7   |
| Housewife          | 9  | 60,0  | 10 | 66,7  |
| Farmers            | 1  | 6,7   | 3  | 20,0  |
| Civil Servant      | 1  | 6,7   | 1  | 6,7   |
| Parity             |    |       |    |       |
| Multiparous        | 5  | 33,3  | 6  | 40,0  |
| Primiparous        | 10 | 66,7  | 9  | 60,0  |

**Univariate Analysis**

**Intervention Group**

Based on table 2 above, it can be seen that the average stretch marks in postpartum women before being given olive oil in the Working Area of the Seputih Banyak Health Center, Central Lampung Regency in 2023 with a mean of 5.07 with severe categories, the lowest score is 3 and the highest value is 6. Furthermore, after being given olive oil, the mean of 1.60 has changed and decreased stretch marks with mild categories, the lowest score is 1 and the highest score is 3.

**Table 2**  
**Average Stretch Marks in Postpartum Mothers Before and After Given Olive Oil in the Working Area of the Seputih Banyak Primary Health Care, Central Lampung Regency in 2023**

| Stretch Marks | N  | Mean | Min-Max | SD    | SE    |
|---------------|----|------|---------|-------|-------|
| Pretest       | 20 | 5,07 | 3-6     | 0,961 | 0,248 |
| Postes        |    | 1,60 | 1-2     | 0,507 | 0,131 |

Control Group

**Table 3**  
**Average Stretch Marks in Postpartum Mothers in the Group Not Given Olive Oil on Day 1 and Day 15 in the Working Area of the Seputih Banyak Primary Health Care, Central Lampung Regency in 2023**

| Stretch Marks | N  | Mean | Min-Max | SD    | SE    |
|---------------|----|------|---------|-------|-------|
| Pretest       | 20 | 5,87 | 4-7     | 1,060 | 0,274 |
| Postes        |    | 3,00 | 2-4     | 0,756 | 0,195 |

Based on table 3 above, it can be seen that the average stretch marks in postpartum women in the group not given olive oil on day 1 in the Seputih Banyak Primary Health Care, Central Lampung Regency in 2023 with a mean of 5.87 with severe categories, the lowest value is 4 and the highest value is 7. Furthermore, on day 15, the mean of 3.00 remained unchanged with severe categories, the lowest score is 2 and the highest score is 4.

#### Bivariate Analysis

Based on table 4 above, it can be seen that the average stretch marks in postpartum women after being given olive oil mean 1.60 have changed and decreased stretch marks with mild categories. While in the control group on day 15, the mean of 3.00 remained unchanged with the severe category.

The results of the statistical test obtained a p-value of 0.000 (<0.05), which means that there is an effect of giving olive oil (Olive Oil) on the fading of stretch marks in postpartum women in the Working Area of the Seputih Banyak Primary Health Care, Central Lampung Regency in 2023.

**Table 4**  
**The Effect of Olive Oil on Fading Stretch Marks in Postpartum Mothers in the Working Area of the Seputih Banyak Primary Health Care, Central Lampung Regency, 2023**

| Stretch Marks | N  | Mean | SD    | SE    | P-value |
|---------------|----|------|-------|-------|---------|
| Intervention  | 20 | 1,60 | 0,507 | 0,131 | 0,000   |
| Control       | 20 | 3,00 | 0,756 | 0,195 |         |

## DISCUSSION

### Univariate Analysis

Average Stretch Marks in Postpartum Mothers Before and After Given Olive Oil in the Working Area of the Seputih Banyak Primary Health Care, Central Lampung Regency in 2023

The average stretch marks in postpartum women before being given olive oil in the Working Area of the Seputih Banyak Primary Health Care, Central Lampung Regency in 2023 with a mean of 5.07 with a severe category, the lowest score is 3 and the highest value is 6. Furthermore, after being given olive oil, the mean of 1.60 has changed and decreased stretch marks with a mild category, the lowest score is 1 and the highest score is 3.

In line with the theory put forward by Bingan (2016) Stretch marks are lines visible on the abdominal skin of pregnant women. Striae or strokes occur in almost 90% of pregnant women. striae gravidarum occurs in the abdomen due to stretching of the skin in line with the enlargement of the uterus and abdominal wall. The strokes that appear are shaped like indented lines on the surface of the skin with a slightly white color. Sometimes there is itching

in the incision and around it. Many pregnant women complain about stretch marks during pregnancy. Although they cannot be completely removed, their condition can be minimized with early skin care.

