

Comparative Effectiveness of *Virgin Coconut Oil* and Olive Oil on *Striae Gravidarum* in Pregnant Women During the Second and Third Trimesters at TPMB Sumartini Purwakarta, 2026

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ABSTRAK

Striae gravidarum is a skin condition experienced by the majority of pregnant women, with a global prevalence of 50–70% (WHO, 2024), 70–95% in Indonesia (2025), and a preliminary survey at TPMB Sumartini Purwakarta (2026) identifying approximately 40 cases. This condition affects mothers physically, psychologically, functionally, and in terms of quality of life. *Virgin Coconut Oil* (VCO), rich in lauric acid, and olive oil, containing oleic acid and antioxidants, are believed to help maintain skin elasticity. This study used a *quasi-experimental two-group pretest-posttest design* with 36 respondents (18 receiving VCO, 18 receiving olive oil). The severity of striae was measured using the *Davey Score*, and the data were analyzed using the *Paired Samples T-Test* and *Independent Samples T-Test*. The results showed a significant decrease in scores in both groups ($p < 0.000$). The mean score reduction in the VCO group was 2.00, while in the olive oil group it was 1.33. The *Independent Samples T-Test* showed a significant difference ($p < 0.05$), with VCO proving more effective. VCO was shown to be more effective than olive oil in reducing the severity of striae gravidarum; therefore, its routine use from the second trimester onward is recommended as a preventive measure to maintain skin elasticity, minimize the risk of striae, and improve the comfort and confidence of pregnant women.

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INTRODUCTION

Striae gravidarum, or stretch marks, are one of the most common skin problems experienced by pregnant women, particularly in the second and third trimesters. These linear marks appear as a result of excessive skin stretching during pregnancy, characterized by a color change from reddish-purple to silvery white, and often leave permanent traces (Dainty, 2020). This condition not only affects aesthetic

appearance but also causes physical complaints such as itching and pain, functional impairment, reduced comfort, and psychological issues in the form of diminished self-confidence (Masthura, 2024).

The incidence of *striae gravidarum* is reported to be quite high; WHO (2024) reported a global prevalence of 50–70%, research in Indonesia found a prevalence of 70–95% (Syifa, 2025), and a preliminary survey at TPMB Sumartini Purwakarta (2026) recorded around 40 cases. These findings confirm that *striae gravidarum* is a significant skin health problem among pregnant women, yet its management remains suboptimal.

Various factors contribute to the emergence of *striae gravidarum*, including mechanical skin stretching due to fetal growth and hormonal changes. Increased levels of estrogen, progesterone, relaxin, and cortisol are known to weaken collagen and elastin tissue, making the skin more prone to micro-tears (Prasida, 2024). Therefore, efforts to prevent and manage *striae gravidarum* need to be carried out early using a safe and effective approach.

One intervention that has been widely studied is the use of natural ingredients such as *Virgin Coconut Oil* (VCO) and olive oil. VCO contains 92% saturated fatty acids, primarily lauric acid, as well as vitamins A, C, and E, which act as emollients and antioxidants (Gusrida, 2024). Olive oil is rich in oleic acid, squalene, and polyphenols, which can improve skin hydration and maintain dermal elasticity (Susilawati, 2020). Both ingredients are believed to reduce the risk of *striae gravidarum*, however, previous research findings remain varied and inconsistent (Nunes et al., 2021; Astikasari et al., 2020).

