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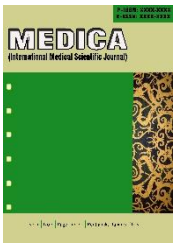

The Effectiveness of Yogurt and Papaya Juice Consumption on Constipation Incidence in Third Trimester Pregnant Women

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Abstract

Constipation in pregnant women in their third trimester is a significant health problem with a prevalence of 9.67% at the Rasau Jaya Community Health Center. If not properly treated, constipation can trigger serious complications such as hemorrhoids and bleeding, so an effective solution is needed to improve the quality of life of pregnant women. This study aims to determine the effectiveness of yogurt and papaya juice consumption in treating constipation in pregnant women in their third trimester at the Rasau Jaya Community Health Center, Kubu Raya District. This study used a quantitative method with a quasi-experimental design and a two-group pre-post test approach. The results showed different effectiveness between the two interventions. In the yogurt group, the mean constipation score decreased from 21.65 before the intervention to 10.40 after the intervention, indicating that constipation was resolved (indicator value <15). Statistical test results showed a p-value of 0.000, proving the effectiveness of probiotic yogurt in treating constipation. Meanwhile, in the papaya juice group, the mean score decreased from 22.10 before the intervention to 18.50 after the intervention. Although there was a decrease in the mean score, constipation in this group was not completely resolved, even though the p-value of 0.000 also indicated the effectiveness of papaya juice. In conclusion, yogurt proved to be more effective than papaya juice in treating constipation in pregnant women in their third trimester at the Rasau Jaya Community Health Center, Kubu Raya District.

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1. INTRODUCTION

Pregnancy is a critical period marked by substantial physiological and hormonal changes that support fetal development but may also disrupt maternal bodily functions (Sangi, 2022). During the third trimester, the growing fetus increases pressure on internal organs, especially the digestive tract, while hormonal fluctuations further affect bowel motility. One of the most common digestive problems experienced by pregnant women is constipation, which significantly affects maternal comfort and overall pregnancy well-being (Kuronen et al., 2020; Asih, 2022). This condition not only causes physical discomfort but also influences psychological well-being and daily functioning.

Constipation is characterized by difficulty or decreased frequency of defecation, hard stools, abdominal discomfort, bloating, and a sensation of incomplete evacuation (Lewis, 2022; Sari & Candraruna, 2023). In the third trimester, constipation may be triggered by hormonal changes, reduced abdominal space, multiparity, weight gain, and the consumption of iron supplements (Şenol, Özkan, & Aslan, 2021; Hayati, 2020). In addition, lifestyle factors such as low fiber intake and limited physical activity further aggravate this condition (Sangi, 2022). The high prevalence of constipation worldwide reaching nearly half of pregnant women in some regions demonstrates the magnitude of this problem (Li, Zhang, & Xue, 2020; Ahmad, Maternity, & Lathifah, 2023). In Indonesia alone, constipation occurs in nearly one out of eight pregnant women, with the highest prevalence in the third trimester (Mansouri et al., 2017; Asih, 2022). If left untreated, chronic constipation can lead to hemorrhoids, pain, bleeding, and in severe cases, complications during labor.

Management of constipation during pregnancy can be approached through pharmacological and non-pharmacological interventions (Maris, Wardani, & Marjuki, 2022). Pharmacological treatments, such as laxatives, are typically recommended only when lifestyle modifications fail, due to concerns about fetal safety (Li, Zhang, & Xue, 2020; Hayati, 2020). Non-pharmacological interventions such as consuming high-fiber foods, increasing hydration, and incorporating probiotics are generally preferred and safer for pregnant women (Yanti & Chairiyah, 2022; Anggrahayu, Winarna, & Asih, 2023; Ahmad, Maternity, & Lathifah, 2023). Papaya, which contains soluble fiber like pectin, and yogurt, which contains probiotics beneficial for gut motility, are natural options believed to improve bowel movements (Yati et al., 2020). However, despite their known benefits, research examining the combined or comparative effectiveness of yogurt and papaya juice for relieving constipation in third-trimester pregnancy remains limited.

Data from Rasau Jaya Community Health Center indicate that constipation is a significant complaint among pregnant women, with reports showing that nearly one-tenth of third-trimester mothers experienced constipation from June to December 2023. A preliminary study in January 2024 further revealed that all interviewed third-trimester mothers were experiencing constipation, some progressing to grade III–IV hemorrhoids, resulting in bleeding and decreased hemoglobin levels requiring specialist monitoring and blood transfusions. This condition raises concerns regarding maternal safety near delivery. Interestingly, the Rasau Jaya area has abundant access to California papaya, which is safe for pregnancy when fully ripe and may offer therapeutic benefits. This contextual uniqueness highlights the potential for local, accessible, and low-risk interventions to address constipation.

