

The Effect of Soy Milk Consumption on the Duration of Perineal Wound Healing in Postpartum Mothers

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ABSTRACT

Perineal wounds in postpartum mothers that do not heal promptly within several days can lead to infections. Nutritional status is also considered a crucial factor in the wound healing process. Mothers with good nutritional status tend to experience faster healing of perineal wounds, including those with protein intake from processed soy milk. This research aims to determine the impact of soy milk consumption on the duration of perineal wound healing in postpartum mothers at the Independent Midwife Practice (IMP) Sriwati Palu. The study design employed a pre-experimental design with an Intact Group Comparison approach. The sample consisted of 16 postpartum mothers with second-degree perineal wounds at the IMP Sriwati Palu, selected through quota sampling. Univariate and bivariate analyses using the Mann-Whitney U test were conducted. The research findings indicate that respondents who consumed soy milk were four times more likely to experience faster healing compared to those who did not consume soy milk. The Mann-Whitney U test yielded a p-value of 0.000 (<0.05), suggesting a statistically significant influence of soy milk consumption on the duration of perineal wound healing in postpartum mothers at the IMP Sriwati Palu. In conclusion, soy milk consumption has a significant impact on the duration of perineal wound healing in postpartum mothers at the IMP Sriwati Palu.

Keywords: Perineal Wound, Soy Milk

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INTRODUCTION

During the childbirth process, the vulva and vagina undergo changes, particularly in the perineum, resulting from tears in the birth canal, either spontaneously or due to episiotomy with specific indications¹. As a result of perineal wounds, postpartum mothers experience pain, leading to discomfort and a fear of engaging in early mobilization², however, early mobilization is crucial to facilitate the expulsion of lochia, prevent infection in the wound, ensure a smooth involution process, improve blood circulation,

prevent thrombophlebitis, and expedite wound healing³⁻⁵.

Based on the data from the Palu City Health Office in 2023, the number of mothers delivering pervaginam was 7,206, and there were cases of postpartum infections⁶. Direct interviews with midwives in several health facilities revealed that a majority of mothers delivering pervaginam experienced perineal wounds and discomfort during the healing process, especially in the case of second-degree perineal tears, resulting in pain. The research findings confirmed that a significant number of mothers experienced second-degree perineal

wounds, thereby affecting postpartum perineal pain⁷.

Perineal wound healing if there is no infection will heal within 6-7 days⁸. Perineal wounds in postpartum mothers that do not heal promptly can lead to infections⁹, influenced by various related factors. This process may be disrupted or delayed recovery due to factors such as age, nutrition¹⁰, pain, poor hygiene¹¹, cultural practices, and hereditary factors¹². The nutritional needs during the postpartum period, especially during breastfeeding, increase by 25%, benefiting the post-delivery healing process¹. One crucial source of nutrition in perineal wound healing is protein intake¹³. Research results indicate that the quantity of consumed protein has the most significant impact on the condition of second-degree perineal wound healing¹⁴. Another study shows that postpartum mothers with birth canal (perineum) injuries on days 1-42 have a sufficient protein intake rate in the category of "adequate" (53.3%), with perineal wound healing time falling into the "primary" category (53.3%). Based on statistical tests, there is a correlation between postpartum mothers' protein intake and the duration of perineal wound healing¹⁵.

Many sources of protein are available, such as animal and plant-based proteins. Plant-based protein sources include legumes, tofu, tempeh, and so on. One of these sources is soybeans, which are frequently used as food ingredients and can be processed into various forms, including the use of soy milk, a product rich in zinc. This mineral is beneficial for maintaining and enhancing immune function, aiding in the wound healing process by increasing the number of connective tissue cells¹⁶. This study aimed to investigate the influence of soy milk consumption on the duration of perineal wound healing in postpartum mothers at the Independent Midwife Practice (IMP) Sriwati Palu.

METHOD

The research design employed in this

study was Pre-Experimental research with an Intact Group Comparison design, where the researcher compared two existing groups without randomizing them. The researcher applied treatment to one group, providing an intervention, while the other group received no treatment.

The study was conducted from July 23 to August 23, 2020, at the Independent Midwife Practice (IMP) Sriwati Palu. The population for this research comprised all postpartum mothers with perineal wounds at the IMP Sriwati Palu. The sample for this study included some postpartum mothers with second-degree perineal wounds at the IMP Sriwati Palu, obtained through sample size calculations using the Lemeshow formula, as the population estimate was unknown. The sample size for this study was 16 respondents, divided into two groups: 8 respondents in the control group and 8 respondents in the intervention group.

