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The Relationship Between Carrot Juice Consumption, the Level of Constipation in Pregnant Women at Alisah Clinic in 2025

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ABSTRACT

Constipation is a common problem experienced by pregnant women, mainly caused by physiological changes during pregnancy, such as increased levels of progesterone which slow down intestinal peristalsis, as well as the pressure exerted by the growing uterus on the digestive tract. This condition often leads to abdominal discomfort, pain, and may interfere with the quality of life of expectant mothers if left untreated. One natural approach that can be utilized to alleviate constipation is the consumption of carrot juice. Carrots are rich in dietary fiber, water, vitamins, and minerals, all of which play an important role in maintaining a healthy digestive system. Regular intake of carrot juice is expected to improve bowel movement frequency, soften stool consistency, and help reduce constipation symptoms in pregnant women. In addition, carrot juice provides essential nutrients that support fetal growth and development. Therefore, the use of carrot juice can be considered a safe, simple, and nutritious alternative to support digestive health during pregnancy.

INTRODUCTION

Pregnancy is a process of a woman's life, where there are major changes in her physical, mental and social aspects. These changes cannot be separated from the factors that affect her which can be in the form of physical, environmental, social, cultural and economic factors (Patiyah, 2021).

According to Rumiyati (2022), one of the changes that causes mothers to have difficulty in activities during pregnancy, especially during old gestational age, is due to the increasing size of the mother's abdomen and the increasingly active movement of the fetus in the womb.

Based on data from the World Health Organization (WHO), it is estimated that maternal deaths caused by pregnancy and childbirth every day are around 830 deaths and 99% occur in developing countries. The Maternal Mortality Rate (MMR) in the world is around 303 per 100,000 live births and the Infant Mortality Rate (AKB) in the world is 41 per 100,000 live births (WHO, 2020).

The maternal mortality rate is very high. About 260,000 women died during and after pregnancy and childbirth in 2023. About 92%of all maternal deathsoccurred in low- and lower-middle-income countries in 2023, and most of them were actually preventable. Regions and subregions Sustainable Development (SDG) goals are used here. Sub-Saharan Africa and South Asia accounted for about 87% (225,000) of the global estimated maternal mortality in 2023. Sub-Saharan Africa alone accounted for about 70% of maternal deaths (182,000), while South Asia accounted for about 17% (43,000). At the same time, between 2000 and 2023, Eastern Europe and South Asia achieved the largest overall decline in maternal mortality (MMR) ratios: declines of 75% (from 38 MMR to 9) and 71% (from 405 to 117 MMR). Although its MMR was very high in 2023, sub-Saharan Africa also achieved a significant reduction in MMR of 40% between 2000 and 2023 (Samuel, 2021). Based on data from the Ministry of Health in 2023, the maternal mortality rate (AKI) in Indonesia reached 4,129, according to data from the Maternal Perinatal Death Notification (MPDN), the maternal death recording system of the Ministry of Health is an increase

from 2022, when the AKI was recorded at 4,005. The AKI per 100 thousand live births in January 2023 is in the range of 305.

The maternal and infant mortality rate in North Sumatra Province is also still relatively high and is a strategic issue in the Regional Medium-Term Development Plan (RPJMD) of North Sumatra Province for 2019-2023. The 2023 North Sumatra Provincial Health Office Performance Report states that the maternal mortality rate (AKI) is 72.46/100,000 KH and the infant mortality rate (AKB) is 3.61/1,000 KH (North Sumatra Health Profile 2023). Pregnant women have various kinds of problems or discomforts during pregnancy. Pregnant women who experience emesis gravidarum are around 60-80% in primigravida and 40-60% multigravida during pregnancy as much as 70-85% of women experience nausea and vomiting.

Based on data from the North Sumatra Provincial Health Office, the number of pregnant women in this province has decreased in recent years. In 2020, there were 332,810 pregnant women, then decreased to 329,118 in 2021, and 305,910 in 2022 (BPS, 2023).

