

Effect of Post Cesarean Nursing Instructions on Woman's pain Level and Bowel Motility: Comparative study

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Abstract

Background: Paralytic ileus is a major complication of cesarean sections that causes discomfort for the mothers, lengthens their hospital stay, and raises treatment costs. **Aim:** was to Evaluate the effect of post cesarean nursing instructions on woman's pain level and bowel motility after cesarean birth. **Methods:** Quasi-experimental research design was used in this study. **Setting:** It was conducted at post-natal ward, Mallawi Specialized Hospital (An obstetric department) Mallawi city, Minia governorate. **Sample:** A simple random sample of a total of 124 women that divided into four groups: study group was contained three groups A: (sugarless gum chewing), B: (early oral hydration), C: (early mobilization) and D: (control group)), each group contained 31 postpartum woman. **Tool:** Three tools were used; structured interview questionnaire, post cesarean assessment form, and pain scale. **Results:** There are highly statistical significant difference between study group A: (sugarless gum chewing), B: (early oral hydration), C: (early mobilization) and D: control group at p-value <0.01 regarding hearing of bowel sound and passing flatus after cesarean section. **Conclusion:** Chewing sugar-free gum, early oral hydration, and early mobilization are useful approaches for improving intestinal motility and enhancing women's pain level after caesarean delivery. Chewing gum, however, improved the ability to pass flatus and detect bowel sounds. **Recommendations:** putting in place health education programs for expectant mothers that focus on the benefits of early oral hydration, chewing gum, and early post-section walking.

Key words: Bowel Motility, Cesarean section, Nursing Instructions, Pain Level

Introduction:

In recent decades, the number of cesarean sections performed as part of obstetrics has increased globally, particularly in developed nations. During a cesarean section, a woman's uterus and abdominal layers are cut through one or more times in order to deliver one or more fetuses. When a vaginal delivery would endanger the life or health of the woman or the fetus, a cesarean section is meant to be performed. (Elsherif et al., 2023). The most recent data from 150 countries shows that 8.6% of all births currently take place via cesarean section, with the percentages varying from 6% to 27.2% in the least and most developed regions, respectively. with a 4.4% average annual growth rate (Wahba et al., 2022)

Postoperative ileus, an impaired state of gastrointestinal motility, is defined as the period of time following surgery until flatus or stool passes and an oral diet is tolerated. This should happen by the fourth postoperative day and can complicate up to 20% of caesarean deliveries. Significant morbidity may arise from postoperative pain and discomfort, vomiting, distension of the abdomen, and an extended hospital stay. Chewing gum, early hydration, and ambulation are just a few of the techniques that have been recommended to hasten the healing of the colon following cesarean delivery. Chewing gum stimulates the cephalic vagal pathway, which causes humoral and neurological stimulation of bowel motility. This function is comparable to that of sham feeding (Gayathri R. et al., 2020).

A woman who has had a caesarean section faces more issues, both minor and major, than a woman who gives birth naturally. Some issues include lengthier hospital stays,

pain following surgery, delayed ambulation, longer recovery times before returning to regular activities, breast engorgement, bowel and bladder issues, lactation failure, and decreased mother-newborn bonding. Following a cesarean section, women may find it difficult to return to their pre-operative due to pain, exhaustion, or discomfort, which limits their activities (Singh et al., 2020)

The conventional approach of slow feeding or delayed mobilization after the patient has been given nothing orally, delayed mobilization, or without any postoperative care until bowel function returns (as demonstrated by a bowel movement or the passage of flatus), is currently contested and has become contentious. This is crucial for early oral hydration, early mobilization, and gum chewing after surgery. Additionally, this intervention can trigger a reflex that results in a coordinated propulsive action and increases the release of hormones related to the gastrointestinal tract (Hassan et al., 2019).