Existing studies in Indonesia have explored various non-pharmacological methods for managing constipation in pregnancy, yet the specific use of yogurt and papaya juice either separately or in comparison has not been investigated in the context of third-

trimester pregnant women, particularly in Rasau Jaya. This gap in research warrants scientific exploration, especially given the availability of local resources and the high prevalence of constipation in the region. Therefore, this study seeks to examine the effectiveness of yogurt and papaya juice consumption as non-pharmacological interventions in alleviating constipation among third-trimester pregnant women at Rasau Jaya Community Health Center. The novelty of this study lies in evaluating two accessible dietary interventions within a specific local context where constipation poses substantial maternal health risks. The objective of the research is to determine which intervention yogurt or papaya juice is more effective in improving constipation among third-trimester pregnant women.

2. METHOD

This study employed a quasi-experimental design with a two-group pre–post test approach. The intervention group received papaya juice, while the comparison group received yogurt. This design was chosen to measure changes in constipation status before and after the intervention in each group and to compare the effectiveness between the two treatments.

The study population consisted of all third-trimester pregnant women experiencing constipation in the working area of Rasau Jaya Community Health Center, Kubu Raya Regency. A total of 40 eligible pregnant women were included using a purposive sampling technique. These participants were then allocated into two groups: 20 respondents in the yogurt group and 20 respondents in the papaya juice group. This allocation ensured that each intervention could be assessed for its effect on constipation.

Data collection began after obtaining research permission and ethical approval. Researchers coordinated with Rasau Jaya Community Health Center staff to identify third-trimester pregnant women with constipation complaints. Eligible respondents were informed about the study objectives, procedures, potential benefits, and risks before signing informed consent. The intervention was then carried out for seven consecutive days, during which the yogurt group received 65 g of probiotic yogurt daily, while the papaya juice group received 130 g/mL of papaya juice daily. Throughout the intervention period, data were recorded daily using a checklist, and constipation severity was assessed using the Wexner Constipation Score.

The research instruments included a questionnaire to obtain respondent characteristics, a checklist for monitoring daily consumption and symptoms, and the Wexner Constipation Score to measure constipation severity before and after the intervention. All collected data were processed and analyzed using SPSS software.

Data analysis consisted of two stages. Univariate analysis was performed to describe respondent characteristics and the distribution of constipation scores in both groups. Bivariate analysis was then conducted to compare the effectiveness of yogurt and papaya juice in reducing constipation among third-trimester pregnant women. This study received ethical approval from the Ethics Committee of the Pontianak Ministry of Health Polytechnic (Ethical Clearance No. 103/KEPK-PK.PKP/III/2024).

3. RESULTS AND DISCUSSION

Table 1. Frequency Distribution of Respondents

Variable	Category	Group			
		Yogurt		Papaya Juice	
		n	%	n	%
Age	< 20 years	2	10.0	1	5.0

	20-35 years	17	85.0	16	80.0
	Under 35 years old	1	5.0	3	15.0
Education	Elementary	1	5.0	1	5.0
	Junior High School	5	25.0	3	15.0
	High School	11	55.0	13	65.0
	Higher Education	3	15.0	3	15.0
Parity	Primigravida	15	75.0	15	75.0
	Multigravida	5	25.0	5	25.0
Gestational age	27-32 weeks	6	30.0	4	20.0
	33-40 weeks	14	70.0	16	80.0
Total		20	100.0	20	100.0

Based on Table 1 above, there are variations in the characteristics of respondents, namely in terms of age, almost all respondents are aged 20-35 years (85%) in the yogurt group and the majority are aged 20-35 years (80.0%) in the papaya juice group. Furthermore, in terms of education, most respondents had a high school education in the yogurt group (55%) and the papaya juice group (65%). Most respondents were primigravida in the yogurt group (75%) and the papaya juice group (75%). In terms of gestational age, almost all respondents in the papaya juice group (80%) were between 33-40 weeks pregnant, and most respondents in the yogurt group (70%) were between 33-40 weeks pregnant.

Table 2. Effectiveness of papaya juice on constipation incidence in pregnant women in the third trimester at the Rasau Jaya Community Health Center, Kubu Raya District

Intervention	Mean	SD	t	p-value*
Pre	22.10	2.10013	6.282	0.000
Post	18.50	1.67017		

Description: *Paired sample T-Test*

Based on Table 2, there was a difference before and after the papaya juice intervention, with a mean value before the intervention (22.10) and a mean value after the intervention (18.50) of the indicator value >15, which means that constipation had not been resolved despite a decrease in the mean score. The p-value result of 0.000 indicates that papaya juice is effective in managing constipation during pregnancy in the Rasau Jaya Community Health Center working area, as indicated by the decrease in mean value and p-value < 0.05.

Table 3. Effectiveness comparison of both (*yogurt* consumption and papaya juice) on constipation incidence in pregnant women in the third trimester at the Rasau Jaya Community Health Center, Kubu Raya District.

Group	Mean±SD Wexner Constipation Score	p-value*
Yogurt	10.40±1.67	0.000
Papaya juice	18.50±1.81	

Description: *Independent T-Test*

Based on Table 3, the results of *the Independent T-Test* show a decrease in constipation scores in the yogurt and papaya juice groups, with the yogurt group scoring 10.40 and the papaya juice group scoring 18.50. *The p-value* for both groups is (0.000), which indicates a significant difference in the effect of the intervention on constipation management during pregnancy in the Rasau Jaya Community Health Center working area.

