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The Effect of Chewing Gum on the Recovery of Intestinal Peristalsis in Post Partum Sectio Caesarea Mothers

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ABSTRACT

Post-cesarean section surgery can cause a decrease in bowel movements. Dr. Data Hospital. Abdul Rivai, in August 2023 there were 66 caesarean section deliveries (51.2%) with a permanent decrease in intestinal peristalsis, namely 6 cases. Chewing gum is a form of sham feeding to stimulate the intestinal recovery process after surgery. Preliminary study at RSUD dr. Abdul Rivai Berau, it is known that there are cases of post-caesarean section mothers who experienced decreased intestinal peristalsis or did not increase intestinal peristalsis. To determine the effect of chewing gum on the recovery of intestinal peristalsis in post partum caesarean section mothers. Pre-experimental research type and One Group Pre-Test – Post-Test Design. The population is all post partum caesarean section mothers in the Postpartum Room at RSUD dr. There were 66 Abdul Rivai in Berau Regency in August 2023, based on the Lameshow formula with a sample of 35 people studied in December 2023. Instruments included a stethoscope, Xylitol gum and observation sheets. The sampling technique uses consecutive sampling. Data analysis used the Wilcoxon test. Frequency score of intestinal peristalsis before chewing gum in post partum caesarean mothers with a median of 2 times per minute and after chewing gum the median was 4. Obtained p value = 0.000 < α : 0.05, meaning there is an effect of chewing gum on restoration of intestinal peristalsis. Chewing gum can improve the recovery of intestinal peristalsis in post partum caesarean section mothers.

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1. Introduction

Childbirth is a normal physiological event experienced by a mother in the form of expelling the products of conception (fetus and urine) that live in the uterus through the vagina to the outside world (Heryani & Denny, 2019). According to the World Health Organization (WHO), through monitoring maternal deaths in various parts of the world, it is estimated that every year as many as 500,000 mothers die due to pregnancy, childbirth and postpartum (Indonesian Ministry of Health, 2019). One way to give birth is by caesarean section. Sectio caesarea is an operative procedure carried out under anesthesia so that the fetus, placenta and amniotic fluid are delivered through an incision in the abdominal wall and uterus and is carried out after viability is achieved (Aini et al, 2022).

According to the World Health Organization (WHO), the average caesarean section delivery rate is 5% -15% per 1000 births in the world, the incidence rate in government hospitals is an average of 11% while in private hospitals the average is more than 30% (Indrayani, 2016). Data WHO in developing countries incidence*caesarean section* increased rapidly, whichin 2019 there were 85 million actions, in 2020 there were 68 million actions and in 2021 there were 373 million actions. The number of caesarean section deliveries occurs frequently in America (39.3%), Europe (25.7%), and Asia (23.1%), this number is predicted to increase every year until 2030 (WHO, 2021). Caesarean section deliveries in Indonesia increase every year, according to data from the Republic of Indonesia Basic Health Research (Riskesdas), there has been an increase in Caesarean section procedures from 15.3% of 7,440 deliveries in 2013 to 17.6% of 78,736 deliveries in 2018 (Kemenkes, 2018).

The Bensons study reported that the mortality rate for caesarean section surgery was 40-80 per 100,000 live births, this figure shows a risk 25 times greater than vaginal delivery.Surgery*caesarean section* using general anesthesia mostly is a major surgical procedure, which requires manipulation extensive network. Anesthesia slows intestinal peristalsis so causes weak bowel sounds. Patients receiving general anesthesia will experience hypoperistalsis because the general anesthetic agent can stops peristaltic (Hasrianti, 2022).

The incidence of post-operative ileus (POI) in Indonesia was recorded at 7,059 cases of paralytic and obstructive ileus obstruction without hernia who were hospitalized and 7,024 outpatients (Djamaludin & Chrisanto, 2021). Cases of intestinal peristalsis in post sectio caesarea patients in Indonesia based on research at RSU Dewi Sartika Kendari show that in 2015 there were 31.7%, in 2016 there were 32.9%, in 2017 there were 33.3% and in 2018 there were 38.6% (Herman, 2019).

