

The Effect of A Lemon And Honey Mask On Acne In Combined Injectable Contraceptive Users At The Rosida Family Planning Center Purwakarta In 2026

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Abstract.

Acne is a side effect that can be experienced by those taking combined contraceptive injections due to hormonal changes that increase sebum production on the facial skin. One alternative non-pharmacological treatment is a lemon and honey mask, which contains antibacterial, anti-inflammatory, and antioxidant properties.

This study aimed to determine the effect of a lemon and honey mask on acne in those taking combined contraceptive injections at the Rosida Purwakarta TPMB in 2026. This study used a quasi-experimental method with a two-group pretest-posttest design. The study sample consisted of 64 respondents, consisting of an intervention group and a control group of 32 respondents each, using a purposive sampling technique. The intervention group was given a lemon and honey mask, while the control group received no special treatment. Data analysis used the Wilcoxon test.

The results showed that before the intervention, most respondents experienced grade 2 acne. After administering the lemon and honey mask, the intervention group experienced a decrease in acne levels, with an increase in grade 1 acne of 22 respondents (68.8%). The statistical test results showed a p-value of 0.001 ($p < 0.05$), indicating that the lemon and honey mask significantly reduced acne levels in those taking combination contraceptive injections.

The lemon and honey mask is effective as a safe, easy, and economical non-pharmacological treatment alternative to help reduce acne in those taking combination contraceptive injections.

Keywords: Acne, Combination Contraceptive Injections, Lemon and Honey.

I. INTRODUCTION

The Family Planning (FP) Program is a government program aimed at improving reproductive health and family well-being. Contraceptive use helps couples of childbearing age regulate the spacing of their pregnancies and plan their families responsibly. One widely used contraceptive method is the combined contraceptive injection due to its high effectiveness, practicality, and ease of use [1,2].

Combined contraceptive injections contain the hormones estrogen and progestin, which work by inhibiting ovulation and altering the body's hormonal balance to prevent pregnancy. However, these changes in hormonal balance can cause side effects, one of which is acne due to increased sebaceous gland activity and excess sebum production [3,4].

Acne is an inflammatory condition of the pilosebaceous unit caused by increased oil production, clogged pores, the proliferation of *Cutibacterium acnes* bacteria, and inflammation. Acne complaints among those using combined contraceptive injections

can affect comfort and self-confidence, requiring safe and easy-to-apply treatment [5,6].

One alternative non-pharmacological treatment that can be used is a lemon and honey mask. Lemon contains vitamin C, citric acid, and antioxidant compounds that have antibacterial activity and help maintain healthy skin. Meanwhile, honey contains bioactive compounds with antibacterial and anti-inflammatory properties, which can help reduce inflammation and support skin repair [7,8].

Research on the use of lemon and honey masks in combination contraceptive injection recipients is still limited. Therefore, this study was conducted to determine the effect of lemon and honey masks on acne in combination contraceptive injection recipients at the Rosida Purwakarta TPMB in 2026.

II. METODE

This study used a quasi-experimental design with a two-group pretest-posttest. The study was conducted at TPMB Rosida Purwakarta in 2026.

The sample size was 64 respondents, divided into two groups: an intervention group of 32 respondents and a control group of 32 respondents. Sampling was conducted using a purposive sampling technique.

The intervention group was given a lemon and honey mask treatment according to research procedures, while the control group received no special treatment. Respondents' acne levels were measured before and after treatment using an observation sheet.

Data analysis was performed using the Wilcoxon test to determine the effect of the lemon and honey mask on changes in acne levels.

III. RESULTS AND DISCUSSION

This study was conducted at TPMB Rosida Purwakarta, a midwifery health care facility that provides antenatal care, childbirth, family planning, reproductive health, and maternal and child services. The study involved 64 combined contraceptive injection users, divided into two groups: intervention and control, each with 32 respondents. Respondent characteristics included acne level, age, parity, education, occupation, and cosmetic use.

Table 1
Frequency Distribution by Age of Family Planning Acceptors
Combination Injections at Rosida TPMB
Purwakarta 2026

NO	Variable	Control Group		Intervention Group	
		N	%	N	%
1	≤ 35 Years	27	84.4	25	84.4
2	> 35 Years	5	15.6	7	15.6
Total		32	100	32	100

Source: Primary Data (SPSS Processed, 2026)

Based on age distribution, the majority of respondents in both study groups were ≤ 35 years old, with 27 respondents (84.4%) in the control group and 25 respondents (84.4%) in the intervention group. This indicates that the study focused on young women of reproductive age, who are the primary population for the Family Planning program. This age group has higher hormonal activity than older women, so changes in sebum production due to combined contraceptive injections tend to be more visible on the skin.

