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The effect of giving ambon bananas during the first stage of labor on the duration of the second stage of labor

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Abstract

Background: During the intrapartum period, a laboring mother experiences physiological stress due to contractions of the uterine muscles and skeletal muscles. Continuous contractions during the first stage of labor for 8 to 10 hours require adequate energy. Pain caused by these contractions often leads to a decreased appetite and fluid intake in laboring mothers, resulting in insufficient energy when entering the second stage of labor. This lack of energy can reduce the strength of uterine contractions, which may prolong the duration of the second stage of labor. Bananas are known as a source of carbohydrates and potassium that are easily available and can be given to laboring mothers as an energy reserve as well as to maintain electrolyte balance.

Purpose: To determine the difference in the duration of the second stage of labor between laboring mothers who were given bananas during the first stage of labor and those who were not.

Method: This study used a quasi-experimental design. The study population consisted of all laboring mothers at PMB Nurhidayah, located in Ketibung District, South Lampung Regency, in 2024. Samples were selected based on inclusion and exclusion criteria. A total of 40 respondents were included, consisting of 20 in the intervention group and 20 in the control group. The intervention group was given two bananas weighing a total of 400 grams during the first stage of labor. The duration of the second stage of labor was then measured in minutes. Data analysis was conducted using the Independent T-test.

Results: There was no difference in the duration of the second stage of labor between mothers who were given bananas and those who were not, with a $p\text{-value} > 0.05$.

Conclusion: The administration of bananas during the first stage of labor did not affect the duration of the second stage of labor.

Suggestion: Further research is needed to explore other benefits of bananas beyond their effect on the duration of the second stage of labor, such as fatigue levels and muscle strength.

Keywords: Banana; Duration of the Second Stage of Labor; First Stage of Labor; Laboring Mother.

INTRODUCTION

Fatigue is a natural part of childbirth, both during labor and after delivery (Pascawati, 2017). Extreme fatigue may be a sign that labor is approaching and is also a common complaint in the postpartum period (Syuhada & Yektingtyastuti, 2025). Fatigue during labor can slow the labor process and increase medical interventions such as cesarean section, vacuum extraction, or forceps delivery (Pratamaningtyas, Suwoyo, & Oktaviana, 2019).

Postpartum fatigue can affect the mother's physical and mental recovery as well as mother-infant interaction (Resmana, 2019).

Labor-related fatigue is a frequent cause of physical and mental discomfort during childbirth and increases the likelihood of medical interventions (Addini, Titisari, & Wijanti, 2020). However, because fatigue is widely considered an inevitable part of the childbirth experience, little attention has been given to

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preventive or therapeutic interventions (Restanty & Apriliana, 2023).

Fatigue during labor can be caused by various factors. One of these is prolonged labor duration, especially in primiparous women, which may last more than 12 hours (Syuhada & Yektingtyastuti, 2025). In addition, intense and continuous uterine contractions can deplete maternal energy (Ulya, Herlina, & Yunika, 2022). Insufficient nutritional and fluid intake during labor also contributes to fatigue. Psychological factors such as anxiety, stress, and fear of pain further reduce the stamina of laboring mothers (Kurniarum, 2016). The intensity of physical activity during labor is relatively comparable to continuous exercise in athletes, as maternal movement patterns during the first stage of labor are classified as moderate to high intensity (Handayani & Wahyuningsih, 2013). Therefore, adequate fluid and food intake is recommended during labor due to high energy expenditure, which requires sufficient nutritional support (Saleh, Namangdjabar, & Saleh, 2021).

The provision of adequate hydration, nutrition, comfort, and emotional regulation can reduce stress levels during labor (Saleh et al., 2021). The American College of Obstetricians and Gynecologists (ACOG) recommends fluid and food intake during labor (Maharani, 2018). Nutritional intake is prioritized to meet the energy requirements needed for uterine contractions (Jayanti, 2014). Laboring mothers are still willing to consume food during the active phase of labor (Putri, Rosida, & Satriyandari, 2020). Ambon bananas are local fruits that are economical, easily accessible to the community, and relatively easier to digest compared to other foods, especially during the intrapartum period (Irianti & Hartiningtiyaswati, 2019). During contractions, laboring mothers experience discomfort that can reduce appetite. In addition to containing easily digestible carbohydrates, bananas also contain vitamin C, which can enhance immune function. This is also important in the postpartum period, which is a recovery phase for the mother's body after experiencing physiological stress during childbirth (Yustiari, 2023).

Upon entering the active phase of the first stage of labor, mothers tend to be reluctant to consume food due to increasingly frequent pain, resulting in reduced desire to eat and drink. The processes of active first-

stage labor and the second stage of labor involve relatively high physical activity, which requires energy sources through anaerobic (Pascawati, Shahib, & Husin, 2019). The main energy sources for high-intensity physical activity with anaerobic metabolism are glucose and fructose (Ustafia, Tursilowati, & Noviardhi, 2017). Adequate caloric intake during labor helps maintain maternal blood glucose levels, which is essential for maintaining physical endurance during labor (Saleh et al., 2021).

Research suggests that bananas contain iron, which stimulates hemoglobin production in the blood and helps prevent anemia (Khumairoh & Syauqy, 2014). The vitamin C content in bananas supports immune system development (Lone, Ardiaria, & Nissa, 2017). Bananas are also relatively easy to digest compared to other foods, making them suitable for individuals with weakened immune systems (Rifaldi, 2019). Vitamin C also increases iron absorption and supports blood formation (Suryaningtias, 2024). These two health benefits make bananas a beneficial addition to the diet to prevent and treat anemia (Wulandari, Widyastuti, & Ardiaria, 2018).