Early mobilization, early hydration, and gum chewing may also be linked to improved wound healing and a quicker recovery by reducing the depletion of protein stores. It was believed that early mobilization following surgery, chewing gum, and early oral hydration without a return of bowel movements could result in nausea, vomiting, and distention in the abdomen, which would eventually lead to wound breakdown. But as surgery grew shorter, spinal anesthesia became more widely available, and minimal intestinal manipulation occurred during the procedure, this conviction was challenged. Before bowel movements resume, all of these conditions allowed for early oral hydration, early

mobilization, and gum chewing (Hassan et al., 2019). (Melloul et al., 2020)

It is said that early oral feeding shortens hospital stays, increases patient satisfaction, and facilitates early mobilization. The daily cost of intravenous fluids, intravenous sets, cannulas, and nursing care is significantly higher than the cost of oral feeding. (Wahba et al., 2022). Patients benefit from early ambulation in a number of ways, including decreased risk of DVT, increased breast feeding rate, improved nutrition and diet, and increased patient satisfaction. Early ambulation is regarded as one of the post-operative interventions in improved recovery following surgery, and women may begin walking and chewing their gums as soon as 6 to 8 hours after surgery, provided that their bowel movements have returned (Panjabi et al., 2022).

Recently, chewing gum has been used to promote the acceleration of gut function following gynecologic, abdominal, and obstetric surgeries, which in turn has stimulated bowel motility. This reaction happens after chewing to get the stomach ready for food intake because, when eating regular food, the intestine may not be able to process it right away. Using chewing gum following a cesarean section has been linked to a number of positive outcomes, such as early flatus passage, early bowel sounds, and shorter hospital stays. Furthermore, there isn't any proof in the literature that chewing gum has any negative effects. Chewing gum is a cheap, simple, and patient-friendly treatment option (Duhan, 2020).

In order to minimize gastrointestinal issues following cesarean section, the nurse plays a crucial role in postoperative women's elimination activity by encouraging early ambulation, encouraging gum chewing, and providing oral hydration. In addition, the nurse should determine the patient's level of consciousness and swallowing ability before administering oral hydration or gum chewing. Women who have had C-sections should be encouraged by the nurse to begin walking around early and gradually (White, 2021).

Significant of the Study: -

According to the World Health Organization, the percentage of CS should not go above 10–15%. Many nations take steps to lower the high rate of cord cutting in order to prevent the related prenatal and postnatal hazards (Menashe et al., 2019). The frequency of cesarean delivery (CS) has increased dramatically in Egypt over the last ten years. The most recent Egypt Demographic and Health Survey (EDH) shows a 52% C~ rate, which raises the possibility that CS is being overused or performed for the wrong reasons (Temming et al., 2017).

Chewing gum, early oral hydration, and early mobilization are thought to help women recover from anesthetic issues after cesarean delivery more quickly. By facilitating the mother's transition to a new life and role and hastening her healing process, nurses can boost the country's economy by providing these nursing instructions.

Aim of the study:

This study aimed to:

Evaluate the effect of post cesarean nursing instructions on women pain level and bowel motility after cesarean birth.

Research hypotheses:

- H0: post cesarean nursing instructions will have no effect on women pain level and bowel motility after cesarean birth.
- H1: post cesarean nursing instructions will have positive effect on women pain level and bowel motility after cesarean birth.

Subjects & Methods:

Research Design:

For this study, a quasi-experimental research design was used.

Setting:

The study was conducted at post-natal ward, Mallawi Specialized Hospital (An obstetric department) Mallawy city, Minia governorate. It was chosen by randomized method. Post-natal ward in this hospital found in the second floor, it involved five rooms; each room had two beds in it. This hospital is considered the largest hospital in Mallawy city. It has recently joined to specialized medical centers and had the latest equipment and devices that provides advanced services in the field of obstetrics and gynecology.

Subjects:

Sample Type: A convenience sample was recruited for this study.

Sample size:

A total of 124 postpartum women were selected for this study according to the following sample calculation.

The average number of population (women) after cesarean section C.S was 994 women in last year (2021) at Mallawi Specialized Hospital. So this study was conducted on 124 women (that divided into four groups, A, B, C, and D), each group contained 31 postpartum woman. Using the random integer generator method from the "Numbers" subtitle on the Random.org site, a single column with two groups between 1 and 124 was created (Random, 2021)

According to the following sample calculation:

$$n = \frac{[DEFF * Np(1 - p)]}{[(d2/Z21 - \alpha/2 * (N - 1) + p * (1 - p))]}$$

DEFF (Design effect) = 1, N (population) = 994, p (Hypothesized %) = 10%/±5

d (tolerated margin of error) = 0.05, Z (level of confidence) = 1.96

α (Alpha)= 0.05

The sample was taken based on the following inclusion and exclusion criteria:-

Inclusion criteria:

- Term pregnancy.
- All women under spinal anesthesia
- No history of GIT problems.
- Women who able to follow instructions

Exclusion criteria:

- Caesarean hysterectomy.
- Surgical abdominal complications.
- History of medical disorders.