Table 2
Frequency Distribution by Parity Among Family Planning Acceptors
Combination Injections at Rosida TPMB
Purwakarta 2026

NO	Variable	Control Group		Intervention Group	
		N	%	N	%
1	Primipara	4	12.5	9	28.1
2	Multipara	19	59.4	19	59.4
3	Grandemultipara	9	28.1	4	12.5
Total		32	100	32	100

Source: Primary Data (SPSS Processed, 2026)

The parity distribution of respondents showed that the majority of participants were multiparous in both groups, with 19 respondents (59.4%) in the control group and 19 respondents (59.4%) in the intervention group. Parity is an important factor because it can influence hormonal responses and physiological changes in the skin. Multiparous women typically have more complex hormonal experiences due to previous pregnancies, which can affect sebaceous gland activity and skin sensitivity to the side effects of hormonal contraceptives.

Table 3
Frequency Distribution by Education Among Family Planning Acceptors
Combination Injections at Rosida TPMB
Purwakarta 2026

NO	Variable	Control Group		Intervention Group	
		N	%	N	%
1	Low	21	65.4	26	81.2
2	High	11	34.4	6	18.8
Total		32	100	32	100

Source: Primary Data (SPSS Processed, 2026)

Based on educational distribution, the majority of respondents in both groups had low education: 21 (65.4%) in the control group and 26 (81.2%) in the intervention group. Education level can influence skincare knowledge, understanding, and behavior. Women with low education also have less understanding of acne risk factors, including the hormonal effects of combined contraceptive injections, as well as appropriate prevention and treatment strategies.

Table 4
Frequency Distribution by Occupation of Family Planning Acceptors
Combination Injections at Rosida TPMB
Purwakarta 2026

NO	Variable	Control Group		Intervention Group	
		N	%	N	%
1	Work	9	28.1	6	18.8
2	Not Working	23	71.9	26	81.2
Total		32	100	32	100

Source: Primary Data (SPSS Processed, 2026)

Occupational distribution showed that the majority of respondents in both groups were unemployed: 23 (71.9%) in the control group and 26 (81.2%) in the intervention group. Employment status can influence lifestyle, stress levels, environmental exposure, and time spent on skincare, all of which can impact acne

Table 5
Frequency Distribution Based on Cosmetic Use Among Family Planning
Acceptors Combination Injections at Rosida TPMB
Purwakarta 2026

NO	Variable	Control Group		Intervention Group	
		N	%	N	%
1	Yes	19	59.4	17	53.1
2	No	13	40.6	15	46.9
Total		32	100	32	100

Source: Primary Data (SPSS Processed, 2026)

The distribution of cosmetic use showed that the majority of respondents used cosmetics: 19 (59.4%) in the control group and 17 (53.1%) in the intervention group. Cosmetic use can affect skin condition, as some products can clog pores, increase sebum production, and trigger inflammation, which can worsen acne.

Furthermore, the intervention group received a lemon and honey mask, while the control group received no special treatment. Acne levels were measured before and after the intervention. The distribution of changes in acne levels is shown in Table 1.

Table 6
Effect of Lemon and Honey Mask on Acne in Combination Injectable
Contraceptive Users at Rosida TPMB in 2026

No	Level	Control				Intervention				<i>p-value</i>
		Pre		Post		Pre		Post		
		N	%	N	%	N	%	N	%	
1	Level 1	0	0	3	9,3	0	0	22	68,8	0,001
2	Level 2	22	68,8	22	68,8	24	75,0	8	25,0	
3	Level 3	8	25	6	18,8	6	18,8	2	6,2	

4	Level 4	2	6,2	1	3,1	2	6,2	0	0
Total		32	100	32	100	32	100	32	100

* Wilcoxon Signed Rank Test

Source: Primary Data (SPSS processing, 2026)

Based on the table above, before the intervention, the majority of respondents in both groups had stage 2 acne: 22 (68.8%) in the control group and 24 (75.0%) in the intervention group. This indicates that the baseline acne levels in both groups were relatively balanced, allowing an objective comparison of the intervention's effectiveness. This baseline balance is important to ensure that differences in post-intervention results were indeed caused by the lemon and honey mask, rather than differences in the respondents' baseline characteristics.

