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The Effect of Consumption of Basil Jelly on Vaginal Discharge in Adolescent Women

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ABSTRACT

Background: In Indonesia, approximately 75% of women experience vaginal discharge, including 31.8% of adolescents aged 15–24 years. Vaginal discharge refers to the release of fluid from the vaginal canal, which is typically clear and odorless. However, persistent discharge can negatively affect reproductive health and may develop into a more serious condition if left untreated. One natural remedy that may help reduce vaginal discharge is basil (*Ocimum sanctum*), which contains active compounds such as cineol, eugenol, anethole, saponins, flavonoids, polyphenols, and tannins.
Objective: This study aimed to examine the effect of basil jelly consumption on vaginal discharge among adolescent girls at SMP Negeri 1 Plaosan.
Methods: A quasi-experimental study using a nonequivalent control group design was conducted. The population consisted of all ninth-grade female students who were 1–12 days post-menstruation. A total of 30 participants were selected through purposive sampling. Data were analyzed using the Mann–Whitney U test.
Results: Significant improvements were observed in the characteristics of vaginal discharge following basil jelly consumption, particularly in terms of color, volume, odor, and associated itching. The Mann–Whitney U test revealed a statistically significant effect, with an Asymp. Sig. (2-tailed) value of 0.004.
Conclusion: Consumption of basil jelly significantly improves the characteristics of vaginal discharge in adolescent girls, suggesting its potential as a natural intervention to support reproductive health.

Keyword: ***Basil, Vaginal Discharge, Juvenile***

INTRODUCTION

Reproductive health issues account for 33% of the total disease burden among women worldwide. It is estimated that 75% of women globally have experienced vaginal discharge at least once in their lives. In Europe, the prevalence of vaginal discharge is approximately 25%, while in Indonesia, the rate continues to increase annually and has now reached around 70%[5].

There are two types of vaginal discharge, namely normal vaginal discharge and abnormal vaginal discharge. Normal vaginal discharge is characterized by the discharge of a small amount of odorless, clear fluid, and abnormal vaginal discharge is characterized by excessive discharge of mucus accompanied by an unpleasant odor, a painful feeling when urinating, and sometimes accompanied by a burning and itching sensation[15]. Several factors contribute to vaginal discharge, including both psychological and physiological factors [5].

The cervix and vaginal often produce fluid or mucus, this is called vaginal discharge. This fluid or mucus is released naturally to keep the vagina clean, moist and free of infection.

However, excessive vaginal discharge can pose health risks, as it may lead to conditions such as Bacterial Vaginosis, which occurs due to an overgrowth of non-Lactobacillus flora in the vagina, including *Streptococcus mutans*. Another common condition is Vulvovaginal Candidiasis, caused by an overgrowth of the fungus *Candida albicans*. Vaginal discharge should not be taken lightly, as untreated or poorly monitored cases can lead to serious complications, including an increased risk of sexually transmitted infections, preterm birth, miscarriage, and difficulties during pregnancy[5], cervical cancer, which in severe cases, can lead to death[15].

As many as 31.8% of female teenagers aged 15-24 years experienced symptoms of vaginal discharge. This factor is related to the tropical climate in Indonesia, where fungal growth occurs very easily and is the main cause of vaginal discharge. Vaginal discharge can be treated with medication- medicinal (pharmacology) and traditional (non pharmacology).

Basil (Ocimum Sanctum) contains essential oils that have been shown to be effective in inhibiting growth mold reason vaginal discharge is Candida Albicans[3]. Basil Which growing wild nor cultivation results, this can be used as an alternative to treat vaginal discharge.

This study aims to determine the effect of consuming basil jelly on the incidence of vaginal discharge in adolescent girls

METHODS

This type of research is quasi-experimental with Nonequivalent control group design. This research allowed the researcher to conduct first observation (pretest) which allows the researcher examine the changes that emerge before and after the experiment own group control (comparator) but not chosen randomly[12]. This research was conducted from December 2023 to June 2024 at SMP Negeri 1 Plaosan. The study population consisted of ninth-grade female students at SMP Negeri 1 Plaosan who were 1–12 days post-menstruation and reported experiencing vaginal discharge. A purposive sampling technique was used based on inclusion criteria, resulting in a sample of 30 adolescent girls. The variables in this study were basil jelly consumption (independent variable) and the characteristics of vaginal discharge (dependent variable). Both primary and secondary data were utilized. Data were collected using a structured questionnaire. Data analysis included univariate descriptive analysis and bivariate analysis using the Mann–Whitney U test.