Given the high prevalence of *striae gravidarum* and the inconsistent findings regarding the effectiveness of Virgin Coconut Oil (VCO) and olive oil, further research is needed to clarify the comparative effectiveness of these two interventions. Previous studies have reported that both VCO and olive oil may help reduce the severity of *striae gravidarum*. However, direct comparative studies examining the effectiveness of VCO and olive oil, particularly among second- and third-trimester pregnant women, remain limited. Therefore, this study was conducted to compare the effectiveness of VCO and olive oil in reducing the

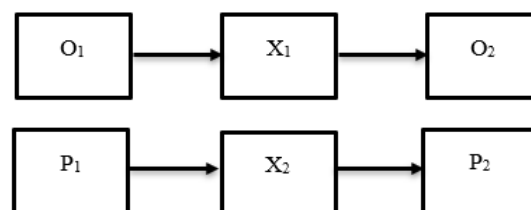
severity of *striae gravidarum* among second- and third-trimester pregnant women in the working area of TPMB Sumartini Purwakarta in 2026. The findings are expected to provide additional scientific evidence regarding the comparative effectiveness of these two interventions and serve as a basis for practical recommendations for healthcare workers and pregnant women in managing and reducing the severity of *striae gravidarum*.

METHODS

This study used a *quasi-experimental* design. A quasi-experimental study is a type of research that involves intervention, impact measurement, and experimental units, but does not use random assignment in group allocation. The purpose of this design is to create comparisons that can be used to draw conclusions about changes caused by the intervention, so this study falls into the quasi-experimental category.

The research design used was a *two-group pretest-posttest design*. In this design, observations were made twice: before the intervention (*pre-test*) and after the intervention (*post-test*). This study included two intervention groups: a group given *Virgin Coconut Oil* (VCO) and a group given olive oil. The study sample consisted of 36 second- and third-trimester pregnant women who met the inclusion criteria, who were then divided into two intervention groups of 18 respondents each. The severity of *striae gravidarum* was measured using the *Davey Score*, an assessment instrument that evaluates the distribution and severity of marks on the abdomen of pregnant women.

The data obtained were analyzed using the *Paired Samples T-Test* to examine differences in scores before and after the intervention within each group, and the *Independent Samples T-Test* to compare the effectiveness between the VCO and olive oil groups.



Skema 4. 1 Research Design

Notes:

- O1 : *Striae gravidarum* before VCO administration (*pre-test*)
- X1 : Administration of VCO
- O2 : *Striae gravidarum* after VCO administration (*post-test*)
- P1 : *Striae gravidarum* before Olive Oil administration (*pre-test*)
- X2 : Administration of Olive Oil
- P2 : *Striae gravidarum* after Olive Oil administration (*post-test*)

This study was conducted over approximately 1 month (4 weeks), from January 19 to February 16, 2026, in the working area of TPMB Sumartini Purwakarta. The study population consisted of second- and third-trimester pregnant women experiencing *striae gravidarum* who underwent antenatal check-ups in that working area, totaling 40 people.

The sampling technique used was *non-probability sampling* with a *purposive sampling* method, in which samples were selected based on specific criteria consistent with the study's objectives. Based on calculations using the *Frederer* formula, the minimum sample size was 16 respondents. However, to anticipate possible dropout, a correction was made so that the sample used consisted of 36 respondents, divided into 18 respondents in the *Virgin Coconut Oil* (VCO) intervention group and 18 respondents in the olive oil intervention group.

Data collection was carried out using a *Davey Score* observation sheet used to assess the severity of *striae gravidarum*. Observations were made twice: before the intervention (*pre-test*) and after the intervention (*post-test*). The data obtained were analyzed in two stages: univariate analysis and bivariate analysis. Univariate analysis aimed to describe respondent characteristics and the distribution of *striae gravidarum* scores before and after the intervention, with results presented as frequency distributions, percentages, and mean values.

Bivariate analysis was conducted to determine differences in the effectiveness of VCO and olive oil on *striae gravidarum*. The statistical tests used were the Paired Samples T-Test to compare pre-test and post-test scores within each group, and the Independent Samples T-Test to compare results between intervention groups. With this analysis, the researcher could assess differences in *striae gravidarum* scores before and after the intervention, as well as determine which intervention was more

effective in reducing the severity of *striae gravidarum* in second- and third-trimester pregnant women.