After caesarean section surgery, which still has the effects of anesthesia, it causes post-operative changes in the autonomic nervous system, causing decreased bowel movements and causing gastrointestinal problems (Ledari et al, 2023). Bowel sounds are said to be normal if they are heard at a frequency of 5-35 times per minute, these sounds sound like someone is gargling (irregularly) (Arianti et al., 2020). Post-surgical patients' intestinal peristalsis returns to normal if the patient can feel mild cramps in the stomach, has flatus, and feels hungry .

The impact of an ileus condition that is not treated can result in a reduced oxygen supply to the intestine and result in tissue death, thereby risking infection in the abdominal cavity. Another impact of ileus is delayed oral feeding, difficulty breathing, and increased hospital costs due to the length of the patient's stay (Arianti et al., 2020).At another level, post-operative ileus causes or causes major non-infectious complications after colorectal surgery or other abdominal surgery which causes patient discomfort, this results in abdominal distension, post-operative pain and can also result in the mother's inability to start breastfeeding and ultimately delays in recovery. Delay in recovery of intestinal peristalsis is caused by postoperative changes in the autonomic nervous systemwhich causes decreased bowel movements (Herman, 2019).

Chewing gum has been studied as a form of sham feeding to stimulate the intestinal recovery process after surgery. The presumed mechanism of action is vagalcholinergic (parasympathetic) stimulation of the gastrointestinal tract, which is similar to oral intake but lowers the risk of vomiting and aspiration. Chewing gum causes a person to feel a reaction caused by abdominal stimulation and secretion of gastric and intestinal juices. This will cause the person's desire to eat and increase peristalsis and speed up the ileus recovery process. Accelerating the return of normal gastrointestinal function in mothers after caesarean section surgery will be beneficial in the patient's recovery process, where oral intake will become more adequate, the patient's nutritional needs will be met, so that the patient's recovery will be faster. This will have a direct impact on reducing the length of hospitalization and reducing hospital costs (Adi & Budiyanto, 2020).

Previous research conducted by (Helmy Mohammed Elsherif et al., 2023) showed that there was an effect of chewing gum on digestive problems in primiparous women immediately after cesarean section. (Hasrianti, 2022) shows thatchewing gum is effective in increasing intestinal peristalsis in post caesarean section patients. Likewise (Herman, 2019) shows that there isThe effect of chewing gum on increasing intestinal peristalsis in post-cesarean section patients.

Based on the literature study that has been described, it is necessary to carry out an analysis of the influencechewing gum on the restoration of intestinal peristalsis in post partum caesarean section mothers. This research is expected to not only provide valuable insights into the post-Cesarean condition and its complications, but also propose potential solutions that can improve care and outcomes for mothers undergoing this procedure. It is an important contribution to the development of clinical practice and post-Cesarean section management.

2. Research Methods

This type of research is an experimental study because it is a research procedure carried out by providing treatment or intervention to research subjects, with the aim of assessing the effect of chewing gum on the recovery of intestinal peristalsis in post partum section caesarea mothers in the Postpartum Room at RSUD dr. Abdul Rivai, Berau Regency. This research design uses a One Group Pre-Test – Post-Test Design. The population in this study were all post partum cesarean section mothers in the Postpartum Room at RSUD dr. Abdul Rivai in Berau Regency in August 2023 numbered 66 people, using sampling techniques a sample of 35 respondents was obtained. The data that has been collected will then be analyzed using normality tests, univariate analysis and bivariate analysis. This statistical test was carried out with computer assistance using SPSS 23.

3. Results and Discussions

3.1 Univariate Analysis

a. Frequency score of intestinal peristalsis before chewing gum in post partum caesarean section mothers in the Postpartum Room at RSUD dr. Abdul Rivai, Berau Regency.