According to researchers stretch marks are clinically characterized by linear circles that are initially softly erythematous and gradually fade into discolored skin or hypopigmented atrophic lines that may be thin or wide. Stretch marks occur on the abdomen, breasts, buttocks, hips, and thighs usually developing after the 24th week of pregnancy until the postpartum period. The cause of stretch marks remains largely unknown, but is clearly related to changes in the structure of the skin's tensile strength and elasticity. The technique of stretching the skin is hormonally related.

The mother's saggy and ugly belly will be felt by all postpartum mothers, where in this case the mother is very confused about how to slim down and eliminate the stomach line like before pregnancy. Currently, many postpartum mothers take diet drugs and use "stagen" (postpartum abdominal binder / belly binder ) that is too tight, or even just hear stories

from other mothers so that many of them take diet drugs instead of using natural ingredients.

Average Stretch Marks in Postpartum Mothers in the Group Not Given Olive Oil on Day 1 and Day 15 in the Working Area of the Seputih Banyak Primary Health Care, Central Lampung Regency in 2023

The average stretch marks in postpartum women in the group not given olive oil on day 1 in the Seputih Banyak Primary Health Care, Central Lampung Regency in 2023 with a mean of 5.87 with severe categories, the lowest score is 4 and the highest score is 7. Furthermore, on day 15, the mean of 3.00 remained unchanged with severe categories, the lowest score is 2 and the highest value is 4.

In line with the opinion expressed by Pratami (2020) Striae are lesions resembling linear, sunken, atrophic, pink or purple scarring, which later becomes white (striae albicantes, lineae albicantes), and are usually found in the abdominal area, breasts, buttocks, and thighs. Striae are caused by elastic tissue tearing and are associated with pregnancy, obesity, overly rapid growth during puberty and young adulthood, Cushing's syndrome, and long-term topical corticosteroid treatment. Stretch marks indicate a separation of connective tissue or collagen under the skin. Striae are also commonly called striae distansae (SD), linea atrophicae, or linear atrophy. In fair-skinned women, stretch marks will initially look reddish and then turn white. Based on the color, stretch marks are classified into 4 types including striae albae, for white striae, striae rubrae for red or erythema striae, striae caeruleae for bluish striae, and striae nigrae for blackish striae.

According to researchers stretch marks are the result of the role of glucocorticoids. Glucocorticoids are hormones that regulate carbohydrate, protein and fat metabolism. The role of hormones during pregnancy, glucocorticoids are unfavorable in affecting the skin on the formation of fibroblasts from collagen and elastin fibers. stretch marks in postpartum women occur due to skin elasticity and stretching. Stretch marks are also experienced by those who experience weight changes, bodybuilding or hormonal changes. In postpartum mothers, the skin will become stretched, causing lines in the dermis, the middle layer of the skin. The condition starts with the appearance of reddish or purplish marks on the areas where the skin is getting stretched. The marks appear as parallel lines, of varying colors and textures.

In accordance with the opinion of Boran (2013) When the skin develops to accommodate fetal growth in the womb, there is not enough collagen and elastin fibers to maintain skin firmness so that

collagen-elastin damage is characterized by the occurrence of striae gravidarum.

According to James Diugan (2012) after childbirth, usually the uterus will decrease and become heavier than before. The postpartum women who were the subjects in this study were postpartum women on days 1-20. This is because if more than 20 days of postpartum women's abdominal slack has somewhat returned and is not visible.

### **Bivariate Analysis**

The Effect of Olive Oil on Fading Stretch Marks in Postpartum Mothers in the Working Area of the Seputih Banyak Primary Health Care, Central Lampung Regency in 2023

The results of the statistical test obtained a p-value of 0.000 (<0.05), which means that there is an effect of giving olive oil (Olive Oil) on the fading of stretch marks in postpartum women in the Working Area of the Seputih Banyak Primary Health Care, Central Lampung Regency in 2023.