RESULT AND DISCUSSION

1. Univariate Analysis

Univariate analysis was conducted to describe the characteristics of each study variable. In this study, univariate analysis was used to describe respondent characteristics, including age, *Body Mass Index* (BMI), and skin type. Data are presented as frequency distributions and percentages.

a. Respondent Characteristics by Age

The distribution of respondents based on age in the working area of TPMB Sumartini Purwakarta in 2026 is presented in the following table.

Table 1 Distribution of Respondent Characteristics by Age in the Working Area of TPMB Sumartini Purwakarta, 2026

No	Age	Frekuensi	Percentage (%)
1	20-35 tahun	31	86,10
2	<20 atau >35 tahun	5	13,90
Total		36	100,00

Based on Table 1, of the 36 pregnant respondents, the majority were aged 20–35 years, namely 31 people (86.10%), while respondents aged <20 or >35 years numbered 5 people (13.90%). These findings indicate that the majority of respondents were of reproductive age, considered ideal for pregnancy. However, the results also show that *striae gravidarum* was still found among the reproductive age group, ranging from 19 to around 35 years, indicating that reproductive age does not fully protect pregnant women from the possibility of developing striae.

Maternal age before pregnancy can affect skin elasticity; younger mothers generally have more supple skin, so the risk of *striae gravidarum* is relatively lower. Conversely, at older ages, skin elasticity decreases, making stretching due to pregnancy more likely to cause marks. Masthura (2024) confirms that as maternal age increases, the risk of *striae gravidarum* can increase due to reduced collagen and elastin fibers in skin tissue.

Research by Variha et al. (2024) showed a significant relationship between maternal age and the incidence of *striae gravidarum*, with a higher risk in women over 35 years of age. Wahyuni (2021) also reported that pregnant women of ideal reproductive age experienced striae less often than those of extreme ages (<20 or >35 years), but cases of striae were still found in the reproductive age group. This is consistent with the physiological theory that skin elasticity decreases with age due to reduced collagen and elastin fibers.

However, research by Osman et al. (2020) showed that *striae gravidarum* can appear across various age groups, including reproductive age, indicating that age is not the sole determinant. This study emphasized that interactions with other factors, such as weight gain, nutritional status, and skin moisture, play a greater role in triggering striae. Thus, although maternal age affects skin elasticity, other research findings confirm that striae can still occur at reproductive ages considered ideal.

Based on Table 2, of the 36 pregnant respondents, the majority had a normal BMI category, namely 31 people (86.10%), with 3 people (8.30%) in the overweight category, 1 person (2.80%) underweight, and 1 person (2.80%) with obesity. These findings indicate that the majority of respondents had appropriate nutritional status before pregnancy, although a small proportion of respondents were underweight or obese.

Maternal weight category before pregnancy affects the risk of developing *striae gravidarum*. Mothers with low BMI have thinner skin, making them more prone to stretching, while mothers with high BMI or obesity tend to experience excessive weight gain, which accelerates the appearance of striae (Aritha, 2020). This is consistent with the physiological mechanism whereby obesity increases subcutaneous fat tissue accumulation, accelerating skin stretching, while being underweight causes less elastic skin due to a thinner dermal layer.

Research by Effendi et al. (2024) showed that high BMI is significantly associated with the incidence of *striae gravidarum* due to excessive skin stretching. Khairiah (2023) also supported the finding that obese mothers experience striae more often than mothers with normal BMI. Research by Hastuti (2023) added that

mothers with overweight and obese BMI tend to have higher striae scores than the normal BMI group.

However, international research by Osman et al. (2020) showed that *striae gravidarum* occurs not only in mothers with extreme BMI, but can also appear in mothers with normal BMI. This study emphasized that other factors, such as family history, skin moisture, and weight gain during pregnancy, also play a role in triggering striae. Thus, although nutritional status before pregnancy is an important predisposing factor, other research findings confirm that BMI is not the sole determinant in the occurrence of *striae gravidarum*.

b. Responden Characteristic by Skin Type

The distribution of respondents based on skin type in the working area of TPMB Sumartini Purwakarta in 2026 is presented in the following table.