The sample involved study and control groups. The study group contained three groups (A, B, and C). While the control group (D), each group had 31 postpartum women.

- 1) **Group A: Represented the chewing sugarless gum method:**
- 2) **Group B: Represented early oral hydration method:**
- 3) **Group C: Represented early mobilization method:**
- 4) **Group D: Represented control group:**

Tools of data collection:

Data collection was obtained by using the following three tools:

Tool (I) A structured interviewing questionnaire. This tool was designed and utilized by the researcher based on literature review and consulting expertise in this area, it was structured to include the following parts:

Part 1: Socio-demographic characteristics such as age, level of education, occupation, and residence.

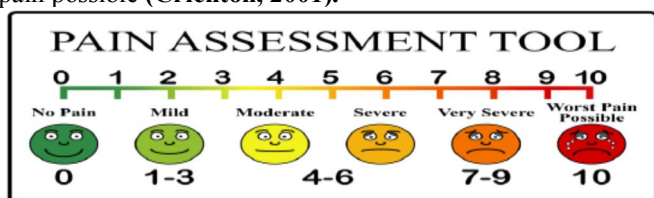
Part 2: Obstetrical characteristics such as gravidity, parity, number of abortions, mode of previous deliveries, and gestational age of current pregnancy, and causes of C.S.

Tool (II) Post cesarean Assessment form, it involved assessment of women's general condition, bowel sounds, and GIT related conditions as:-

- Stethoscope and manual abdominal examination to assess abdominal distention and intestinal motility.
- Assessment of passing gas, or passing stool.
- Episodes of nausea frequency.
- Episodes of vomiting frequency, duration and timing.

Tool (III): Assessment of women level of pain.

The colored visual analogue Scale combines pictures and numbers for pain ratings was used to assess it. Six faces depict different expressions, ranging from no pain to worst pain possible (Crichton, 2001).



Tools Validity:

A panel of three experts from the Department of Obstetrics and Gynecological Nursing at El-Minia University's Faculty of Nursing examined the study's instruments to ensure that they accurately measured the intended outcomes and tested the instruments' content validity. The tools were altered in accordance with the panel's recommendations regarding sentence structure, content appropriateness, and item order.

Tools Reliability:

The researcher used tool reliability to test the instruments' internal consistency. To evaluate reliability, the Cranach's alpha test was employed. Reliability items devoid of scale and analyses found in the SPSS program were used to measure it. The reported values for tool (I), tool (II), and tool (III) explained were 0.823, 0.751, and 0.875, respectively.

Methods:

Preparatory phase:

The tools were developed based on the related literatures and a standard scale, and experts in obstetrics and gynecology reviewed them for validation. The researcher reviewed the relevant literature of the current study on a local and international level using textbooks, articles, and important magazines.

Pilot study:

Following questionnaire preparation, 10% of the total sample, were pre-tested to determine the validity and reliability of the research instruments. Since the study instruments did not undergo any significant changes, the subjects from the pilot study were also included in the main study.

Field work:

The study's data collection took roughly four months, beginning in early March 2023 and ending in early June 2023.

Procedures:

The procedure divided into pre intervention, intervention and post intervention phase

Pre intervention phase:

- Official letters from the El-Minia University Faculty of Nursing directed to the Mallawi Specialized Hospital's responsible authorities to take their permission to collect data after explaining the purpose of the study.
- Official permission was obtained from the authorized person to carry out the study.
- After providing each post-section woman with an explanation of the study's nature and goals, the researcher got her signed consent to take part in the research.
- All written consent was given to the obstetrician who responsible for scientific research in the hospital.
- The researcher went to collect data 5 days per week from 8 to 2 pm.
- After obtaining woman acceptance, the researchers ask her to choose paper from the box (contain the four groups) to determine the type of group the woman involved to it.
- The researches bought the non-sugar chewing gums to be ready for using with chewing gums group.
 - In addition to receiving ethical approval from the El-Minia University Faculty of Nursing's ethical committee, formal permission was obtained from the director of the Mallawi Specialized Hospital.
 - Before including any postpartum woman in the study sample, she was informed in writing and given a clear and concise explanation of the study's purpose.
 - The nature of the study and its anticipated results were explained in a straightforward and clear manner.
 - It was made clear to every participant that she could withdraw the study whenever she wanted to.