Constipation or constipation is a condition that makes it difficult or impossible to defecate, hard stools, incomplete bowel movements (there is a feeling of wanting to strain but not being able to expel it) or bowel movements that are accompanied by flatulence, especially in the early pregnancy and the third trimester of pregnancy. The impact of constipation if it lasts for a long time can interfere with the body's metabolism, if constipation is left continuously it will cause hemorrhoids or hemorrhoids, so that bleeding can occur in the anus during childbirth (Herawati, 2024).

Based on (Prawirohardjo, 2023) Constipation in pregnant women is caused by an increase in the hormone progesterone so that muscle relaxation so that the intestines are less efficient, in addition to the pressure of the enlarged uterus in the abdominal area, no longer consuming, including iron supplements, calcium that are not properly absorbed by the body. The factors that cause constipation are due to high levels of progesterone in the body, causing the intestinal muscles to relax and move more slowly, lack of eating foods that contain fiber, and lack of mothers in doing activities so as to slow down intestinal movements/slow down peristalsis.

RESEARCH METHODS

The type of research used is an Analytical Survey by conducting a cross sectional approach in order to find out the relationship between the administration of carrot juice and constipation in pregnant women at the Alisah Clinic in 2025. This study uses a cross sectional research design. The cross sectional design used is on group pre test and post test. The pretest and post test of the research are carried out by providing an initial assessment or pre-test first and before being given an intervention, then intervention can be given through the method of giving carrot juice after the post test is carried out (Sugiyono, 2020). Used to find out "The Relationship of Giving Carrot Juice to the Rate of Constipation in Pregnant Women".

RESULTS

Distribution of Respondent Characteristics by Age, Education and Occupation of Respondents at Alisah Clinic, Gang Buntu Village, Medan Area District, Medan City, North Sumatra in 2025

Table 1 Distribution of Respondent Characteristics by Age, Parity

Yes	Characteristics	F	%
1	**Education**		
	Elementary–Junior High School	3	20%
	High School/Vocational School	9	60%
	Colleges	3	20%
	Quantity	**15**	**100%**
2			
	Housewives	9	60%
	Private/self-employed workers	3	20%
	PNS	3	20%
	Quantity	**15**	**100%**
3	**Parity**		
	Primigravida	3	20%
	Multigravity	9	60%
	Large Multipara	3	20%
	Quantity	**15**	**100%**
4	**Age**		
	<20	2	13,3%
	20-35	11	73,4%
	>35	2	13,3%
	Total Respondents	**15**	**100%**

Based on table 1, the majority of the high school-vocational education level is 9 people (60%), the minority of higher education is 3 people (20%), and basic education (elementary-junior high) is also 3 people (20%). The majority of housewives, namely 9 people (60%), minorities work as private employees as many as 3 people (20%), civil servants as many as 3 people (20%). The majority of multigravida respondents are 9 people (60%), primigravida minority is 3 people (20%), and grande multipara is 3 people (20%). The majority of pregnant women at the age of 20-30 are 11 people (73.4%), the minority age <20 is 2 people (13.3%), and the age of >35 is 2 people (13.3%).

Table 2. Distribution of Frequency of Constipation Rates Before Intervention of Giving Carrot Juice in Pregnant Women

Categories Constipation	F	%
Constipation	12	80%
Normal	3	20%
Diarrhea	0	0%
Quantity	**15**	**100%**

Based on table 2. It is known that the distribution of the majority of constipation levels in the constipation category is 12 people (80%), normal as many as 3 people (20%), and diarrhea is absent

Table 3. Distribution of Frequency of Constipation Rates After Intervention of Giving Carrot Juice in Pregnant Women

Categories Constipation	F	%
Constipation	3	20%
Normal	12	80%
Diarrhea	0	0%
Quantity	**15**	**100%**

Based on table 3. It is known that the distribution of the majority of constipation levels in the constipation category is 3 people (20%) as many as 12 people (80%) normal, diarrhea is not present after being given carrot juice intervention.

Table 4. The Relationship between the Rate of Constipation in Pregnant Women Before and After Being Given Carrot Juice at Alisah Clinic in 2025

Constipation Rate	Before		After		P.Value
	F	%	F	%	
Constipation	12	80%	3	20%	
Normal	3	20%	12	80%	0.001
Diarrhea	0	0%	0	0%	

DISCUSSION

Distribution of Constipation Rates Before Giving Carrot Juice to Pregnant Women at Alisah Clinic in 2025

Based on the results of this study, it is known that before being given an intervention in the form of carrot juice, most of the respondents experienced constipation. Of the total 15 pregnant women who became respondents, as many as 12 people (80%) were in the category of constipation, 3 people (20%) were classified as normal, and none of them experienced diarrhea.