This study utilized quota sampling with inclusion criteria being postpartum mothers with second-degree perineal rupture, having a healthy body condition, receiving care at the IMP on the first day after 2 hours postpartum, and willing to participate as respondents. Exclusion criteria included mothers with psychological disorders, anemia, diabetes mellitus, and a history of nut allergies. The dropout criterion was if a respondent could not continue as a study sample. Data collection techniques for this study only involved primary data. The instrument used in this study was in the form of an observation sheet. The analysis used in this study included univariate and bivariate analyses. Univariate analysis generated the distribution and percentage of each variable, including the independent variable (soy milk consumption) and the dependent variable (duration of perineal wound healing). Bivariate analysis first conducted a normality test using Shapiro-Wilk. As the data did not follow a normal distribution, the Mann-Whitney U-test was employed in this study

RESULTS

Based on sample characteristics, the research found the following data.

Table 1. Respondent Characteristics

Characteristics	Category	f	%
Age (years)	< 20 and > 35 years	0	0
	20 – 35 years	16	100
Education	Junior High School	3	19
	Senior High School	5	31
	College	8	50
Parity	Primipara	9	56
	Multipara	7	44
	Grandemulipara	0	0
Occupation	Employed	7	44
	Unemployed	9	56

Based on Table 1, it is known that all respondents fall within the age range of 20 – 35 years, comprising 100%. The majority have a college-level education, accounting for 50%.

The most common parity is primipara, constituting 56%. The predominant occupation among the respondents is unemployed, making up 56%.

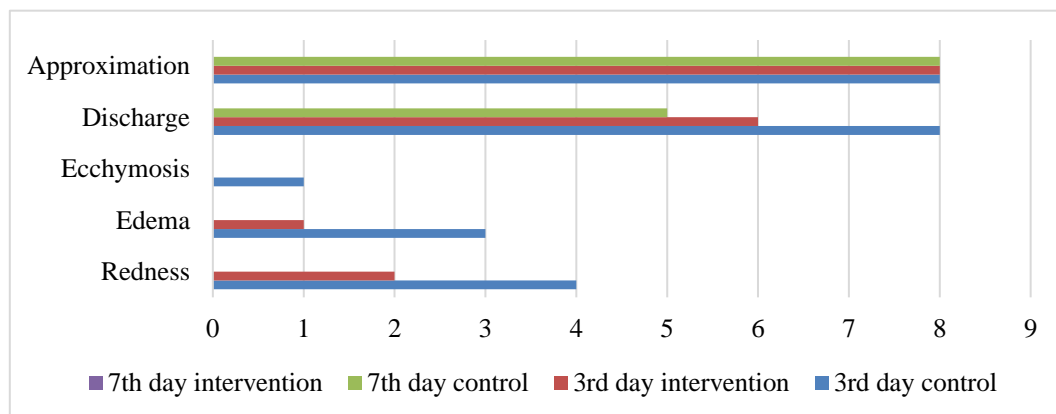


Figure 1. Duration of Perineal Wound Healing in Postpartum Mothers

Based on the REEDA scale assessment on day 3, observations of 8 respondents in the intervention group still showed signs of REEDA, with the majority (100%) experiencing Approximation (wound closure). Meanwhile, observations of 8 respondents in the control group showed that the majority

(100%) still experienced Discharge and Approximation.

Observations continued on day 7 using the REEDA scale. In the intervention group, none of the respondents exhibited signs of REEDA. However, in the control group, the majority (100%) showed signs of Approximation

Table 3. Bivariate Analysis of the Effect of Soy Milk on the Duration of Perineal Wound Healing in Postpartum Mothers

Soy Milk Consumption	Perineal Wound Healing Duration				Z-Score	P Value
	Fast		Slow			
	f	%	f	%		
Intervention	8	100	0	0	-3,633	0,000
Control	0	0	8	100		

Based on Table 3, the Z-score value of -3.633 indicates that mothers who were given soy milk have approximately 3.633 times (rounded to 4 times) higher chances of faster perineal wound healing compared to mothers who did not consume soy milk. The Mann-Whitney U test results show a p value of 0.000. Since this value is less than the significance level of 0.05, statistically, the null hypothesis (H_0) is rejected. Therefore, the hypothesis in this study is accepted, indicating that there is an influence of soy milk consumption on the duration of perineal wound healing in mothers.

