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The effect of pineapple (ananas comosus) juice on the perineum wound healing process for postpartum mothers

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ABSTRACT

Perineal laceration is an injury to the perineum that occurs due to spontaneous tissue damage or through an episiotomy. One effort to treat perineal wounds after giving birth is to consume pineapple juice (Ananas comosus) which contains bromelain, an enzyme that has anti-inflammatory properties which can help in the healing process of perineal wounds. The aim of this research is to determine the effect of giving pineapple juice (Ananas Comosus) on the healing process of perineal wounds in postpartum women at TPMB in Pandeglang Regency in 2024. This research uses a quantitative Quasy Experiment method with a One Group Pre-test Post-test design. The sampling technique for this research was total sampling of 35 respondents. The research period was March - May 2024. The results showed that the majority of postpartum mothers experienced poor perineal wounds (74.3%) in the pretest and good wound healing (82.9%) in the posttest. Statistical test with the Wiloxon Sign Rank Test The p-value obtained = 0.000 < 0.05, meaning that there is an effect of giving pineapple juice (Ananas Comosus) on the healing process of perineal wounds in postpartum.

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INTRODUCTION

The postpartum period or puerperium refers to the period after expulsion of the placenta in which the female reproductive organs return to their pre-pregnancy condition. This time period starts 2 hours after the placenta is expelled and lasts up to 6 weeks or 42 days after giving birth (Fitriani & Wahyuni, 2021).

The postpartum period is a vulnerable period because there are several risk factors that can occur, such as anemia, preeclampsia/eclampsia, post-partum bleeding, depression, and infection. Of these risks, infection and bleeding are the two main causes of death in postpartum mothers (Dewi, 2020). During this period, postpartum mothers will experience various physiological changes, including physical changes, involution, lochia, lactation, changes in the reproductive system, and psychological changes (Wijayanti, et al., 2022)

According to the World Health Organization (WHO), the maternal mortality rate (MMR) worldwide in 2020 will be 295,000 deaths (WHO, 2021). In Indonesia, the number of MMR in 2020 showed 4,627 cases of maternal death (Ministry of Health of the Republic of Indonesia, 2021).

Based on data from the Banten Provincial Health Service, MMR in Banten Province in 2020 reached 237 cases. Meanwhile in Pandeglang Regency in 2022, 31 cases of AKI were recorded. The main causes of AKI in Pandeglang Regency are postpartum hemorrhage (34%), birth canal infection (14%), and other factors (Malik, 2023)

Postpartum bleeding is bleeding after giving birth that exceeds 500 cc and is divided into primary and secondary bleeding. The main cause is tearing of the birth canal or perineal rupture. If left untreated, it can cause infection or death of the mother. Perineal rupture occurs due to tissue damage due to pressure on the baby's head or shoulders during birth. (Setiowati, 2019).

Perineal rupture can occur either spontaneously or through an episiotomy. Episiotomy is performed based on certain indications, such as a large baby, stiffness of the perineum, delivery in an abnormal position, or delivery that requires the assistance of tools such as forceps or a vacuum. If an episiotomy is not performed according to these indications, the risk of severe damage to the perineal area will increase (Wiknjosastro, 2017).

The perineum is a very important part of the body's physiological functions. Apart from playing a crucial role in the birth process, the perineum is also needed to control bowel and urination functions, maintain normal peristaltic activity by maintaining intra-abdominal pressure, and support healthy sexual function after delivery. Perineal rupture can occur naturally or through an episiotomy (Irmawati, 2019).

Postnatal perineal wound care aims to reduce discomfort, maintain cleanliness, prevent infection, and speed up the healing of stitches. This healing process is influenced by various factors, including nutritional status. Protein intake, as well as vitamins A and C, is very important for postpartum mothers to support perineal wound healing (Kasari and Wahyuni, 2021).

Exogenous vitamin C is needed by humans and other primates for the wound healing process. Most mammals synthesize vitamins from glucose, due to their close chemical similarity. Humans lack the active form of the enzyme L-gulonolactone oxidase necessary to synthesize ascorbic acid, making it important to obtain vitamin C from food sources or supplements. The process of Vitamin C in the human body starts from Vitamin C soluble in water and absorbed in the distal ileum. Vitamin absorption is efficient at doses up to 100 mg/day. However, if intake exceeds 1500 mg/day, vitamin absorption decreases to 50% or less. Small amounts of vitamin C are found in leukocytes, adrenal glands, and pituitary glands. However, vitamin C stores in the human body are limited due to its water-soluble nature, and excess amounts are usually excreted from the body. The human body has a total of about 1500 mg of vitamin C, and clinical signs of vitamin C deficiency are visible when levels fall below 350 mg (Maxfiled, F. Daley, & S. Derek, 2023).