Constipation is defined as difficulty in defecating at low intensity and accompanied by symptoms such as excessive straining, hard stools, or a sensation of incomplete bowel movements. Where the cause is the hormone progesterone slows down intestinal motility, Uterine pressure on the colon as gestational age increases, Decreased physical activity, Lack of fiber and fluid intake (Widyaningsih, 2020).

Constipation is one of the discomforts that is often complained about during pregnancy. The increase in the hormone progesterone causes the muscles to relax. Including muscles in the digestive tract so that it will decrease intestinal motility which eventually causes constipation (slow-transit constipation). The larger uterus in accordance with the increasing age of pregnancy and fetal development will also put pressure on the colon so as to inhibit fecal excretion (Sembiring, 2020).

The cause of constipation in pregnant women is caused by an increase in the hormone progesterone which causes a slowdown in bowel movements, an enlarged uterus that presses on the intestines, a lack of eating foods containing fiber, dehydration, and a lack of activity by the mother. (Sembiring, 2020).

The cause of constipation is due to an increase in the hormone progesterone where the level of the hormone progesterone in the mother's body has increased significantly. This hormone functions to maintain

pregnancy by relaxing the smooth muscles, including the uterine muscles so that premature contractions do not occur. However, the relaxation effect also occurs in the smooth muscles of the digestive tract, so that the peristaltic movement of the intestines becomes slower. This slowdown makes food stay longer in the intestines, so that the absorption of water from food residues increases. As a result, stools become drier, harder, and difficult to excrete. This condition then becomes one of the main causes of constipation in pregnant women.

Another cause is caused by an enlarged uterus where during pregnancy, the uterus is enlarged to accommodate the fetus, placenta, and amniotic fluid. This enlargement, especially in the corpus and lower segment of the uterus, puts pressure on the colon and the rectum around it. This pressure inhibits the movement of feces so that the defecation process becomes more difficult and triggers constipation in pregnant women.

The Relationship of Giving Carrot Juice to the Rate of Constipation in Pregnant Women at Alisah Clinic in 2025

The results of this study showed that there was a significant relationship between the administration of carrot juice and the reduction of constipation rates in pregnant women. Before the intervention, as many as 12 out of 15 respondents (80%) experienced constipation and only 3 respondents (20%) were in normal conditions. However, after being given carrot juice regularly for a certain period, the number of respondents who experienced constipation decreased dramatically to only 3 people (20%), while 12 respondents (80%) were in the normal category. The results of the statistical test using the T-Test resulted in a value of $p = (0.001) < \alpha (0.05)$ which means that there is a very significant relationship between the administration of carrot juice and the change in the level of constipation. This means that the administration of carrot juice makes a real contribution to improving constipation conditions in pregnant women.

Biologically, carrots are rich in soluble and insoluble fiber, as well as water, which can stimulate intestinal activity and speed up fecal transit time. Insoluble fiber functions to increase fecal mass, while soluble fiber such as pectin helps maintain moisture and stool consistency. In addition, the content of beta-carotene and vitamins in carrot juice provides antioxidant effects and maintains the balance of the intestinal microbiota, which also contributes to facilitating the defecation process (Wulandari, 2020).

According to the results of a study conducted by Wulandari, 2020 with the title "Severity of Constipation in Pregnant Women Before and After Being Given Carrot Juice" showed a significant relationship between the administration of carrot juice and a decrease in the rate of constipation in pregnant women. Before the intervention, as many as 65% of respondents experienced severe constipation, and 35% experienced moderate constipation. After 7 days of carrot juice, the rate of severe constipation decreased to 10%, while 70% of respondents experienced normal conditions and 20% experienced mild constipation. The test value used was the Wilcoxon test, with a result of $p = 0.000$ (<0.05), which showed a significant relationship. Carrot juice is effective in improving intestinal peristaltics and softening stools, thus improving bowel patterns naturally.

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