- Privacy and confidentiality were taken into account with reference to the information gathered.

Intervention phase:

- After choosing the group, the researchers fill data in the questionnaire as socio-demographic characteristics, and obstetric characteristics, as found in the tool.
- Based on the chosen group, intervention was done by the researcher as the following.

For group A (Chewing sugarless Gum Group):

- After one hour post CS, the researcher asked the woman to chew the sugarless Gum for 15 minutes and repeat it every 1 hour until hearing intestinal sound or passing flatus.

For group B (Early Oral Hydration Group):

- After two hours post CS, the researcher asked the woman to drink 50 ml of a warm water (or warm sugarless drink), if no nausea or vomiting occurred, the amount increased to be 100 ml, and repeated every 1 hour until hearing intestinal sound or passing flatus.

For group C (Early Mobilization Group):

- The researcher asked the post CS woman after 2 hour to move their extremities, while she was on the bed to enhance their circulation, then she asked to take a semi setting position for a little time, then walked around the bed with helping from patient companion, and then walked alone, and repeated waking every 1 hour until hearing intestinal sound or passing flatus

Every woman in the three previous study groups was given a brochure that involved instructions based on her group.

For group D (control group):

The women in this group were received routine hospital care (intra venous fluids every 12 hours and treatment according to the hospital protocol). Intravenous fluids and analgesia: All women received the same intravenous fluids in the hospital, i.e.,1000 ml of 5% dextrose and normal saline every 12 hours.It should be noted that these intravenous fluids should be discontinued when bowel movements begin early and the woman is familiar with feeding before 24 hours. All women received the same routine analgesia, added to the first bottle of IV fluid they were given in the recovery room; this was voltaren injection,75 mg IV/12 hours

Post-intervention phase:

- Following completion of nursing instructions to all study groups , the researcher investigated each woman's vital signs, the time resuming intestinal sounds, when she passed stool or flatus, and whether she had experienced any nausea or vomiting.
- The visual analogue scale was used by the researcher to measure the women’s degree of pain.
- This stage required ten to fifteen minutes.

III): Statistical analysis:

Version 26 of the statistical package for social science (SPSS) was used for both data entry and analysis. Numbers, percentage means, and standard deviations were used to display the data. Tukey, Chi-square, and one-way anova tests were used to display the relationship between the variables. When $p < 0.05$, the p-value is deemed statistically significant.

Results:

Table (1) Distribution of the studied women according to their socio-demographic characteristics in four groups (N=124):

| Socio demographic characteristic | Study groups | | | | Control group | | | | PV1 | PV2 | PV3 | PV4 |
|----------------------------------|--------------------------------------|------|-------------------------------------|------|-----------------------------------|------|------------------------|-------|---------------|---------------|---------------|-------|
| | Group A (Chewing sugarless gum) (31) | | Group B (Early oral hydration) (31) | | Group C (Early mobilization) (31) | | Group D (Control) (31) | | | | | |
| | N | % | N | % | N | % | N | % | | | | |
| Age/ years | | | | | | | | | | | | |
| < 25 years | 8 | 25.8 | 6 | 19.4 | 12 | 38.7 | 15 | 48.4 | 0.166 | 0.054 | 0.744 | 0.203 |
| 25-30 years | 16 | 51.6 | 16 | 51.6 | 12 | 38.7 | 10 | 32.2 | | | | |
| >30 years | 7 | 22.6 | 9 | 29.0 | 7 | 22.6 | 6 | 19.4 | | | | |
| Mean± SD of age | 27.71±5.10 | | 29.00±5.24 | | 26.58±4.83 | | 26.19±4.65 | | 0.154 | 0.741 | 0.609 | 0.119 |
| Educational level: | | | | | | | | | | | | |
| Illiterate | 11 | 35.5 | 8 | 25.8 | 11 | 35.5 | 5 | 16.1 | 0.046* | 0.017* | 0.126 | 0.479 |
| Primary education | 1 | 3.2 | 3 | 9.7 | 1 | 9.7 | 4 | 12.9 | | | | |
| Secondary education | 16 | 51.6 | 13 | 41.9 | 16 | 48.3 | 22 | 71.0 | | | | |
| High education | 3 | 9.7 | 7 | 22.6 | 3 | 6.5 | 0 | 0.0 | | | | |
| Occupation: | | | | | | | | | | | | |
| Worker | 2 | 6.5 | 4 | 12.9 | 1 | 3.2 | 0 | 0.0 | 0.151 | 0.039* | 0.313 | 0.154 |
| House wife | 29 | 93.5 | 27 | 87.1 | 30 | 96.8 | 31 | 100.0 | | | | |
| Residence: | | | | | | | | | | | | |
| Urban | 4 | 12.9 | 6 | 19.4 | 14 | 45.2 | 5 | 16.1 | 0.552 | 0.580 | 0.034* | 0.109 |
| Rural | 27 | 87.1 | 25 | 80.6 | 17 | 54.8 | 26 | 83.9 | | | | |