DISCUSSION

The characteristics of the respondents show that most pregnant women in both groups were within the age range of 20–35 years, which represents the optimal reproductive age. Women in this age group tend to be at the peak of their fertility, resulting in a higher number of pregnancies and, consequently, a greater likelihood of experiencing pregnancy-related constipation. This finding supports Hanim's (2019) study, which reported that 78.1% of pregnant women aged 20–35 years in the Payung Sekaki Pekanbaru Community Health Center experienced constipation (Hanim, 2019). The educational background of respondents also showed similar patterns across groups, with most having completed high school education. Although this level of education is relatively low, it does not necessarily limit knowledge improvement, especially when proper health education interventions are provided. Taha's (2022) study reinforces this finding, demonstrating a significant increase in pregnant women's knowledge of constipation management following educational intervention, especially among women aged 20–35 years and those with higher education (Taha 2022).

Regarding gravidity, most respondents in both the yogurt and papaya groups were primigravida. First-time pregnant women often lack prior experience in managing physiological changes, including constipation, which is common in pregnancy. This aligns with Taha's (2022) findings that constipation occurred in 78% of primigravida women compared with 22% of multigravida women, partly due to decreased digestive muscle tone and pressure from the enlarging uterus during late pregnancy. However, Hanim (2019) reported differing results, noting higher constipation in multigravida (82.3%) due to a history of constipation in previous pregnancies (Hanim, 2019). Most respondents were also in the third trimester of pregnancy, a period associated with increased uterine pressure, higher progesterone levels, and decreased physical activity, all of which contribute to constipation. This pattern is consistent with studies by Taha (2022), Ishibashi et al., (2024), Johannessen and Cartwright (2021), and Fan et al., (2020), who explain how hormonal changes and mechanical pressure in late pregnancy significantly contribute to constipation complaints.

The effectiveness of yogurt in reducing constipation was evident from the marked decline in mean constipation scores after the intervention. Yogurt contains probiotics such as *Lactobacillus* and *Bifidobacterium*, which help maintain intestinal microflora balance and improve colonic motility. Evidence from Ahmad, Maternity, & Lathifah, (2023) and Evayanti and Ediyono (2024) demonstrates that probiotic yogurt significantly increases bowel movement frequency among pregnant women, reducing constipation complaints. Furthermore, yogurt's lactic acid content promotes peristalsis, supporting digestion and fecal elimination. Nili et al. (2021) also found that probiotic yogurt improved symptoms of constipation more effectively than regular yogurt, particularly in terms of reducing straining, obstruction sensations, and incomplete evacuation (Nili et al., 2021). These findings highlight yogurt as an effective and safe non-pharmacological therapy for constipation during pregnancy.

Papaya juice was also shown to be effective in reducing constipation severity. Its fiber content, papain enzyme, and high water composition support stool softening and stimulate bowel movements. Findings from Dharmayanti (2018) and Yanti & Chairiyah (2022) indicate a significant reduction in constipation complaints among third-trimester pregnant women following papaya consumption, supported by p-values indicating strong statistical significance. Additional evidence from Annaházi et al. (2021) shows that papain acts through enzymatic mechanisms affecting gastric motility rather than neural pathways, strengthening its role in improving gastrointestinal function. Patch et al. (2023) further

reported that papaya-based products significantly alleviated constipation and digestive discomfort in controlled trials, reinforcing papaya's therapeutic potential for digestive disorders, including constipation during pregnancy.

When comparing interventions, yogurt was found to be more effective than papaya juice, demonstrated by the lower posttest mean score in the yogurt group. This superior effectiveness may be attributed to the synergistic probiotic and prebiotic components of yogurt, which more directly enhance intestinal flora and increase peristaltic activity. Research by Zhang et al. (2020) confirms that probiotics improve constipation symptoms, bowel movement frequency, stool consistency, and gut microbial balance. Additionally, yogurt offers broader nutritional benefits, including essential vitamins and minerals, which may support overall maternal health. Studies by Masoumi et al. (2021), Hadjimbei, Botsaris, & Chrysostomou (2022), Sheyholislami & Connor (2021), and He, Chin, & Lomiguen (2020) further highlight yogurt's role in improving gut biodiversity, supporting immune function, managing bacterial vaginosis, and contributing to pregnancy health.

This study has several limitations. The sample size was relatively small and limited to one community health center, reducing generalizability. The intervention duration was short, and long-term effects of yogurt and papaya juice were not evaluated. Dietary habits, fluid intake, and physical activity—which can influence constipation were not controlled, potentially affecting outcome consistency. Lastly, the reliance on self-reported data may introduce response bias.

4. CONCLUSION

It is concluded that the consumption of yogurt and papaya juice is effective in managing constipation in pregnant women in the third trimester at the Rasau Jaya Health Center in Kubu Raya District. Specifically, yogurt showed higher efficacy than papaya juice in alleviating constipation complaints.

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