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Research Article

Differences in the Effectiveness of Boiled Water for Binahong Leaves and Boiled Water for Betel Leaves on Healing Perineal Rupture in Maternal Maternity at Saketi Public Health Center, Pandeglang Regency in 2022

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Abstract

Aims: The purpose of this study was to determine the boiled water of binahong leaves and boiled water of betel leaf on the healing of a perineal rupture in women giving birth at Saketi Public Health Center, Pandeglang Regency

Methods: This study uses a quasi-experimental approach through two groups with a control post-test design where the sample is taken using total sampling divided into 2 treatment groups.

Results: The results of the study were based on age, most of the respondents were 7 (21.9%) aged 26-30 years. Based on the level of education, it can be seen that most of the respondents as many as 18 (56.3%) have a junior high school education level and Based on parity most of the respondents as many as 19 (59.4%) are multipara. The average healing time of perineal rupture in the control post-test group was 7 days and the average perineal rupture healing time in the intervention post-test group was 5 days, there was a difference in the effectiveness of binahong leaf boiled water and betel leaf boiled water with (p-value $0.000 < (0.05)$)

Conclusion: Showed that there was a difference in the effectiveness of binahong leaf boiled water and betel leaf boiled water with (p-value $0.000 < (0.05)$).

Keywords:

Binahong Leaf, Betel Leaf, Perineal Rupture

INTRODUCTION

The World Health Organization (WHO) 2020 reported that as many as 81% of maternal deaths in the world occurred due to complications during pregnancy and childbirth. One of the causes of maternal death is infection by 11%. Infections that often occur in mothers after childbirth are infections of the perineum (1). Perineal rupture cases in maternity women worldwide are around 2.7 million people. This figure is estimated to reach 6.3 million in 2050. In America, 40% of maternity mothers experience perineal rupture, while

in Asia perineal rupture is a problem that often occurs in society with a case range of 50% after childbirth (2).

In 2019, the maternal mortality rate in Indonesia was reported to be 305 per 100,000 live births, with postpartum hemorrhage (30.3%) being the leading cause, followed by infection (22.5%). Perineal infections are common infections in postpartum women. According to the 2019 Indonesian Demographic Health Survey, 75% of moms who gave delivery vaginally in Indonesia reported perineal rupture. In Indonesia, the prevalence of maternity

mothers experiencing a perineal rupture is 24% in the 25-30 year age group and 62% in the 32-39 year age group.

According to the World Health Organization, underdeveloped countries account for 99% of maternal fatalities when compared to developed countries. In 2015, the maternal mortality ratio in developing countries was 239 per 100,000 live births and 12 per 100,000 live births in developed countries, while the infant mortality ratio in developing countries was roughly 29 per 1000 live births and 5 per 1000 live births in developed nations. In 2015, there was an instance of perineum rupture in a maternity mother. There are already 2.7 million cases of perineal rupture in women giving birth, with this rate expected to rise to 6.3 million by 2050. In the United States, 26 million women who give birth endure perineum rupture. Perineal rupture is also a significant social issue in Asia, accounting for 50% of the global occurrence (3,4).

In Indonesia, the prevalence of perineal rupture is 24% in the 25-30 year age group, and 62% in the 32-39 year maternal age group. Perineal rupture cases in Banten are estimated to be 49% higher in 2020 based on information from public health centers and hospitals in the province. Meanwhile, in Pandeglang Regency, women giving delivery accounted for 59.6% of all incidences of perineal rupture.

Every delivery will result in birth canal injury, which will serve as an entry point for commensal bacteria that can become infectious. This increases the risk of postpartum infection with perineal injury from episiotomy, spontaneous rupture, and fetal trauma. Although these wounds are limited, appropriate care is required to prevent infection from spreading systemically (5).

Infection can occur as a result of poor perineal wound care. When the perineum is exposed to lochia and dampness, microorganisms that can cause illness proliferate. Infection in the mother occurs at a rate of 20%, with perineal wound infection

accounting for 11%. Various attempts have been made to combat the illness, but they are still insufficient (6,7).

Pharmacological and non-pharmacological interventions can be used to prevent infection caused by perineal rupture. Pharmacological therapy involves administering antibiotics and antiseptic medications (povidone-iodine) to treat perineal rupture; however, these drugs and materials have adverse effects such as allergies and blocking the production of collagen, which is necessary for wound healing (8). Non-pharmacological therapy, such as binahong and betel leaves, can be used to expedite wound healing and prevent infection (9).

Based on the results of research by Widyastuti (9) at the University of Muhammadiyah Malang, it is proven that scientifically the benefits of binahong are that it can treat wounds. It was further explained that binahong leaves contain flavonoid active compounds that act directly as antibiotics by interfering with the function of microorganisms such as bacteria and viruses. The pharmacological activities of flavonoids are anti-inflammatory, analgesic, and antioxidant. The content of ascorbic acid in this plant is important for activating the prolyl hydroxylation enzyme which supports the hydroxylation stage in the formation of collagen so that it can accelerate the wound healing process.