Tabel 3 Distribution of Respondent Characteristics by Skin Type in the Working Area of TPMB Sumartini Purwakarta, 2026

No	Skin Type	Frekuensi	Percentage (%)
1	Kering	5	13,90
2	Lembap	31	86,10
Total		36	100,00

Based on Table 3, of the 36 pregnant respondents, the majority had moist skin type, namely 31 people (86.10%), while respondents with dry skin type numbered 5 people (13.90%). These findings indicate that the majority of respondents had relatively good skin moisture. However, the results also show that *striae gravidarum* was still found in the moist skin group, indicating that skin moisture does not fully protect pregnant women from the possibility of developing striae.

Skin moisture is a protective factor against the emergence of *striae gravidarum*. Moist skin is more supple and better able to adapt to physical changes during pregnancy, whereas dry skin is more prone to tearing of collagen fibers due to stretching. Melyana (2022) confirms that skin moisture plays an important role in preventing *striae gravidarum*. Research by Wildan Syauqi et al. (2024) showed that pregnant women with moist skin experience striae less often than those with dry skin. Fenny (2020) also supports the finding that skin moisture helps maintain the

integrity of collagen and elastin fibers, making the skin more resistant to stretching.

However, research by Hastuti (2023) showed that skin moisture does not fully protect pregnant women from *striae gravidarum*. Mothers with moist skin can still experience striae if they have other risk factors, such as excessive weight gain or high BMI. International research by Osman et al. (2020) also confirms that skin moisture only acts as a relative protective factor, as striae can still appear due to interactions with other factors such as nutritional status, age, and family history. Thus, skin moisture is not the sole determinant, so the prevention of *striae gravidarum* must be carried out comprehensively.

c. *Characteristics of Striae Gravidarum Before Intervention (Pretest)*

Tabel 5. 4 Frequency Distribution of Striae Gravidarum Characteristics Before (Pretest) Administration of Virgin Coconut Oil and Olive Oil in the Working Area of TPMB Sumartini Purwakarta, 2026

No	Category	VCO		Olive Oil	
		Frekuensi	Percentage (%)	Frekuensi	Percentage (%)
1	Not Significant	0	0,00	0	0,00
2	Mild	13	72,20	7	38,90
3	Moderate	5	27,80	11	61,10
4	Severe	0	0,00	0	0,00
Total		18	100,00	18	100,00

Based on Table 4, the characteristics of *striae gravidarum* before (pretest) VCO administration showed that the majority of respondents were in the moderate category, namely 13 people (72.20%), the mild category 4 people (22.20%), and the severe category 1 person (5.60%). Meanwhile, the characteristics of *striae gravidarum* before (pretest) olive oil administration showed that the majority were in the moderate category, namely 15 people (83.30%), the mild category 3 people (16.70%), with none in the severe category (0.00%).

These findings indicate that before the intervention, the majority of pregnant women experienced *striae gravidarum* of moderate severity. This is consistent with the theory that *striae gravidarum* generally begins to appear in the second and third trimesters due to intense skin stretching, particularly in the abdominal area.

According to Wahyuni (2021), most pregnant women experience striae of moderate severity due to repeated skin stretching, although factors such as BMI, weight gain, and skin moisture also influence the level of severity.

Research by Khairiah (2023) also showed that before intervention, the majority of pregnant women had striae scores in the moderate category. This is consistent with international research by Osman et al. (2020), which confirms that *striae gravidarum* is most commonly found in the moderate category, as the skin is still partially able to adapt to stretching, despite damage to collagen fibers.

d. **Characteristic of *Striae Gravidarum* After Intervention (Posttest)**

Tabel 5 Frequency Distribution of Striae Gravidarum Characteristics After (Posttest) Administration of Virgin Coconut Oil and Olive Oil in the Working

No	Category	VCO		Olive Oil	
		Frekuensi	Percentage (%)	Frekuensi	Percentage (%)
1	Not Significant	0	0,00	0	0,00
2	Mild	13	72,20	7	38,90
3	Moderate	5	27,80	11	61,10
4	Severe	0	0,00	0	0,00
Total		18	100,00	18	100,00