Identify frequency scoresIntestinal peristalsis before chewing gum in post partum caesarean section mothers in the Postpartum Room at RSUD dr. Abdul Rivai, Berau Regency, can be seen in the following table:

Table 1.Frequency scoreIntestinal peristalsis before chewing gum in post partum caesarean section mothers in the Postpartum Room at RSUD dr. Abdul Rivai, Berau Regency

Score	f	Median	Minimal	Maximum	Std. Deviation
Pre-test	35	2	0	5	1,555

Source: Primary Data, 2024

b. Frequency score of intestinal peristalsis after chewing gum in post partum caesarean section mothers in the Postpartum Room at RSUD dr. Abdul Rivai, Berau Regency.

Identify frequency scoresIntestinal peristalsis after chewing gum in post partum caesarean section mothers in the Postpartum Room at RSUD dr. Abdul Rivai, Berau Regency, can be seen in the following table:

Table 2.Score frequencyIntestinal peristalsis after chewing gum in post partum caesarean section mothers in the Postpartum Room at RSUD dr. Abdul Rivai, Berau Regency

Score	f	Median	Minimal	Maximum	Std. Deviation
Pre-test	35	4	1	7	1,611

Source: Primary Data, 2024

3.2 Bivariate Analysis

AnalysisThe effect of chewing gum on the recovery of intestinal peristalsis in post partum caesarean section mothersin the Postpartum Room at RSUD dr. Abdul Rivai, Berau Regency,based onThe non-parametric bivariate analysis used was the Wilcoxon test, can be seen in the table below:

Table 3. The effect of chewing gum on the recovery of intestinal peristalsis in post partum cesarean section mothers in the Postpartum Room at RSUD dr. Abdul Rivai, Berau Regency

Variable	N	Positive Rank	Negative Ranking	Ties	Sig	Z
Pretest - Posttest	35	35	0	0	0,000	-5,297

Source: Primary Data, 2024

3.3 Discussion

a. Frequency score of intestinal peristalsis before chewing gum in post partum caesarean section mothers in the Postpartum Room at RSUD dr. Abdul Rivai, Berau Regency.

Based on the research results, it is known thatfrequency scoreIntestinal peristalsis before chewing gum in post partum caesarean section mothers in the Postpartum Room at RSUD dr. Abdul Rivai, Berau Regency with a median value of 2 times per minute with a minimum value of 0times per minute andThe maximum value is 5 times per minute.

The results of this research are in accordance with (Basri & Sulistiyawati, 2018) research showing thatBefore chewing gum, the intestinal peristalsis of all respondents was abnormal. (Herman, 2019) shows that the average intestinal peristalsis before intervention is given*chewing gum*in post-cesarean section patients it was 11.47. Rahmiati's research (2019) shows thatThe average score of intestinal peristalsis before chewing gum in post partum caesarean section mothers is 2.06.

After caesarean section surgery, which still has the effects of anesthesia, it causes post-operative changes in the autonomic nervous system, causing decreased bowel movements and causing gastrointestinal problems. (Ledari et al, 2023). Bowel sounds are said to be normal if they are heard at a frequency of 5-35 times per minute, these sounds sound like someone is gargling (irregularly) (Arianti et al., 2020). Post-surgical patients' intestinal peristalsis returns to normal if the patient can feel mild cramps in the stomach, has flatus, and feels hungry (Arianti et al., 2020).

Weak peristaltic conditions are caused by the effects of the anesthetic drug. Anesthesia has a relaxing effect on the muscles, especially reducing intestinal peristalsis, which slows down gastrointestinal motility and causes nausea. During surgical procedures it can cause loss of normal peristalsis for 24-48 hours depending on the type and length of surgery. During recovery after surgery, bowel sounds are weak or absent in all four quadrants. Post-operative ileus will recover within a few hours, after 24 hours (small intestine), 24-48 hours (stomach), 48-72 hours (colon or large intestine) (Arianti, 2020).