Betel leaves, like binahong leaves, are categorized as plants with numerous therapeutic properties. Essential oils, hydroxykavicol, kavicol, cavibetol, allylpyrokatekol, cyneole, caryophyllene, cadinene, estragole, terpenes, sesquiterpenes, phenyl propane, tannins, diastase, sugar, and starch are all found in betel leaf. Betel has an antibacterial effect; as a result of this medicinal action, betel can also be utilized as an element in wound care, which is typically done by washing and soaking; such practices have become a tradition for mothers after giving birth (10). Based on report data from the Saketi Health Center, it was found that the number of

mothers who gave birth in October 2021 was 48 people, and received postpartum care, both those who gave birth with stitches or not, with an average of 1 to 2 days of care at the Saketi Health Center. Of the 48 postpartum mothers, 35 ruptured, with details of spontaneous rupture in as many as 23 people and 12 people undergoing episiotomy, and the average wound care only used povidone-iodine and plain water.

In a preliminary study conducted by researchers in November 2021 through interviews with 5 postpartum mothers at the Saketi Public Health Center, Pandeglang Regency, they said that all postpartum women had been using plain water for the treatment of birth canal tears or perineal rupture, and no one among them those who have used binahong leaf boiled water or used betel leaf boiled water after giving birth as a perineal rupture treatment.

Based on the background described above, the authors are interested in conducting research on the differences in the effectiveness of binahong leaf boiled water and magic leaf boiled water on perineal rupture healing in women giving birth in the Saketi Public Health Center, Pandeglang Regency in 2022.

METHODS

This study uses a quasi-experimental design with a two-group approach with a control post-test design in two groups. The first group is the group that is given boiled water of betel leaf (control), while the second group is the group that is given boiled water of binahong leaves (intervention) in the treatment of perineal rupture wounds.

This investigation included all mothers with perineal rupture who gave birth at the Saketi Public Health Center, Pandeglang Regency. In this investigation, a total sample was taken because the population size was less than one hundred. This investigation was conducted between April 1 and April 30, 2022. Inclusion criteria included spontaneous postpartum mothers who gave birth at the Saketi Public Health Center

between the second and ninth postpartum day, spontaneous postpartum mothers who experienced a grade 1, 2 perineal rupture with hecing (perineal sutures), and spontaneous postpartum mothers who were willing to sign informed consent.

As well as exclusion criteria, namely spontaneous postpartum women with labor complications, spontaneous postpartum women who have diseases that can interfere with wound healing such as diabetes mellitus, and postpartum women who experience psychological disorders such as baby blues syndrome, postpartum depression, and postpartum psychosis. So that there were 32 pregnant women who would be divided into 2 treatment groups, namely 16 people given betel boiled water and 16 people given binahong boiled water during perineal rupture healing from day 2 to day 9 postpartum.

The author employs an observation sheet to ensure that the treatment is well-received by two groups of respondents, and the REEDA scale to assess and measure the severity of injury prior to treatment, which is also recorded on the observation sheet. In addition, the authors provide treatment based on the treatment cohort. After administering treatment, proceed with assessment and measurement using the REEDA scale and record the results on the observation form until the perineal rupture heals. The next stage is to process the data using univariate analysis, while respondents use the Mann-Whitney test (p -value 0.05) to identify differences in the efficacy of boiled water from binahong leaves and betel leaves on the healing of perineal rupture.

RESULTS

UNIVARIATE ANALYSIS

In this method, a description of the frequency distribution of respondents' characteristics based on age, education, and parity is obtained. And the average healing time of perineal rupture in the two groups of respondents can be seen in the following tables:

RESULTS

UNIVARIATE ANALYSIS

In this method, a description of the frequency distribution of respondents' characteristics based on age, education, and parity is obtained. And the average healing time of perineal rupture in the two groups of respondents can be seen in the following tables:

Table 1. Frequency Distribution of Respondents' Characteristics by Age

Information	Amount	Percentage
≤20 Years	5	15,6%
21-25 Years	8	25%
26-30 Years	7	21,9%
31-35 Years	6	18,8%
36-40 Years	3	9,4%
>40 Years	3	9,4%
Total	32	100%

Based on table 1, there are 5 respondents aged 20 years (15.6%), as many as 8 respondents aged 21-25 years (25%), as many as 7 respondents aged 26-30 years (21.9%), as many as 6 respondents aged 31 -35 years (18.8%), as many as 3 respondents aged 36-40 years (9.4%), and as many as 3 respondents aged >40 years (9.4%).

Table 2. Frequency Distribution of Respondents' Characteristics Based on Education

Information	Amount	Percentage
primary school	1	3,1%
junior high school	18	56,3%
high school	11	34,4%
College	2	6,3%
Total	32	100%

Based on table 2, 1 respondent has elementary school education (3.1%), 13 respondents have junior high school education (56.3%), 11 respondents have high school education (34.4%), and 2 respondents have university education (6.3%).