RESULT

The following are the research results.

Table 1. Characteristics of Respondents

Age	Frequency (n)	Percentage (%)
14	4	13.3
15	12	40
16	14	46.7
Total	30	100

Based on table 1, it shows that the majority or most of the respondents were 16 years old, namely 14 people (46.7%).

Table 2. Description of the Consistency of Vaginal Discharge (Pretest) and (Postest)

Group	Min	Max	Mean
Intervention 1			
Pre-Test	1	3	2.13
Post-Test 1	1	3	1.53
Control 1			
Pre-Test	1	3	1.93
Post-Test1	1	3	1.87

Based on Table 2, the frequency distribution of vaginal discharge consistency in the intervention group showed a notable change. The average consistency score before treatment (pretest) was 2.13, which decreased to 1.53 after treatment (posttest). This indicates a positive improvement, as the consistency of the participants' vaginal discharge became thinner or less dense. In contrast, the control group showed a slight change, with the average consistency score decreasing from 1.93 (pretest) to 1.87 (posttest), indicating only a minimal improvement.

Table 3. Color Description of Vaginal Discharge

Group	Min	Max	Mean
Intervention			
Pre-Test 1	1	3	1.93
Post-Test 1	1	3	1.47
Control			
Pre-Test 1	1	3	1.93
Post-Test 1	1	3	2.20

Based on the table 3, it showed that change on color vaginal discharge group intervention, seen in the value (pretest) of 1.93 and after being given treatment (posttest) down become 1.47. Meanwhile, in the control group, the value of vaginal discharge became bad, namely marked by an average initial score (pretest) of 1.93 increase become 2.20 *(posttest)*.

Table 4. Description of the amount of vaginal discharge (pretest) and (postest)

Group	Min	Max	Mean
Intervention			
Pre-Test	1	3	2.07
Post-Test	1	3	1.47
Control			
Pre-Test	1	3	1.87
Post-Test	1	3	2.33

Based on Table 4, changes were observed in the amount of vaginal discharge in the intervention group. The average amount of discharge decreased from 2.07 at pretest to 1.47 at posttest. In contrast, the control group showed a worsening condition, with the average amount of vaginal discharge increasing from 1.87 at pretest to 2.33 at posttest.

Table 5. Description of the smell of vaginal discharge (pretest) and (postest)

Group	Min	Max	Mean
Intervention			
Pre-Test	1	3	2.27
Post-Test	1	3	1.67
Control			
Pre-Test	1	3	2.00
Post-Test	1	3	2.13

Changes in the odor of vaginal discharge in the intervention group were indicated by differences in average values before and after treatment. The average odor score decreased from 2.27 at pretest to 1.67 at posttest. Meanwhile, in the control group, the average odor score increased from 2.00 at pretest to 2.13 at posttest, indicating a worsening condition.

Table 6. Description of itching (pretest) and (postest)

Group	Min	Max	Mean
Intervention			
Pre-Test	1	3	1.40
Post-Test	1	2	1.07
Control			
Pre-Test	1	3	1.53
Post-Test	1	3	1.80

Changes in itching due to dampness caused by vaginal discharge in the intervention group were reflected in the average score, which decreased from 1.40 at pretest (with a minimum of 1 and a maximum of 3) to 1.07 at posttest (with a minimum of 1 and a maximum of 2), indicating improvement. In contrast, the average itching score in the control group increased from 1.53 at pretest to 1.80 at posttest, indicating a worsening condition.

Table 7. Description of pain (pretest) and (postest)

Group	Min	Max	Mean
Intervention			
Pre-Test	1	3	1.27
Post-Test	1	1	1.00
Control			
Pre-Test	1	3	1.27
Post-Test	1	3	1.33

Another change observed in the intervention group was related to pain associated with vaginal discharge. The average pain score before treatment (pretest) was 1.27 (with a minimum of 1 and a maximum of 3), which decreased to 1.00 after treatment (with both the minimum and maximum values at 1), indicating improvement. In contrast, the control group showed a worsening condition, with the average pain score increasing from 1.27 at pretest to 1.33 at posttest.