Before the gum chewing intervention was carried out, several respondents had an intestinal peristaltic value of 0, which means that no intestinal peristaltic movements were heard and there were also several respondents who heard peristaltic movements. expected, or what is often called drug resistant. Several conditions that can cause a person to be resistant to anesthetics include: active smoking. Based on several studies, it has been found that women who smoke need 33 percent more anesthetics than those who don't smoke and passive smokers need up to 20 percent more anesthetics. The doctor who will perform the operation will usually ask about smoking for recommendations on increasing the dose. Obesity sufferers, someone with an obese condition will be at risk of complications when receiving anesthesia or anesthesia, because someone with an obese condition often requires more anesthesia than those who have a much smaller and normal body. Next are alcoholics, psychotropic drug users such as morphine, ecstasy, and analgesic drug users.

Researchers assume that the scoreFrequency of intestinal peristalsis before chewing gum in post partum caesarean section mothers in the Postpartum Room at RSUD dr. Abdul Rivai, Berau Regency with a median value of 2 times per minute which is considered abnormal.This shows that the respondent's intestinal peristalsis has not improved, so chewing gum treatment is needed to help the process of restoring intestinal peristalsis after surgery. This is due to weak peristalsis due to the effects of the anesthetic drug.

b. Frequency score of intestinal peristalsis after chewing gum in post partum caesarean section mothers in the Postpartum Room at RSUD dr. Abdul Rivai, Berau Regency.

Based on the research results, it is known thatscoreFrequency of intestinal peristalsis after chewing gum in post partum caesarean section mothers in the Postpartum Room at RSUD dr. Abdul Rivai, Berau Regency with a median value of 4 times per minute with a minimum value of 1 time per minute and a maximum value of 7 times per minute. This shows an increasefrequency scoreIntestinal peristalsis after chewing gum in post partum caesarean section mothers in the Postpartum Room at RSUD dr. Abdul Rivai, Berau Regency, 1.63 times per minute.

The results of this research are in accordance with (Basri & Sulistiyawati, 2018) research showing thatAfter chewing gum, intestinal peristalsis in 90% of respondents had normal intestinal peristalsis. (Herman, 2019) showed that the average intestinal peristalsis after intervention was given*chewing gum*in post-cesarean section patients it was 16.61, which means there was an increase. (Rahmawati, 2011) shows thatThe average score of intestinal peristalsis after chewing gum in the first four hours of post partum caesarean section mothers is 3.81.

Delay in recovery of intestinal peristalsis is caused by postoperative changes in the autonomic nervous systemwhich causes decreased bowel movements (Herman, 2019).The anesthetic agents used during surgery cause peristalsis to stop temporarily, generally occurring between 24 and 48 hours. Bowel movements can be hampered for several days due to trauma and intestinal irritation resulting from abdominal surgery such as caesarean section surgery. Small intestinal peristalsis returns to normal after 24 – 48 hours and colonic movement after 48 hours (Cevik & Baser in Zarocha et al, 2022).

Chewing gum has been studied as a form of sham feeding to stimulate the intestinal recovery process after surgery. The presumed mechanism of action is vagalcholinergic (parasympathetic) stimulation of the gastrointestinal tract, which is similar to oral intake but lowers the risk of vomiting and aspiration. Chewing gum causes a person to feel a reaction caused by abdominal stimulation and secretion of gastric and intestinal juices. This will cause the person's desire to eat and increase peristalsis and speed up the ileus recovery process. Accelerating the return of normal gastrointestinal function in mothers after caesarean section surgery will be beneficial in the patient's recovery process, where oral intake will become more adequate, the patient's nutritional needs will be met, so that the patient's recovery will be faster. This will have a direct impact on reducing the length of hospitalization and reducing hospital costs (Adi & Budiyanto, 2020).