Table 3. Frequency Distribution of Respondents' Characteristics Based on Parity

Information	Amount	Percentage
Primipara	13	40,6%
Multipara	19	59,4%
Total	32	100%

Based on table 3, there were 13 primiparous respondents (40.6%), and 19 multiparous respondents (59.4%).

Table 4. Average healing time of perineal rupture in the treatment group

Information	Amount	Percentage
Control	7,44	50%
Intervention	5,44	50%
Total	32	100%

Based on table 4 the average perineal rupture healing time in the control group was 7 days, and the average perineal rupture healing time in the intervention group was 5 days.

BIVARIATE ANALYSIS

In this method, it was found that there were differences in the effectiveness of boiled water from binahong leaves and boiled water from betel leaves in healing perineal rupture using the Mann-Whitney test which can be seen in the following table:

Table 5. Mann-Whitney Test Differences in the Effectiveness of Boiled Water for Binahong Leaves and Boiled Water for Betel Leaves for Healing Perineal Rupture

	Perineal Rupture Healing
Mann Whitney U	15,000
Wilcoxon W	151,000
Z	-4,414
Asymp. Sig. (2-tailed)	0,000
Exact Sig. (2*(1-tailed))	0,000 ^b

Based on table 5 about the results of the Mann-Whitney test, the results were obtained with the Asymp value. Sig. (2-tailed) $0.000 < 0.05$ so this result proves that there is a difference in the effectiveness of binahong leaf boiled water with betel leaf boiled water on healing perineal rupture in women giving birth at Saketi Public Health Center, Pandeglang Regency in 2022.

DISCUSSION

For betel leaf plants, betel leaf contains essential oils that contain chavicol and chavibetol, which are compounds that have antiseptic properties. The antiseptic properties are thought to be closely related to its use as an inhibitor of bacterial growth in wounds. Betel leaf contains saponins that stimulate collagen formation, a structural protein that plays a role in the wound healing process (10,11).

While the binahong plant (*Anredera cordifolia* (Ten) Steenis) is a possible medicinal plant that can treat a variety of diseases and cure wounds, further research is required. (12) Binahong contains several phytochemicals, including flavonoids, oleanolic acid, protein, saponins, and ascorbic acid, for use as a wound treatment. This plant's ascorbic acid (vitamin C) content is essential for activating the prolyl hydroxylation enzyme, which facilitates the hydroxylation stage in the formation of collagen, thereby accelerating wound repair. Polyphenols and saponins have antibacterial properties (13). The application of binahong leaves to wounds expedites the formation of granulation tissue and re-epithelialization compared to wounds not treated with binahong leaves (14).

This plant also has the content contained in the leaves of binahong, among others, which is anti-microbial. Binahong leaves also

contain ascorbic acid which can increase the body's resistance to infection and accelerate healing (15). Gupta's (16) in India, stated that boiled water of Malabar spinach leaves (binahong; Indonesia) showed better results in the healing process of perineal wounds compared to boiled water of betel leaves (piper betel) in postpartum mothers. Research by Lien-hua et al. (2017), in China that Dheng San Chi (Binahong; Indonesia) leaves have the effectiveness of healing wounds infected with *Staphylococcus aureus* bacteria. The ethanol extract of binahong leaves has antibacterial activity against the growth of *Salmonella typhi* in vitro. The ethyl acetate extract of binahong leaves has antibacterial activity against *Shigella flexneri* in vitro with a killing rate of 8% (17)

Binahong leaf juice can inhibit the growth of *Escherichia coli* bacteria in vitro (18). Research conducted by (19) on the effectiveness of boiled water from binahong leaves on perineal rupture healing showed that 90.9% of perineal rupture healing was in a good category. The results of research conducted by (17) stated that the ethanol extract of binahong leaves was able to heal wounds better than povidone-iodine which was tested on rabbit skin.

Based on the results of this study, according to the authors, the boiled water of binahong leaves contains chemicals that can be used as antibacterial, and antioxidants so that it can be used as an external medicine or antiseptic for the healing of postpartum mother's perineal wounds. It can also reduce discomfort in the perineal wound area.

CONCLUSION

Based on the results of research on the differences in the effectiveness of binahong leaf boiled water with betel leaf boiled water on healing perineal rupture in women giving birth at Saketi Health Center, Pandeglang Regency in 2022, it can be concluded : The average healing time of perineal rupture in maternity women who were treated with boiled water from binahong leaves at Saketi

Health Center, Pandeglang Regency in 2022 was 5 days; The average healing time of perineal rupture in pregnant women who were treated with boiled water of betel leaf at the Saketi Health Center, Pandeglang Regency in 2022 was 7 days; and There is a difference in the effectiveness of boiled water from binahong leaves and boiled water from betel leaves on the healing of a perineal rupture in women giving birth at Saketi Public Health Center, Pandeglang Regency in 2022.

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