Area of TPMB Sumartini Purwakarta, 2026

Based on Table 5 the characteristics of *striae gravidarum* after (posttest) VCO administration showed that the majority of respondents were in the mild category, namely 13 people (72.20%), the moderate category 5 people (27.80%), with none in the severe category (0.00%). Meanwhile, the characteristics of *striae gravidarum* after (posttest) olive oil administration showed that the majority were in the moderate category, namely 11 people (61.10%), the mild category 7 people (38.90%), with none in the severe category (0.00%).

These findings indicate an improvement after the intervention, particularly in the VCO group, where the majority of respondents shifted into the mild category. This is consistent with the theory that the fatty acid, vitamin E, and antioxidant content of VCO helps maintain skin moisture, improve elasticity, and accelerate tissue regeneration. According to Gusrida (2024), routine use of VCO can significantly reduce the intensity of *striae gravidarum*.

Research by Hastuti (2023) also supports the finding that VCO is more effective than olive oil in reducing striae scores due to its *medium chain fatty acid* content, which is absorbed by the skin more quickly. However, research by Khairiah (2023) confirms that olive oil still provides a positive effect by reducing striae intensity, although the results are not as strong as VCO. International research by Nunes et al. (2021) adds that vegetable oils such as olive oil have an emollient effect that helps maintain skin moisture, but their effectiveness depends on consistency of user.

International research by Oliveira et al. (2021) reported that the effectiveness of vegetable oils, including VCO, in preventing or reducing *striae gravidarum* remains inconsistent. Some respondents still experienced striae despite regular VCO use, so its effectiveness was not considered superior to olive oil or other moisturizers. This study emphasized that genetic factors, family history, and the degree of skin stretching due to weight gain play a greater role than the type of oil used. Thus, although VCO has been shown to provide benefits for most respondents, other research findings confirm that not all pregnant women experience significant effects, so the effectiveness of the intervention may vary.

2. Normality Test

After conducting the univariate analysis, a bivariate analysis was carried out to determine the relationships or differences between study variables. A normality test was performed as a prerequisite before the bivariate analysis, to determine whether the *striae gravidarum* score data were normally distributed. The normality test was conducted using the *Shapiro-Wilk Test* with the help of SPSS software.

Tabel 6 Uji Normality Test

<i>Shapiro Wilk</i>			
Indicator	N	Sig.	Description
Pretest VCO	18	0,220	Normal
Pretest Minyak Zaitun	18	0,246	Normal
Posttest VCO	18	0,357	Normal
Posttest Minyak Zaitun	18	0,307	Normal

Based on the results of the *Shapiro-Wilk* normality test in Table 5.6, the decision-making basis is that if the significance value (p-value) > 0.05, the data are considered normally distributed. In the *Virgin Coconut Oil* (VCO) group, the *striae gravidarum* score before the intervention (pretest) showed a p-value of 0.220 (>0.05), while after the intervention it was 0.357 (>0.05). This indicates that the *striae gravidarum* score data in the VCO group were normally distributed both before and after the intervention. Meanwhile, in the olive oil group, the *striae gravidarum* score before the intervention had a p-value of 0.246 (>0.05), and after the intervention 0.307 (>0.05). Thus, the data in the olive oil group were also normally distributed.

These results indicate that all *striae gravidarum* score variables in both intervention groups met the assumption of normality. Therefore, the bivariate analysis could proceed using parametric tests. The *Paired Samples T-Test* was used to examine differences in scores before and after the intervention within each group, while the *Independent Samples T-Test* was used to compare the effectiveness between groups (VCO and olive oil).