The pattern of peristaltic increase varies in each person, some have a faster increase and some have a slower increase. This is usually influenced by several factors, namely the effects of anesthetic drugs, obesity, the respondent's history of whether they have had a caesarean section before because almost all types of anesthetic drugs are narcotics. which has the effect of addiction or dependence so that during the next operation the body is already familiar with this type of anesthetic drug and sometimes causes resistance, so that in general anesthesia requires a larger dose, also influenced by age, because the older the strength of the tone of the abdominal muscles and muscles. Colonic smooth muscle will decrease or weaken, which will slow down intestinal peristalsis (Duhan, 2020).

There are several signs and symptoms of recovery of the function of the gastrointestinal system after surgery, namely the presence of intestinal peristalsis, the appearance of the first flatus, the first defecation after surgery, and the appearance of post-operative hunger. The main goal of feeding after surgery is to improve immune function and accelerate wound healing which minimizes metabolic imbalances. Postoperative nutrition given enterally is preferred over the parenteral route, especially if there are infectious complications. Another advantage of stated nutrition is that it is effective, starting as soon as possible after surgery. Eating immediately after surgery has been shown to improve wound healing, stimulate intestinal motility, decrease intestinal stasis, increase intestinal blood flow, and stimulate the reflex secretion of gastrointestinal hormones that may facilitate bowel function after surgery (Arifuddin, 2019).

Researchers assume that scoreFrequency of intestinal peristalsis after chewing gum in post partum caesarean section mothers in the Postpartum Room at RSUD dr. Abdul Rivai, Berau Regency with a median value of 4 times per minute, which is not normal, but there is an increasescoreFrequency

of intestinal peristalsis after chewing gum in post partum caesarean section mothers in the Postpartum Room at RSUD dr. Abdul Rivai, Berau Regency, 1.63 times per minute. This is because several respondents appeared to have varying patterns of increase in intestinal peristalsis, some experienced a faster increase and some slower. This was usually influenced by several factors, namely the effects of anesthetic drugs, obesity, the respondent's history of having had a previous caesarean section and so on. In addition, feeding immediately after surgery has been shown to improve wound healing, stimulate intestinal motility, decrease intestinal stasis, increase intestinal blood flow, and stimulate reflex secretion of gastrointestinal hormones that may facilitate bowel function after surgery.

c. The effect of chewing gum on the recovery of intestinal peristalsis in post partum cesarean section mothers in the Postpartum Room at RSUD dr. Abdul Rivai, Berau Regency.

Based on the research results, it is known that the effect of chewing gum on the recovery of intestinal peristalsis in post partum cesarean section mothers in the Postpartum Room at RSUD dr. Abdul Rivai, Berau RegencyA positive rank was obtained from 35 respondents, meaning that all respondents scoredIntestinal peristalsis increases after chewing gum in post partum caesarean section mothersin the Postpartum Room at RSUD dr. Abdul Rivai, Berau Regency. The Z value obtained is -5.297 with a p value (Asymp. Sig 2 tailed) of 0.000 < 0.05 so Ha is accepted, namely aThere is the effect of chewing gum on the recovery of intestinal peristalsis in post partum cesarean section mothers in the Postpartum Room at RSUD dr. Abdul Rivai, Berau Regency.

The results of this study are in accordance with research (Helmy Mohammed Elsherif et al., 2023) showed that there was an effect of chewing gum on digestive problems in primiparous women immediately after cesarean section. (Hasrianti, 2022) shows thatchewing gum is effective in increasing intestinal peristalsis in post caesarean section patients. Likewise (Herman, 2019) shows that there isThe effect of chewing gum on increasing intestinal peristalsis in post-cesarean section patients.

Chewing gum causes a person to feel a reaction caused by abdominal stimulation and secretion of gastric and intestinal juices. This will cause the person's desire to eat and increase peristalsis and speed up the ileus recovery process. This has been considered by several researchers as a strategy for dealing with functional decline in ileus (Ledari et al., 2023).

On another level, postoperative ileus is a major non-infectious complication after colorectal surgery or other abdominal surgery, which causes patient discomfort, prolongs hospital stay and increases hospital costs. Prevention of ileus is an integral component of the Fast-track surgery protocol. Several meta-analyses have shown that chewing gum after abdominal surgery results in a reduction in postoperative ileus. This is a simple method to reduce ileus and low cost hospitalization (Arifuddin, 2019).