At PMB Nurhidayah in Ketibung District, South Lampung Regency, laboring mothers during the first stage of labor have traditionally been given sweet tea and foods such as rice with side dishes or other light snacks. The provision of bananas during the first stage of labor has rarely been practiced. Each month, approximately one to two laboring mothers experience fatigue severe enough to require referral pre-survey data, 2024, out of 20–30 deliveries per month. Based on this background, the researchers were interested in examining the effect of Ambon banana administration during the first stage of labor on the duration of the second stage of labor. Bananas are rich in minerals such as potassium, magnesium, phosphorus, and calcium (Olii & Abdul, 2019). The carbohydrates in bananas can provide instant energy, which is beneficial for meeting immediate caloric needs (Lone et al., 2017).

Carbohydrate consumption during physical activity helps maintain blood glucose levels, supports carbohydrate oxidation in the body, and can delay fatigue for 30–60 minutes (Ginting, 2017). Studies on bananas and energy indicate that bananas are a rapid source of energy due to their carbohydrate content (glucose, fructose, and starch) and also provide

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electrolytes (potassium and magnesium) that help prevent muscle cramps and maintain bodily function (Suryaningtias, 2024).

RESEARCH METHOD

The study employed a quasi-experimental design with a pretest–posttest control group design. In this study, subjects who met the inclusion criteria were divided into two groups: an intervention group and a control group. The intervention group was given two medium-sized bananas with an estimated weight of 118 grams per banana. The control group was given sweet tea and other foods. The study was conducted

at TPMB Nurhidayah, where there are approximately 20–30 deliveries per month. The research was carried out from January 2025 to March 2025. The sample size was calculated using the Lemeshow formula with a 1:1 ratio, resulting in a total of 40 subjects.

The independent variable was banana administration, and the dependent variable was the duration of the second stage of labor. The instruments used were a questionnaire and a clock. Data analysis included univariate and bivariate analyses. The Independent T-test was applied with a significance level of 0.05.

RESEARCH RESULTS

Tabel 1. Characteristics of Respondents (N=40)

Variable	Results	Standard Deviation	Standard Error of the Mean	P- value
Age (Mean±SD) (Range) (Years)	(27.5±3.95) (18-35)			
<20	2/10.0			
20–35	36/90.0			
35	2/10.0			
Parity (n/%)				
Primigravida	12/30.0			
Multigravida	28/70.0			
Mean Duration of the Second Stage of Labor				
Intervention group	22,25 minutes	9.244	2.067	0.496
Control group	24,40 minutes	8.685	1.942	

Based on Table the majority of respondents were aged 20–35 years (90%). In terms of parity, most respondents were multigravida (70%). The mean duration of the second stage of labor in the intervention group was 22.25 minutes. Based on the calculation results, a t-value of 0.496 was obtained with a p-value > 0.05; therefore, the null hypothesis was accepted. This indicates that there was no difference in the duration of the second stage of labor between respondents who were given bananas and those who were not.

DISCUSSION

Based on Table the majority of respondents were aged 20–35 years (90%), which is considered the healthy reproductive age. Age is an important factor in childbirth to reduce the risk of the “4 Too’s” in labor (too old, too young, too close, and too many). The results of this study are higher than those reported by

previous researchers, where 69% of respondents were within a healthy reproductive age range. At normal reproductive age, the reproductive organs are physiologically ready to support pregnancy and childbirth. Furthermore, the risk of complications such as premature birth, intrauterine growth retardation,

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and fetal distress is lower (Attaqy, Kalsum, & Syukri, 2022).

Based on spacing/parity, most respondents were multiparous, defined in this study as having experienced two to four pregnancies. Pregnancies of more than four are classified as grand multiparity. Parity is one of the factors that can influence labor outcomes, as mothers with more than four pregnancies fall into the "too many" category of the 4 Too's risk factors.

Based on Table p-value was greater than 0.05, indicating that there was no difference in the duration of the second stage of labor between respondents who were given bananas and those who were not. The findings of this study suggest the need for further research, as bananas were administered in their natural form and not processed into juice or liquid form. The provision of fluids containing mixtures of fruits, nuts, and honey, which are rich in glucose and fructose as energy sources, can meet energy requirements during labor, particularly in the second stage (Pascawati, 2017; Asriani, 2016). Such alternative nutritional supplementation can be easily consumed by mothers and rapidly provide energy, thereby meeting nutritional needs and maintaining maternal fitness during labor (Restanty & Apriliana, 2023). Studies by (Riana Pascawati, 2017). Reported increased uterine contraction frequency in the intervention group ($p = 0.011$), prolonged contraction duration ($p = 0.000$), and increased cervical dilation ($p = 0.039$) (Addini et al., 2020).

Labor is a physiological process that requires substantial physical endurance and high energy expenditure; therefore, an additional calorie intake of 50–100 kcal per hour is necessary during labor. Previous research found that the average energy intake in the carbohydrate-supplemented group was approximately 44 kcal per hour until delivery (Maharani, 2018).

CONCLUSION

The mean duration of the second stage of labor in the group of respondents who were given bananas was 22 minutes, while the mean duration of the second stage of labor in the control group was 24 minutes. There was no difference in the duration of the second stage of labor between respondents who were given bananas and those in the control group.

Laboring mothers may be provided with additional nutritional intake during the first stage of labor, either in natural or liquid form, one of which is bananas, as they may help improve maternal fitness during labor. Maintaining fitness during labor is important for coping with the postpartum period and for physical preparation to adapt to the needs of the newborn.

SUGGESTION

Further research is needed on the administration of bananas in liquid form and its effect on the duration of the second stage of labor. Other aspects that could be explored include the effect of this nutritional fluid on the frequency of uterine contractions and cervical dilation during labor.

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