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The Effect of Giving Ambon Bananas on Stool Consistency in Toodlers With Diarrhoea in the Gunungpati Semarang Public Health Centre Area

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Abstract

Diarrhoea is characterized by an increase in stool frequency (three or more times in 24 hours) with liquid consistency, sometimes accompanied by blood. Common symptoms include abdominal bloating, cramps, nausea, and vomiting. Prolonged diarrhoea in children can lead to dehydration, reduced food intake, weight loss, and potentially failure to thrive. Ambon bananas offer a non-pharmacological approach to managing diarrhoea. This study aimed to determine the effect of Ambon banana consumption on stool consistency in children with diarrhoea. A quasi-experimental, one-group pre-test-post-test design was employed with a purposive sample of 20 children. Results indicated a significant improvement in stool consistency after the intervention ($p = 0.000$). This study concludes that Ambon bananas can effectively alter stool consistency in children with diarrhoea. Parents are advised to consider incorporating Ambon bananas into the dietary management of diarrhoea in their children.

Keywords: Ambon Banana, Children Diarrhoea, Stool Consistency.

1. INTRODUCTION

Diarrhoea, characterized by an increase in stool frequency (three or more loose or liquid stools in 24 hours), often accompanied by blood, is a significant health concern, particularly in children (Muthmainnah et al., 2023). Common symptoms include abdominal bloating, cramps, nausea, and vomiting. Diarrhoea can disrupt fluid balance, leading to dehydration, circulatory issues, and impaired kidney function. The high incidence of diarrhoea in Indonesia, and its contribution to child mortality, prompted the government to issue the Decree of the Minister of Health of the Republic of Indonesia Number 1216/MENKES/SK/XI/2001, outlining guidelines for diarrhoeal disease eradication (Fitrah, Neherta, & Sari, 2023).

Globally, diarrhoea affects an estimated 1.7 billion people annually, causing approximately 760,000 child deaths each year (WHO, 2021). The Center for Disease Control and Prevention (CDC) reports that diarrhoea is responsible for 801,000 child deaths annually, averaging 2,195 deaths per day (CDC, 2020). In Indonesia, diarrhoea is endemic and a potential cause of public health emergencies. While an estimated 10% of sufferers seek treatment at health facilities, the 2020 incidence survey revealed a rate of 214 cases per 1,000 population. The prevalence of diarrhoea among Indonesian children reached 9.8%, accounting for 4.55% of deaths in this age group (Ministry of Health of the Republic of Indonesia, 2020).

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In Central Java Province, the prevalence of diarrhoea increased from 67.7% in 2019 to 68.9% in 2020 (Central Java Health Office, 2021). Semarang City reported an incidence of 29.83 per 1,000 residents in 2020 and 29.87 per 1,000 residents in 2021. The Semarang City Health Office documented 21,765 cases of diarrhoea in 2021, with 6,030 cases occurring in children (Semarang City Health Office, 2021).

Prolonged diarrhoea in children can lead to dehydration, decreased food intake, weight loss, and growth failure. Initial management includes oral rehydration therapy (ORT) and liquid-textured foods. For infants under six months, ORT with boiled water is crucial. Parents should also be educated on providing zinc supplements, adequate nutrition to prevent malnutrition, continued breastfeeding, and recognizing signs of dehydration (Kristianingsih & Victoria, 2023).

Pharmacological management of diarrhoea may involve fluid replacement, symptomatic treatment, and antibiotics (Jayanto, Ningrum, & Wahyuni, 2020). Non-pharmacological approaches include increased consumption of water, yogurt, cheese, carrot soup, ginger, and Ambon bananas. Ambon bananas are believed to be beneficial due to their vitamin and potassium content, providing energy and aiding in rehydration. Additionally, the pectin in Ambon bananas, a water-soluble fiber, helps solidify stool, thus reducing diarrhoea (Kristianingsih & Victoria, 2023; Muthmainnah et al., 2023).

The therapeutic potential of Ambon bananas in diarrhoea management is supported by several studies. Gasril and Devita (2022) highlight the various health benefits of Ambon bananas, particularly in treating childhood diarrhoea, attributed to their complex anti-diarrhoeal compounds. Kristianingsih and Victoria (2023) demonstrated that Ambon bananas can improve stool consistency in children with diarrhoea. This finding is corroborated by Afzal et al. (2020), who showed that Ambon bananas exhibit anti-diarrhoeal properties that may reduce the risk of diarrhoea in children. These studies suggest that the inclusion of Ambon bananas in the dietary management of diarrhoea could be a valuable strategy.