3. Bivariate Analysis

Bivariate analysis was conducted to determine the relationship or difference between two study variables. In this study, bivariate analysis was used to compare *striae gravidarum* scores before and after the intervention in each group (VCO and olive oil), as well as to examine differences in effectiveness between the two intervention groups.

a. *Paired Samples T-Test*

Tabel 7 Effect of Virgin Coconut Oil (VCO) on Striae Gravidarum in Second- and Third-Trimester Pregnant Women

<i>Skor</i>	N	Mean	Std. Deviasi	Min.	Max	<i>p-value</i>
<i>Pretest</i>	18	10,78	1,987	7	16	0,000
<i>Posttest</i>	18	8,78	1,734	5	13	
Difference		2,00	0,686	2	3	

Based on the analysis in Table 7, of the 18 respondents, the *striae gravidarum* score of second- and third-trimester pregnant women before (pretest) VCO intervention had a mean value of 10.78 with a standard deviation of 1.987, a

lowest score of 7, and a highest score of 16. After (posttest) VCO intervention, the mean value obtained was 8.78 with a standard deviation of 1.734, a lowest score of 5, and a highest score of 13. The mean score reduction was 2.00 with a standard deviation of 0.686, with a minimum value of 2 and a maximum of 3. The statistical test results showed a p-value of $0.00 < 0.05$, so it can be concluded that *Virgin Coconut Oil* (VCO) has a significant effect on reducing striae gravidarum in second- and third-trimester pregnant women.

The *medium chain fatty acid* (MCFA), vitamin E, and antioxidant content of VCO helps maintain skin moisture, improve elasticity, and accelerate dermal tissue regeneration. According to the theory proposed by Gusrida (2024), VCO can repair the structure of collagen and elastin, making the skin more resistant to stretching. Research by Hastuti (2023) also showed that routine use of VCO can significantly reduce the intensity of *striae gravidarum*. Thus, the findings of this study are consistent with theory and literature indicating that VCO is effective in reducing striae gravidarum in second- and third-trimester pregnant women. The mean score reduction of 2.00 indicates a meaningful clinical effect from the use of VCO as a natural intervention.

Tabel 8 Effect of Olive Oil on Striae Gravidarum in Second- and Third-Trimester Pregnant Women

Skor	N	Mean	Std. Deviasi	Min.	Max	p-value
<i>Pretest</i>	18	11,28	1,602	9	14	0,000
<i>Posttest</i>	18	9,94	1,626	7	13	
Difference		1,33	0,485	2	1	

Based on the analysis in Table 8, of the 18 respondents, the *striae gravidarum* score of second- and third-trimester pregnant women before (pretest) olive oil intervention had a mean value of 11.28 with a standard deviation of 1.602, a lowest score of 9, and a highest score of 14. After (posttest) olive oil intervention, the mean value obtained was 9.94 with a standard deviation of 1.626, a lowest score of 7, and a highest score of 13. The mean score reduction was 1.33 with a standard deviation of 0.485, with a minimum value of 2 and a maximum of 1. The statistical test results showed a p-value of $0.00 < 0.05$, so it can be concluded that

olive oil has a significant effect on reducing *striae gravidarum* in second- and third-trimester pregnant women.

Olive oil contains *oleic acid*, *squalene*, and *polyphenols*, which function as natural emollients, improve skin moisture, and protect dermal tissue from oxidative damage. According to Khairiah (2023), routine use of olive oil can reduce *striae gravidarum* scores, although the results are relatively smaller compared to VCO. International research by Nunes et al. (2021) also confirms that vegetable oils with high emollient content, including olive oil, are effective in maintaining skin elasticity during pregnancy.