Table 8. Description of Signs of Irritation *(pretest)* and (posttest)

Group	Min	Max	Mean
Intervention			
Pre-Test	1	2	1.07
Post-Test	1	2	1.07
Control			
Pre-Test	1	2	1.13
Post-Test	1	2	1.13

There were no changes in signs of irritation in either the intervention group or the control group, which was indicated by the same results before and after treatment.

2. Bivariate Analysis

Bivariate analysis is used to determine the relationship between two variables, whether there is influence or correlation in the research[17].

Table 9. Effect of consuming basil agar on vaginal discharge in young women

Group	Mean Rank	Sum of Rank
Intervention	10.93	164.00
Control	20.07	301.00

Test Statistics	
	Results
Mann-Whitney U	44,000
Wilcoxon W	164,000
Z	-2,868
Asymp. Sig. (2-tailed)	,004
Exact Sig. [2*(1-tailed Sig.)]	,004[b]

Based on the research data presented in Table 9, statistical analysis using the Mann–Whitney test showed an Asymp. Sig. (2-tailed) value of 0.004, which is less than 0.05. This indicates a significant difference between the intervention group, which received 110 ml of basil jelly daily for 7 days, and the control group, which received no treatment. Therefore, it can be

concluded that basil jelly consumption has a significant effect on vaginal discharge in adolescent girls

DISCUSSION

Based on the research results, most respondents were 16 years old (46.7%). As in research that 75% of teenagers who experience vaginal discharge aged 16 - 17 years[20], some of the results of in vitro and in vivo research show that leaf basil can overcome vaginal discharge.[16]

Vaginal discharge can reduce because basil leaves contain various non-nutrient compounds or substances variety and there is several benefits for reducing vaginal discharge in accordance with theory that namely eugenol, *anetol, flavonoids, tannins,* beta-carotene, phenol, and saponins and vitamin C[18]. Research by Herry, et al. 2023 namely "Influence Extract Basil *(Ocimum Sanctum Linn)* Against Growth Candida Albicans fungus", state that strength effectiveness extract leaf against the growth of the fungus Candida albicans very Good.

Content compound eugenol in basil very good because it can kill the fungus that causes vaginal discharge in women. *Eugenol* works as antimicrobial, antifungal and antiviral. In several studies, eugenol can be used in the treatment of cervical cancer and genital herpes. Based on research with the title "The Inhibitory Power of Candida Albicans Growth and the Power of Killing Candida Albicans Extract Leaf Basil (Ocinum Basilicum L)" that content *eugenol* in Concentration 12.5% can hinder growth and 25% can kill candida *albicans*[16].

Besides that, *anethol, flavonoids*, beta-carotene, and vitamin C can synergize for increase teenager's immune system so the body doesn't prone to bacteria, mold or viruses. Other substances in basil leaves that can utilized in handle vaginal discharge is *tannin*[19]. Tannin works as an astringent, which can reduce secretions in the vaginal canal. In accordance with the research results, that teenager Which experiencing expenses fluid currently as many as 10 people before receiving treatment, after being given treatment it decreased with amount moderate fluid discharge to 6 people. Supported by research that tannin can reduce the amount of vaginal discharge or secretions[21]. Apart from that, the research results showed changes in color, quantity, odor and itching which could be influenced by phenol and saponin. This substance has an antifungal effect, namely it can pass through and damage cell walls, reduce the surface tension of bacterial cell walls and damage membrane permeability, resulting in survival to disturbed fungi.

Results of analysis with tests Mann Whitney and got it exists. There is a significant effect of consuming basil leaves in jelly form on vaginal discharge in young women with an Asymp.Sig (2-tailed) value of 0.004. This is in accordance with the theory that leaves basil can handle vaginal discharge Because is analgesic, antifungal, anti inflammatory, antimicrobial and antiviral[18]. Based on the theoretical review, supporting research, results and discussion, it can be concluded that there is an influence of consumption of basil jelly on vaginal discharge.

CONCLUSION

The results of this study showed significant improvements in the characteristics of vaginal discharge following basil jelly consumption, particularly in terms of color, amount of fluid, odor, and itching. The intervention demonstrated a statistically significant effect, as indicated by the Mann–Whitney test result with an Asymp. Sig. (2-tailed) value of 0.004. These findings suggest that basil leaf jelly may be an effective natural intervention for managing vaginal discharge in adolescent girls.

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