2. LITERATURE REVIEW

The term "toddler" generally refers to children under five years of age (Akbar et al., 2021). This age group can be further divided into two categories: children aged 1-3 years (toddlers) and children aged 3-5 years (preschoolers) (Harwijayanti et al., 2023). The toddler period encompasses the stage from weaning to preschool age (Riska, Rusilanti, & Istiany, 2023).

Diarrhoea is defined as the passage of loose or liquid stools more than three times in a

24-hour period (PPNI, 2017). In children, diarrhoea can be characterized as stool output exceeding 10 g/kg/24 hours, whereas the average normal stool output for infants ranges from 5-10 g/kg/24 hours (Yuliastri & Arnis, 2016). Essentially, diarrhoea involves a change in stool consistency, with stools becoming more watery than usual, and/or an increase in stool frequency (three or more bowel movements in 24 hours) (Yuliastri & Arnis, 2016). Stool consistency can be assessed using the American Baby Stool scale, which categorizes stool based on its level of density and form.

Ambon bananas (Cavendish) are a popular agricultural commodity in Indonesia, readily available year-round. This makes them a suitable candidate for developing complementary foods for breast milk (MPASI) for toddlers (16). Ambon bananas are rich in nutrients essential for infant growth, and their soft texture is easily digestible, making them an excellent MPASI option.

Furthermore, Ambon bananas offer a potential non-pharmacological therapy for diarrhoea. They contain vitamins, pectin, potassium, and complex compounds known to have anti-diarrhoeal properties (Hapzah, 2021). The vitamins and potassium in Ambon bananas help replenish energy levels and restore electrolytes lost due to frequent bowel movements. Pectin, a water-soluble fibre found in Ambon bananas, aids in solidifying stool and reducing diarrhoea.

3. METHOD

This quantitative study employed a quasi-experimental research method with a one-group pre-test-post-test design. The study involved an initial assessment (pre-test) followed by an intervention and a subsequent re-assessment (post-test). The research was conducted in the Gunungpati Health Centre area. Participants were selected using purposive sampling. Inclusion criteria included toddlers with diarrhoea whose families provided informed consent for their participation. Toddlers with severe dehydration were excluded from the study.

Data collection utilized the Bristol Stool Chart observation sheet, a standardized instrument with established validity and reliability. Data analysis involved both univariate and bivariate methods. Univariate analysis described the frequency distribution of stool consistency in children with diarrhoea before and after the intervention (Ambon banana consumption). Bivariate analysis, using the Wilcoxon non-parametric hypothesis test ($p \leq 0.05$), was performed to assess the effect of Ambon banana consumption on stool consistency in children with diarrhoea.

4. RESULTS

As shown in Table 1, the majority of respondents (n=12, 75%) were 3 years old.

Table 1:
Frequency Distribution of Respondents by Age

Age (Years old)	Frequency (n)	%
3 years old	12	75
4 years old	8	25
Total	20	100,0

Table 2 shows an equal distribution of male (n=10, 50%) and female (n=10, 50%) respondents.

Table 2:
Frequency Distribution of Respondents Based on Gender

Gender	Frequency (n)	Percent %
Male	10	50
Female	10	50
Total	20	100

Table 3 presents the average stool consistency scores before and after the administration of Ambon bananas. The average score before the intervention was 6.67, which decreased to 4.54 after the intervention. This decrease in score indicates an improvement in stool consistency, suggesting that Ambon bananas have a positive effect on stool consistency in toddlers with diarrhoea.

Table 3:
Stool Consistency in Toddlers with Diarrhoea Before and After Giving Ambon Bananas

Variable	n	Stool Consistency		
		Min-Max	Mean	SD
Consistency of stool in toddlers with diarrhoea before giving Ambon bananas	20	6-7	6,67	0,528
Consistency of stool in toddlers with diarrhoea after giving Ambon bananas	20	4-6	4,54	0,576

Table 4:
The Effect of Giving Ambon Bananas on Stool Consistency in Toddlers with Diarrhoea

Variable	n	*Mean Rank*	P-*value*
The effect of giving Ambon bananas on stool consistency in toddlers with diarrhoea after being given Ambon bananas	20	15,55	0,000

As shown in Table 4 the Wilcoxon signed-rank test revealed a statistically significant difference in stool consistency before and after the administration of Ambon bananas ($p = 0.000$). This finding supports the conclusion that Ambon bananas have a significant effect on improving stool consistency in toddlers with diarrhoea.