Vitamin C is very important for postpartum or postpartum mothers to meet nutritional needs and support the healing process of perineal wounds. Apart from pharmacological treatments, there are also non-pharmacological treatments that are economical, practical and easy to obtain from nature, such as pineapple (Ananas comosus) juice. Pineapples are believed to contain vitamin C, vitamin A, and bromelain which can help speed up the healing of perineal wounds. Pineapple juice is a natural and simple alternative option to speed up wound healing in postpartum mothers who experience perineal tears, apart from using medication (Gozelar, S. 2019).

Pineapples (Ananas comosus) contain the enzyme bromelain which is known to have anti-inflammatory properties. Bromelain can reduce recovery time from pain and inflammation in postoperative wounds. Apart from that, bromelain is also effective in reducing swelling, bruising and pain in episiotomy wounds. Pineapple juice is rich in pectin, vitamin C, vitamin A, and the enzyme bromelain, which has benefits in relieving pain, increasing blood circulation, and speeding up the wound healing process. Therefore, consuming pineapple juice accelerates the healing of perineal wounds (Gozelar, S. 2019).

Based on the results of research conducted by Bancin, Pratiwi & Rosita (2023), research shows that healing of perineal wounds in the control group and intervention group who were

given pineapple juice (Ananas comosus) resulted in a faster healing time in the group that consumed pineapple juice. According to research by Sari, Choirunissa, & Silawati (2022), giving pineapple juice can affect the healing of perineal wounds. The average healing rate in the intervention group given pineapple juice was recorded on the 5th day, while the control group who received standard treatment recovered on the 6th day.

From the results of a preliminary study conducted by researchers at TPMB Titin Prihartini S, ST., Bd, in December 2023, data was obtained for the last 1 year, the total number of mothers giving birth was 179 people who gave birth normally without perineal rupture/birth canal tearing with a percentage of 28%, The birthing mother experienced perineal rupture/birth canal tearing at a rate of 72%, with grade I-II lacerations due to various pregnancy factors, especially primiparous mothers. Based on interviews with 5 people, it was found that 1 post partum mother had a perineal rupture/tear that was infected and 2 other people had perineal wounds that took more than 2 weeks to dry to heal, with various factors caused by the implementation of dietary restrictions for post partum mothers/ Postpartum mothers, among others, are prohibited from eating fish, eggs, fruit and drinking milk on the grounds that it has become a habit from previous cultural customs.

RESEARCH METHOD

This type of research is quasi-experimental research with a one group pre-test and post-test design. The population in this study were all postpartum who experienced grade I-II perineal rupture/birth canal tears in March – May 2024 at TPMB Titin Prihartini, S.ST., Bd, Pandeglang Regency. The sampling method was purposive sampling, namely selecting samples based on certain considerations of 35 respondents. with the mechanism starting with the researcher giving informed consent to the respondent, a pre-test was carried out through observation of the postpartum then they were given pineapple juice to drink twice a day, namely in the morning 150 cc and in the afternoon 150 cc, for 6 days, after that a post-test was carried out. At the stage after the data is collected through the Pre-test and Post-test, editing, coding and data entry are carried out. Next, data analysis was carried out using computer facilities. Univariate analysis was used to describe the data and summarize the observed data. Data is generated in the form of a frequency distribution. In this study, bivariate analysis was carried out using the non-parametric t-test or Wilcoxon Sign Rank Test.

RESULTS AND DISCUSSIONS

The description of the data resulting from this research aims to provide a general overview of the spread/distribution of data, either in the form of narratives or tables. A brief description of the narrative can be seen in:

Table 1. Distribution of respondent characteristics effect of giving pineapple

Respondent Characteristics	n	%
Age		
Risk= (< 20 year &> 35)	4	11,4
Not Risk = (20-35 year)	31	88,6
Dietary habit		
Nutritiouns	35	100,0
Activity		
Heavy	18	51,4
Light	17	48,6
Personal Hygiene		
Maintain clean	35	100,0

Based on table 1, from 35 postpartum respondents, most of them ranged from age not at risk, namely 20-35 years, 31 respondents (88.6%), respondents with at-risk ages, namely < 20 & > 35 years, were 4 respondents (11 .4%), based on diet, all respondents had a fairly good/nutritious diet, 35 respondents (100.0%), based on activity, some respondents experienced heavy activity, namely 18 respondents (51.4%), some experienced light activity. namely 17 respondents (48.6%), and based on personal hygiene, all respondents maintained cleanliness, namely 35 respondents (100.0%).