Chewing gum can increase intestinal motility after surgery, because there is an increase in the vagal cholinergic (parasympathetic) mechanism that stimulates the digestive tract. This is the same as the process of eating orally, but in theory, this process is less likely to cause a vomiting response in patients and prevents aspiration. Furthermore, sodrin plasma contraction occurs, increasing the production of Neurotensin Polypeptideincreased salivary secretion of pancreatic gastric juice (Hasrianti, 2022).

The core mechanism related to the relationship between chewing gum and postoperative ileus is that chewing functions as Sham Feeding, stimulating the motility of the intestine, duodenum and rectum in the human stomach. Chewing can trigger the release of gastrointestinal hormones and increase the secretion of saliva and pancreatic juice, gastrin and neurotensin. This shows that the mechanism is multimodal (more than one mechanism). However, for an intervention that is very cheap, effective, and free from side effects, it can be used clinically even though the mechanism behind its success is not yet known, but this is important for health and is very beneficial economically (Herman, 2019).

Gastrointestinal hormones are polypeptides produced by the endocrine mucosal cells of the stomach and small intestine. This hormone mainly plays a role in regulating the movement and secretion

functions of the digestive system which includes the stomach, small intestine, liver, bile ducts and pancreas (Harper at al, in Wulandari, 2020).Chewing gum has been studied over the past ten years as a form of sham feeding to stimulate the intestinal recovery process post-surgery. The presumed mechanism of action is vagalcholinergic (parasympathetic) stimulation of the gastrointestinal tract, which is similar to oral intake but lowers the risk of vomiting and aspiration. In five such studies of patients undergoing colon resection surgery, chewing gum decreased the time to first flatus and first bowel movement, but there was no significant difference in length of stay (Herman, 2019).

Researchers assume that there isThe effect of chewing gum on the recovery of intestinal peristalsis in post partum caesarean section mothersin the Postpartum Room at RSUD dr. Abdul Rivai, Berau Regency. This is becauseChewing gum can increase intestinal motility after surgery, because there is an increase in the vagal cholinergic (parasympathetic) mechanism that stimulates the digestive tract, this is the same as the process of eating orally. Chewing itself functions as Sham Feeding, stimulating the motility of the intestines, duodenum and rectum in the human stomach.

4. Conclusion

From the results of research and discussion regarding the effect of chewing gum on the recovery of intestinal peristalsis in post partum sectio caesarea mothers in the Postpartum Room at RSUD dr. Abdul Rivai, Berau Regency, concluded that the frequency score of intestinal peristalsis before chewing gum in post partum sectio caesaria mothers in the Postpartum Room at RSUD dr. Abdul Rivai, Berau Regency with a median value of 2, intestinal peristalsis frequency score after chewing gum in post partum sectio caesaria mothers in the Postpartum Room at RSUD dr. Abdul Rivai, Berau Regency with a median value of 4, there is an effect of chewing gum on the recovery of intestinal peristalsis in post partum section caesarea mothers in the Postpartum Room at RSUD dr. Abdul Rivai, Berau Regency (p value = 0.000 < α : 0.05) and finally chewing gum can increase the recovery of intestinal peristalsis in post partum section caesarea mothers. The type of research used in this study was pre experimental so it is hoped that future studies will use a more robust research design, such as a randomized controlled clinical research design or a prospective cohort, which will allow for a comparison group that can confirm the effectiveness of the gum chewing intervention. Thus, the results of the intervention can be compared with a control group that did not receive the intervention, increasing the validity of the study findings. It is important to measure bowel peristalsis over a longer period of time to ensure complete recovery. In addition to measuring bowel peristalsis, future studies may also consider measuring additional variables such as duration of hospitalization, incidence of post-surgical ileus, and patient comfort.

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