In accordance with the theory of Cuningham (2010, cited by Pratami, 2015) Pregnancy will affect the mother's body as a whole by causing physiological changes that essentially occur throughout the organ system. Most of the changes that occur in the mother's body are temporary and caused by hormonal work. This hormonal work then causes changes in the uterus, vagina, breasts, urinary tract, gastrointestinal tract, respiratory tract, skeleton, joints, body metabolism, cardio vascular and skin. One of the changes in the skin is seen in the surface of the skin which becomes very stretched. In addition, increased hormone secretion in the adrenal cortex due to pregnancy causes the collagen fibers of the skin to rupture, which is then called striae gravidarum. In weeks 18 to 32, there is an over distance of the abdominal wall and striae gravidarum is strongly associated with relaxin hormone.

In this study, the average stretch mark in postpartum women after being given olive oil means 1.60 changes and a decrease in stretch marks with a mild category. While in the control group on day 15, the mean of 3.00 remained unchanged with the severe category.

According to the researcher, this difference is related to the intervention provided, olive oil is a form of pharmaceutical preparation that is used topically or applied to the surface of the skin. Olive oil is ideal for use as a wound closure agent because it can help remove dead tissue. Olive oil is able to create moist conditions in the wound area so that it will create a cool feeling that can reduce swelling around the

wound so that it will accelerate the wound healing process.

The occurrence of stretch marks is highly influenced by the dermis layer, as this layer is responsible for supporting the skin and keeping it smooth. The dermis is also home to blood vessels that transport nutrients to the skin cells. The dermis layer is made of elastic tissue that allows the skin to stretch according to the body's needs. But when the body gets bigger in a short period of time, such as during pregnancy, these fibers weaken and eventually break due to thinning skin. Therefore, the appearance of stretch marks is characterized by the spread of blood vessels through the dermis layer to the thinning epidermis skin layer (Evariny, 2011).

In line with the research of Putu Candrawati et al (2021) that the average reduction in striae gravidarum in the intervention group using olive oil based on the highest age is age <20-25 years as many as 14 respondents experienced a decrease in mean pretest 2.375 to mean posttest 0.929. Age during pregnancy is closely related to the elasticity of one's skin. The younger the age (<20-25 years), the faster the striae gravidarum will decrease compared to the older age (>25 years). This is due to fat deposits in the skin and skin elasticity that decreases with age.

In line with the research of Dainty Maternity and Elya Eva (2018) that there is an increase in striae gravidarum when viewed on the characteristics of BMI (Body Mass Index). The mother's BMI during pregnancy will affect the onset of striae gravidarum, one example is that pregnant women who have an ideal BMI or less after pregnancy experience changes in BMI will affect the striae gravidarum that arises. This shows that striae gravidarum increases with increasing maternal weight and increasing the size of the mother's abdomen.

In line with research by Renad A Alageel et al (2021), it shows that the number of births or parity affects stretch marks. The prevalence of stretch marks will be higher in multiparity. This is influenced by a history of stretch marks in previous pregnancies. If there were stretch marks in the previous pregnancy, there will be an increase in the number of stretch marks in the current pregnancy.

Removing stretch marks can usually be started with the use of treatment creams and oils that contain rich vitamins A, B, C and E. The application of oil can help moisturize the skin, for example by using oil several times a day applied to the abdomen. In addition, risk factors must also be prevented, for example by maintaining a healthy weight.

Besides being used for various dishes, olive oil is also effective for beauty treatments. Olive oil is

rich in vitamin E which is anti-aging and tightens the skin. Olive oil is also useful for smoothing and moisturizing the skin surface without clogging the pores. Olive oil is a good moisturizer for moisturizing facial and body skin. In addition, olive oil is useful for removing layers of dead skin cells. Moisturize and make the skin feel softer. For thousands of years the benefits of olive oil have been used for health care and as a cosmetic ingredient.

## CONCLUSION

The results of the statistical test obtained a p-value of 0.000 (<0.05) which means that there is an effect of giving olive oil on the fading of stretch marks in postpartum women in the Working Area of the Seputih Banyak Primary Health Care, Central Lampung Regency in 2023.

## SUGGESTIONS

It is hoped that the results of this study can increase maternal knowledge about stretch marks and how to handle them through herbal remedies such as olive oil which is easily available, and it is hoped that postpartum women will diligently consume foods that contain lots of protein which can increase skin elasticity so as to prevent striae gravidarum.

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