Table 2. Healing perineal wounds before given pineapple *(Ananas Comosus)*

Perineal Wounds	n	%
Bad	9	25,7%
Medium	26	74,3%
Good	0	0
Total	35	100,0

Based on table 2 of the 35 respondents before being given pineapple juice, it shows that some postpartum medium wound healing, 26 people (74.3%), some bad perineal wounds 9 people (25.7%).

Tabel 3. Healing perineal wounds after given pineapple *(Ananas Comosus)*

Perineal Wounds	n	%
Bad	0	0
Medium	6	17,1
Good	29	82,9
Total	35	100,0

Based on table 3, it shows that of the 35 respondents after being given pineapple juice, 29 people experienced good wound healing (82.9%) and 6 people (17.1%) medium wound healing.

Table 4. The effect of giving pineapple (ananas comosus) juice on the healing process perineal wounds for postpartum

Variabel	Mean	P-Value
Pretest	11,74	0,000
Posttest	0,31	

Based on table 4, it shows that the healing process of perineal wounds in postpartum mothers before being given pineapple juice (Ananas Comosus) was with a mean value of 11.74, while after giving pineapple juice (Ananas Comosus) it was with a mean value of 0.31. This shows an average decrease before and after intervention. In the Wilcoxon test analysis, the p-value = 0.000 < 0.05. There is a significant difference before and after the intervention, so it can be concluded that H0 is rejected and H1 is accepted, which means that there is an effect of giving pineapple juice (Ananas Comosus) on the healing of perineal wounds in postpartum.

Description of respondents according to maternal age, the results of the research show that the majority of respondents from this study were aged 20-35 years, 31 people (88.6%). This age indicates a fairly good reproductive age for pregnancy and childbirth as well as during recovery after childbirth, so that wound healing occurs more quickly at a young age than in older people, this is because older people cannot tolerate stress such as tissue trauma or infection (Winkjosastro, 2019).

The results of research based on diet showed that all respondents had a fairly good/nutritious diet, 35 respondents (100.0%). Diet influences the wound healing process, with balanced nutrition being recommended. It includes 60-70% carbohydrates, 15-20% protein, and 20-30% fat. In addition, adequate intake of vitamins, minerals and fiber is very important because it

influences the wound healing process and regeneration of tissue damaged by injury (Muniroh, 2019).

The results of research based on the activities of 35 respondents showed that some respondents carried out heavy activities, namely 18 respondents (51.4%), and some respondents carried out light activities, namely 17 respondents (48.6%). Activity patterns are factors that influence wound healing, including perineal wounds. Heavy or excessive activity can hinder wound healing by disrupting the sealing of the wound edges and tissue, thereby affecting the optimal healing process (Smeltezer, 2019). The results of research based on personal hygiene showed that all respondents maintained cleanliness, namely 35 respondents (100.0%) due to a lack of knowledge about personal hygiene. Meanwhile, personal hygiene is one of the factors that influences the healing process of perineal wounds because as an initial step in caring for wounds/genital organs to avoid infection, inappropriate personal hygiene can affect cleanliness or germ contamination so that it can affect the wound healing process in the perineum. (Triyani,2021).

Process of Healing Perineal Wounds Before Giving Pineapple Juice (Ananas Comosus) to Postpartum

In table 2 of 35 respondents before giving pineapple juice, it shows that the majority of postpartum mothers experienced poor wound healing (74.3%), while a small percentage experienced poor wound healing (25.7%). Perineal laceration or tearing of the birth canal can occur either naturally or due to an episiotomy during labor, often in the first birth and rarely in subsequent births (Wiknjosastro, 2020).

According to Pangastuti (2021), the risk factors for perineal lacerations/birth canal tears are caused by several factors, including: Risk factors related to the mother or pregnancy itself, risk factors related to the fetus, risk factors related to the birth process and risk factors related to birth attendants. Based on the research results of Sari (2022), the factors related to the incidence of perineal laceration/birth canal tearing, namely primiparous pregnancies, obtained a p-Value of 0.000 < 0.05, indicating a relationship between primiparas and the incidence of perineal laceration, gestational spacing obtained a p-Value of 0.000 < 0 .05 indicates a relationship between pregnancy interval and the incidence of perineal lacerations, birth weight obtained p-Value 0.000 < 0.05 indicates a relationship between BBL and the incidence of perineal lacerations.

According to the researchers' assumptions in this study, the cause of birth canal tears or perineal lacerations is influenced by two main factors, namely the mother's status as a primipara and the spacing of the pregnancy. Primiparas have a higher risk of experiencing a tear in the birth canal or perineal laceration because the vaginal muscles have not been stretched before, because they have never gone through a birth process before. Apart from that, a pregnancy interval that is too short can also increase the risk of perineal laceration or tearing of the birth canal because the reproductive organs have not fully recovered and are not ready to face pregnancy and childbirth again.