However, research by Putri Gustiriana (2022) found that both VCO and *Extra Virgin Olive Oil* (EVOO) had a significant effect on reducing *striae gravidarum*, but there was no significant difference between the two (p-value 0.337). This indicates that the effectiveness of VCO is not always superior to olive oil. International research by Oliveira et al. (2021) also reported that the effectiveness of vegetable oils in preventing or reducing *striae gravidarum* remains inconsistent, as some respondents still experienced *striae* despite regular use of either VCO or olive oil. These findings confirm that genetic factors, family history, and the degree of skin stretching due to weight gain play a greater role than the type of oil used. Thus, the results of this study show that olive oil still provides a protective effect against *striae gravidarum*, with a mean score reduction of 1.33. This indicates that olive oil can be used as an alternative natural intervention to reduce *striae gravidarum*, although its effect is more moderate compared to VCO.

b. Independent Samples T-Test

Tabel 9 Comparative Effectiveness of Virgin Coconut Oil (VCO) and Olive Oil on Striae Gravidarum Scores

Intervention Group	Mean	Mean Difference	Sig.(2-tailed)
VCO	8,78	2,00	0,045
Olive Oil	9,94	1,33	

Based on the results of the *Independent Samples T-Test* in Table 9, the *striae gravidarum* score after (posttest) the intervention showed a p-value of 0.045 ($< \alpha$ 0.05). This means that H_0 is rejected and H_a is accepted, indicating a significant difference in *striae gravidarum* scores after the intervention between the *Virgin Coconut Oil* (VCO) and olive oil groups. As shown in the table, the mean score reduction in the *Virgin Coconut Oil* (VCO) group was 2.00, while in the olive oil group it was 1.33. Thus, it can be concluded that after the intervention, there was a difference in effectiveness between *Virgin Coconut Oil* (VCO) and olive oil, with *Virgin Coconut Oil* (VCO) being more effective in reducing *striae gravidarum* in second- and third-trimester pregnant women in the working area of TPMB Sumartini Purwakarta in 2026.

According to theory, the effectiveness of VCO can be explained by its content of *medium chain fatty acids* (MCFA), vitamin E, and antioxidants, which are absorbed by the skin more quickly, enabling it to repair damaged collagen fibers and improve dermal elasticity. Olive oil, on the other hand, contains *oleic acid*, *squalene*, and *polyphenols*, which function as natural emollients, maintain skin moisture, and protect against oxidative damage, but with a more moderate effect.

Research by Hastuti (2023) and Rasyidah & Hasanah (2025) support these findings by showing that VCO is more effective than olive oil in reducing *striae gravidarum* scores. However, research by Putri Gustiriana (2022) found that both VCO and *Extra Virgin Olive Oil* (EVOO) had a significant effect on reducing *striae gravidarum*, but there was no significant difference between the two (p-value 0.337). International research by Nunes et al. (2021) also reported that the effectiveness of vegetable oils, including olive oil, remains inconsistent. Some respondents still experienced *striae* despite regular use of either VCO or olive oil, so their effectiveness was not considered superior to other moisturizers. In addition, research by Bahrami et al. (2020) confirms that genetic factors, family history, and the degree of skin stretching due to weight gain play a greater role than the type of oil used. Although the results of this study show a significant difference between VCO and olive oil, other literature confirms that the effectiveness of both can vary and is not always significantly different. Thus, the

results of this study are consistent with theory and literature indicating that both VCO and olive oil have an effect on reducing *striae gravidarum*. However, based on the statistical test results conducted in this study, *Virgin Coconut Oil* (VCO) has been shown to be more effective than olive oil, so it can be recommended as a superior natural intervention for reducing *striae gravidarum* in second- and third-trimester pregnant women.

c. Relationship Between Age, Body Mass Index (BMI), Skin Type, and Striae Gravidarum

Tabel 10 Relationship Between Age, Body Mass Index (BMI), Skin Type, and Striae Gravidarum

Variable	<i>r</i> -(Pearson)	<i>p</i> -value	Description
Usia	0,102	0,555	Not significant
BMI	-0,050	0,770	Not significant
Tipe Kulit	0,084	0,628	Not significant

the results of the *Pearson Correlation* test in Table 5.10, the variables of age, BMI, and skin type had no significant relationship with *striae gravidarum* scores after the intervention ($p > 0.05$). This indicates that respondent characteristics did not affect the effectiveness of *Virgin Coconut Oil* (VCO) or olive oil administration. Thus, differences in *striae gravidarum* scores can be better explained by the type of intervention given, rather than by factors of age, BMI, or skin moisture.