After the lemon and honey mask, there was a significant reduction in acne levels in the intervention group. The number of respondents with stage 1 acne increased to 22 (68.8%), while the number of respondents with stage 2 acne decreased to 8 (25.0%), the number of respondents with stage 3 acne decreased to 2 (6.2%), and there were no respondents with stage 4 acne. In contrast, the control group experienced only minimal changes, with a slight increase in stage 1 acne to 3 (9.3%), and the majority of respondents remained at stage 2 acne (22, 68.8%).

The results of the statistical test using the Wilcoxon Signed Rank Test showed a p-value of 0.001 ($p < 0.05$), confirming that the application of the lemon and honey mask significantly reduced acne levels in those taking combined contraceptive injections. This indicates that the intervention had a real clinical effect and was not simply a coincidental change or natural fluctuation in skin condition.

Physiologically, acne in those taking combined contraceptive injections is triggered by increased sebaceous gland activity due to the hormones estrogen and progesterone, which leads to excess sebum production and inflammation. Excess sebum can clog hair follicles and pores, creating an ideal environment for the proliferation of *Cutibacterium acnes*, a bacteria that plays a role in the pathogenesis of acne. This bacterial infection then triggers an inflammatory response that worsens acne lesions, ranging from blackheads, papules, pustules, to nodules.

Lemon contains vitamin C, flavonoids, and citric acid, which have antibacterial, antioxidant, and mild keratolytic properties. These compounds help reduce sebum production, unclog pores, inhibit the growth of acne-causing bacteria, and protect the skin from free radical damage. Meanwhile, honey contains flavonoids, enzymes, and phenolic compounds that have antibacterial and anti-inflammatory effects, helping to reduce inflammation, maintain skin moisture, and accelerate the regeneration of skin tissue damaged by acne. The combination of these two ingredients works synergistically, resulting in more effective skin repair than when used separately.

The results of this study are consistent with previous findings showing that the use of natural ingredients with antibacterial, anti-inflammatory, and antioxidant activity effectively reduces acne severity [7,8]. Other studies also emphasize the importance of non-pharmacological interventions as complementary therapies, especially for women using hormonal contraceptives, as these treatments are safe, easy to apply, and can reduce the side effects of acne that affect quality of life and self-confidence [8,10].

Furthermore, the effectiveness of the lemon and honey mask is also influenced by the respondent's adherence to routine care, frequency of use, and interaction with other factors such as cosmetic use and stress levels. Consistent use of the mask allows the active ingredients to work optimally, resulting in significant acne reduction results.

Thus, these findings suggest that a lemon and honey mask can be a safe, economical, and effective non-pharmacological intervention to reduce acne severity in combination contraceptive injectable users, while also promoting comfort and increasing user confidence. This intervention provides a simple yet effective skin care alternative, especially for young women of reproductive age who frequently experience hormonal contraceptive-related acne side effects..

IV. CONCLUSION

A lemon and honey mask was proven effective in reducing acne severity in combined injectable contraceptive users at the Rosida Purwakarta Family Planning Center (TPMB Rosida) in 2026. The intervention group showed an increase in the number of respondents with grade 1 acne and a decrease in grade 2–4 acne compared to the control group, which experienced only minimal changes. The effectiveness of the lemon and honey mask is related to its bioactive compounds, including vitamin C, flavonoids, citric acid, and antibacterial and anti-inflammatory compounds in honey, which work synergistically to reduce sebum production, inhibit the growth of acne-causing bacteria, reduce inflammation, and accelerate skin regeneration.

Furthermore, this intervention has been proven safe, easy to apply, and economical, making it suitable as a complementary non-pharmacological therapy for hormonal contraceptive users. Regular application of the lemon and honey mask can help improve the comfort, satisfaction, and self-confidence of combined injectable contraceptive users, while also providing a natural skin care alternative that can be applied at home without the risk of systemic side effects.

This study also provides a scientific basis for obstetricians and gynecologists to provide education and recommendations for natural skin care for clients experiencing acne due to hormonal contraceptive use. These findings are expected to serve as a reference for further research, including evaluating the optimal duration and frequency of use of lemon and honey masks and their impact on client quality of life and satisfaction.

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