Process of Healing Perineal Wounds After Giving Pineapple Juice (Ananas Comosus) to Postpartum

Based on table 3, out of 35 respondents after being given pineapple juice, 29 respondents (82.9%) had good wound healing, and 6 respondents (17.1%) had poor healing. The healing process for perineal wounds begins with the formation of new tissue that covers the suture wound. Usually lasts 7-10 days, maximum 14 days. There are two main healing processes: primary intention, where the wound edges are joined together with stitches, and secondary intention, where the tissue deficit takes longer to heal (Boyle, 2018). Previous research shows that consumption of pineapple juice (Ananas Cosmosus) in postpartum women at a dose of 300 ml (2x150ml) accelerates the healing process of perineal wounds, with an average of 9.10 days for full healing and 3.74 days for significant improvement over 7 days. In the control group, where only

standard treatment was given, the average healing was 6 days with a standard deviation of 0.594, and a minimum range of 5 days and a maximum of 7 days (Sari, 2022).

According to researchers' assumptions, the process of healing perineal wounds after being given pineapple juice for 6 days was very influential. The results showed that postpartum mothers with perineal wounds healed on the 6th day because pineapple juice contains bromelain as an anti-inflammatory. This was also influenced by respondents who were cooperative in following. instructions from researchers to consume pineapple juice every day so that the wound healing process heals well and faster than usual.

The Effect of Giving Pineapple (Ananas Comosus) Juice on the Healing Process of Perineal Wounds in Postpartum Women

Based on the results of bivariate analysis using the Wilcoxon test, it shows that the p-value = 0.000 ($p < 0.05$). This shows that there is an increase in the healing process of perineal wounds after being given pineapple juice (Ananas Comosus), which means that it can be concluded that there is an influence of giving pineapple juice (Ananas Comosus) on the healing process of perineal wounds in postpartum.

Pineapple (Ananas comosus) is a herbal plant that can grow all year round and in various seasons. This plant is included in the annual monocot class, with a series of flowers that appear at the end of the stem and develop into fruit. Pineapples contain the enzyme bromelain which has anti-inflammatory, anti-invasive and anti-metastatic properties, and helps heal cuts. In addition, pineapple is rich in nutrients such as vitamin A, vitamin C, protein, carbohydrates, fat, iron, phosphorus, zinc, and manganese, all of which support the wound healing process (Azaria, 2022).

Pineapple juice contains pectin, vitamin C, and the enzyme bromelain which can reduce pain, increase blood flow, and speed up wound healing. Bromelin, in particular, has been shown to reduce post-operative pain and inflammation and speed wound healing. Research on women undergoing episiotomies shows that the bromelain in pineapple is effective at reducing post-procedure swelling, bruising, and pain (Gozelar, 2019).

Based on the research results of Arista (2020), Dewi (2023), and Bancin (2023), it was found that giving pineapple juice had a significant effect on healing perineal wounds in postpartum mothers. The p-value < 0.05 indicates that giving pineapple juice consistently affects the healing process of perineal wounds, both in the control group and the intervention group.

Based on the researcher's assumption, giving pineapple juice (Anans Comosus) has an effect on the healing process of perineal wounds in postpartum mothers, because this research uses pineapple fruit (Ananas Comosus) which is processed directly by the researcher and kept clean, then packaged properly according to the dose, namely 150 ml persaji, this research is also supported by the mature age of postpartum mothers so that respondents can understand the instructions explained and are more cooperative in drinking pineapple juice, have a diet that meets nutritional needs, and understand how to maintain clean personal hygiene.

CONCLUSION

Based on research that has been conducted, before being given pineapple juice, some postpartum experienced poor wound healing, as many as 26 people (74.3%), some experienced poor wound healing, namely 9 people (25.7%). Based on research conducted after giving pineapple juice (Ananas Comosus) on the healing process of perineal wounds in postpartum, the results showed that the majority of postpartum experienced good wound healing, namely 29 people (82.9%) and those who experienced poor wound healing were 9 people (17.1%) and a significant value was obtained between before and after giving pineapple juice to postpartum with a p-value = 0.000 <0.05. It can be concluded that there is an influence of giving pineapple juice on the healing process of perineal wounds in postpartum women. It is hoped that this research will later become a reference for subsequent research by expanding the scope of natural ingredients for pineapple juice

by adding variables and making it a reference for midwives in providing midwifery care to postpartum women, where pineapple juice is an adequate nutrient in helping heal perineal wounds.

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