These findings are consistent with research by Hastuti (2023) and Rasyidah & Hasanah (2025), which confirms that the effectiveness of VCO is more determined by its content of *medium chain fatty acids*, vitamin E, and antioxidants that repair collagen and elastin structure, rather than by respondents' basic characteristics. Research by Khairiah (2023) also supports the finding that olive oil provides a protective benefit, but with more moderate results compared to VCO, unaffected by maternal age or BMI.

However, the results of this study are inconsistent with the findings of Osman et al. (2020), which state that skin moisture and maternal nutritional status interact with intervention effectiveness, so respondent characteristics still play a role in the emergence of *striae gravidarum*. International research by Nunes

et al. (2021) also adds that vegetable oils such as olive oil have emollient effects that vary depending on consistency of use and the skin condition of pregnant women. Thus, the results of this study confirm that age, BMI, and skin type are not the main determinants of intervention effectiveness. The more dominant factor is the type of oil used—*Virgin Coconut Oil* or olive oil—as well as the consistency of application during pregnancy.

CONCLUSIONS AND RECOMMENDATIONS

Based on the results and discussion of the Comparison of the Effectiveness of *Virgin Coconut Oil* and Olive Oil on *Striae Gravidarum* in Second- and Third-Trimester Pregnant Women in the Working Area of TPMB Sumartini Purwakarta in 2026, it can be concluded that:

1. The *Paired Samples T-Test* results showed that in the *Virgin Coconut Oil* (VCO) group, the *striae gravidarum* score decreased from a mean of 10.78 to 8.78, a reduction of 2.00 (p-value $0.00 < 0.05$). This indicates that VCO has an effect on reducing *striae gravidarum*.
2. The *Paired Samples T-Test* results showed that in the Olive Oil group, the *striae gravidarum* score decreased from a mean of 11.28 to 9.94, a reduction of 1.33 (p-value $0.00 < 0.05$). This indicates that olive oil has an effect on reducing *striae gravidarum*.
3. The *Independent Samples T-Test* results showed that before the intervention, there was no significant difference in *striae gravidarum* scores between the VCO and olive oil groups (p-value $0.412 > 0.05$). However, after the intervention there was a significant difference (p-value $0.045 < 0.05$), with the VCO group showing a greater score reduction than the olive oil group. This indicates a difference in effectiveness between *Virgin Coconut Oil* (VCO) and olive oil on *striae gravidarum*.
4. The majority of respondents were in the reproductive age group of 20–35 years, namely 31 people (86.10%), while those aged <20 or >35 years numbered 5 people (13.90%). The correlation test results showed no

significant relationship or effect between age and *striae gravidarum* score after the intervention ($p > 0.05$). This confirms that although most respondents were of ideal age for pregnancy, *striae gravidarum* can still occur, so age is not the primary determinant.

5. Nutritional status based on BMI showed that the majority of respondents had a normal BMI, namely 31 people (86.10%), with a small proportion being overweight, underweight, and obese. The correlation test results showed no significant relationship or effect between BMI and *striae gravidarum* score after the intervention ($p > 0.05$). This confirms that although most respondents were in the normal nutritional category, *striae gravidarum* was still found in the overweight and obese groups, so nutritional status is not the primary determining factor.
6. Skin type showed that the majority of respondents had moist skin, namely 31 people (86.10%), while 5 people (13.90%) had dry skin. The correlation test results showed no significant relationship or effect between skin type and *striae gravidarum* score after the intervention ($p > 0.05$). This shows that although moist skin is protective, *striae gravidarum* can still appear, so skin moisture is not the sole determinant.

Thus, it can be concluded that *Virgin Coconut Oil* and olive oil are both effective in reducing the intensity of *striae gravidarum* in second- and third-trimester pregnant women; however, *Virgin Coconut Oil* was shown to be more effective than olive oil, and the factors of age, BMI, and skin type showed no significant relationship or effect on the intervention outcomes.

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