5. DISCUSSION

1. Consistency of stool in toddlers with diarrhoea before giving Ambon bananas

Furthermore, the observation that most respondents experienced diarrhoea after consuming formula milk is consistent with previous research. Yuniarti and Vinnata (2020) found a correlation between formula milk consumption and the incidence of diarrhoea in toddlers, suggesting that formula-fed toddlers may be more susceptible to diarrhoea.

The practice of administering oral rehydration solution (ORS) after episodes of diarrhoea, as observed in some respondents, is supported by Wijayanti, Iswati, and Rosyida (2023). Their study demonstrated the effectiveness of ORS in reducing the frequency of diarrhoea in toddlers.

Finally, the importance of maternal knowledge in managing childhood diarrhoea is underscored by Anastasiani, Ningsih, and Ovany (2023). Their research indicated that higher maternal knowledge is associated with better diarrhoea management practices. This highlights the need for effective health education to equip parents with the knowledge necessary to prevent complications and ensure appropriate care for children with diarrhoea..

2. Consistency of stool in toddlers with diarrhoea before giving Ambon bananas

The study results demonstrated that the average stool consistency score after the administration of Ambon bananas was 4.54, indicating a significant improvement in stool consistency. This finding is consistent with previous research by Kristianingsih, Mardi Asih, and Victoria (2023), who also observed an improvement in stool consistency among toddlers with diarrhoea after consuming Ambon bananas. Further support is provided by Afzal et al. (2020), who demonstrated the antidiarrheal properties of Ambon bananas in reducing the risk of diarrhoea in children.

These findings reinforce the potential of Ambon bananas as a non-pharmacological intervention for managing diarrhoea in children. As previously discussed, Ambon bananas are a good source of vitamins, potassium, and pectin (Kristianingsih & Victoria, 2023). The potassium content helps to address dehydration, a common complication of diarrhoea, while pectin, a soluble fiber, aids in solidifying stool and reducing diarrhoea (Muthmainnah, 2023). Incorporating Ambon bananas into the dietary management of childhood diarrhoea may offer a safe and effective approach to improve stool consistency and overall outcomes.

3. The effect of giving Ambon bananas on stool consistency in toddlers with diarrhoea

The Wilcoxon signed-rank test demonstrated a statistically significant effect of Ambon banana consumption on stool consistency in toddlers with diarrhoea ($p = 0.000$). This finding, indicating improved stool consistency after the intervention, aligns with previous research by Kristianingsih, Mardi Asih, and Victoria (2023) and Afzal et al. (2020), who also reported the beneficial effects of Ambon bananas in managing childhood diarrhoea. Gasril and Devita (2022) further support these findings, highlighting the various health benefits of Ambon bananas attributed to their complex anti-diarrhoeal compounds.

Ambon bananas are a readily available and nutrient-rich food source, making them a suitable dietary option for infants and young children. Their soft texture promotes easy digestion, and their composition, including vitamins, potassium, and pectin, contributes to their anti-diarrhoeal properties (Hapzah, 2021). The potassium content helps to counteract dehydration caused by diarrhoea, while pectin, a soluble fiber, aids in solidifying stool.

The success of this study was likely facilitated by the emphasis on proper hygiene and sanitation in the preparation and presentation of the Ambon bananas. This is consistent with research by Hutasoit (2020) and Setyaningsih and Diyono (2020), who emphasized the critical role of food sanitation in preventing diarrhoea. These findings underscore the importance of incorporating Ambon bananas, prepared and presented hygienically, as a safe and effective non-pharmacological approach to improve stool consistency and manage diarrhoea in toddlers.

6. CONCLUSION

This study demonstrated a statistically significant improvement in stool consistency in toddlers with diarrhoea after the consumption of Ambon bananas. The average stool consistency score improved from 6.67 before the intervention to 4.54 after the intervention ($p = 0.000$). Based on these findings, it is recommended that families incorporate Ambon bananas into the dietary management of toddlers experiencing diarrhoea to promote improved stool consistency.

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