DISCUSSION

Based on the research conducted at the Independent Midwife Practice (IMP) Sriwati Palu on 16 postpartum mothers, it was found that the perineal wounds experienced by the respondents were still influenced by several external factors, as observed through the characteristics of each respondent. Risk factors for perineal tear or injury, as indicated in various theories, include the age of the mother being either too young or too old, and being a first-time mother^{17,18}. In Table 1, the factor influencing the duration of wound healing was the age of the respondents, particularly those in the productive age group or the non-risk age, which includes individuals below 20 years or over 35 years. This age range was identified as a risk factor for complications. The prevalence of postpartum mothers experiencing perineal rupture was highest in the age range of 32-39 years, accounting for 62%¹⁹. This phenomenon is attributed to the underdeveloped reproductive function below the age of 20, while above the age of 35, there is a decline in reproductive function. Respondents in the productive age group resulted in a faster body function in repairing damaged tissues, leading to a quicker healing process of perineal wounds compared to the non-productive age group²⁰.

It is evident that respondents with higher education are more easily educated about clean and healthy living behaviors, as well as vulva hygiene²¹ resulting in lower REEDA scale scores compared to respondents with lower education who have higher REEDA scores. Other research findings state that there is a correlation between the postpartum mothers' knowledge of perineal wound care and the prevention of infection. Respondents who consumed soy milk, whether primiparous or

multiparous, showed no significant difference in the healing process²². Similarly, the respondents' occupations did not affect the duration of perineal wound healing, as all respondents avoided heavy work during the 7-day postpartum period.

In Figure 1, it is outlined that the two groups of respondents were observed using the REEDA scale assessment. On the 3rd day, the overall condition of the intervention group still showed signs of REEDA, with the majority experiencing Approximation (wound closure). Conversely, the control group also still exhibited signs of REEDA overall, with the most commonly observed criteria being Approximation and Discharge. The wound exudate for the respondents included serum and serosanguinous discharge. Upon comparison, although both groups of respondents still showed overall signs of REEDA, those in the intervention group had fewer instances of REEDA compared to the control group.

On the 7th day, all respondents in the intervention group showed no signs of REEDA and were declared to have healed within ≤ 7 days. In contrast, the control group still had respondents experiencing REEDA signs, with an average healing time on days 10 to 11. The research results indicate that respondents who consumed soy milk had approximately 3.633 times higher chances of faster healing of perineal wounds compared to respondents who did not consume soy milk. Soybean milk is a common drink prepared from soybeans and is rich in soy protein, soy isoflavones, and other bioactive components^{23,24}. Soy milk can have potential benefits for postpartum mothers, as it has a relatively low cost and contains more protein than most other dairy alternatives. Soy milk also contains fat, carbohydrates, calcium, phosphorus, iron, provitamin A, B-complex vitamins (except B12), and water²⁵⁻²⁷.

Wound healing with the assessment of perineal suture quality during the postpartum period is expected to protect postpartum mothers from the dangers of infection or physiological complaints by increasing the intake or consumption of a high-protein diet in daily life²⁸. The supply of nutrients to postpartum mothers, including macronutrients (e.g., omega-3) and micronutrients (zinc, magnesium, vitamin D, vitamin E, and probiotics), plays a crucial role in the wound healing process. These macro and micronutrients are essential for modulating cell

proliferation, collagen metabolism, inflammation, oxidation stages, and omega-3, zinc, magnesium, vitamin D, vitamin E, and probiotics play a vital role in enhancing collagen production, protein synthesis, bacteria, and removal of necrotic cells^{29,30}.

Other research suggests the influence of high plant protein consumption on the quality of perineal wound healing in postpartum mothers^{12,31}. Additional studies state that the wound healing process of perineal wounds is influenced by the nutrition of postpartum mothers, particularly high-calorie intake, protein, fluid and mineral intake, as well as vitamins that aid in the regeneration of new cells, facilitating rapid perineal wound healing^{32,33}. Proper wound healing can reduce pain, analgesia use, and dyspareunia at three months postpartum^{34,35}.

CONCLUSION

The research concludes that soy milk consumption has a significant impact on the duration of perineal wound healing in postpartum mothers with second-degree injuries. Respondents who consumed soy milk exhibited a faster rate of healing compared to the control group that did not consume soy milk. The importance of the healthcare professional's role, especially midwives, in providing education to postpartum mothers about the necessary nutrition during the postpartum period, including soy milk consumption, is emphasized. It is also crucial to integrate information on soy milk consumption into postpartum care programs at healthcare facilities, particularly in Independent Midwife Practices (IMP).

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