Pv1 (between group A and D) PV2 (between group B and D) PV3 (between group C and D) PV4 (between all groups)

No statistical significant difference (p-value >0.05) (*) statistical significant difference (p-value <0.05)
 (**) highly statistical significant difference (p-value <0.01)

Table (1) displays the sociodemographic characteristics of the women under study in four groups. It shows that, at p-value >0.05, there was no statistically significant difference between any of the four groups with regard to age, educational attainment, occupation, or place of residence; however, there was a statistically significant difference with regard to educational attainment between group A and D, between group B and D with regard to educational attainment and occupation, and between group C and D with regard to place of residence at p-value <0.05..

Table (2) Distribution of the studied women according to their current cesarean section data in four groups (N=124):

| Last cesarean section data | Study group | | | | | | Control group | | PV1 | PV2 | PV3 | PV4 |
|---|--------------------------------------|------|--------------------------------------|------|-----------------------------------|------|------------------------|------|-------|-------|-------|-------|
| | Group A (Chewing sugarless gum) (31) | | Group B (Early oral hydration) (31) | | Group C (Early mobilization) (31) | | Group D (Control) (31) | | | | | |
| | N | % | N | % | N | % | N | % | | | | |
| Causes of CS delivery: | | | | | | | | | | | | |
| Previous CS | 18 | 58.1 | 11 | 35.5 | 18 | 58.1 | 17 | 54.8 | 0.184 | 0.248 | 0.127 | 0.336 |
| Mal-presentation | 4 | 12.8 | 5 | 16.1 | 4 | 12.8 | 5 | 16.1 | | | | |
| Maternal distress | 2 | 6.5 | 8 | 25.8 | 2 | 6.5 | 7 | 22.6 | | | | |
| Premature rupture of membrane | 5 | 16.1 | 7 | 22.6 | 7 | 22.6 | 2 | 6.5 | | | | |
| Others | 2 | 6.5 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | | | | |
| Cesarean's duration per minutes: | | | | | | | | | | | | |
| 30 min | 18 | 58.1 | 12 | 38.7 | 8 | 25.8 | 9 | 29.0 | 0.061 | 0.279 | 0.644 | 0.094 |
| 30-60 min | 12 | 38.7 | 13 | 41.9 | 17 | 54.8 | 19 | 61.3 | | | | |
| 60-90 min | 1 | 3.2 | 6 | 19.4 | 5 | 16.2 | 3 | 9.7 | | | | |
| >90 min | 0 | 0.0 | 0 | 0.0 | 1 | 3.2 | 0 | 0.0 | | | | |

Pv1 (between group A and D) PV2 (between group B and D) PV3 (between group C and D) PV4 (between all groups)

No statistical significant difference (p-value >0.05) (*) statistical significant difference (p-value <0.05)

(**) highly statistical significant difference (p-value <0.01)

Table 2 reveals current cesarean section data of the studied women in four groups, and showed that 58.1%, 35.5%, 58.1%, and 54.8% in group A, B, C, and D respectively performed CS related to previous CS. Concerning duration of last CS, about 58.1% in group A, their CS were performed less than 30 minutes, while 41.9%, 54.8%, and 61.3% in group B, C, and D respectively their CS were performed from 30<60 minutes, with no statistical significant difference between all four group at p-value >0.05.

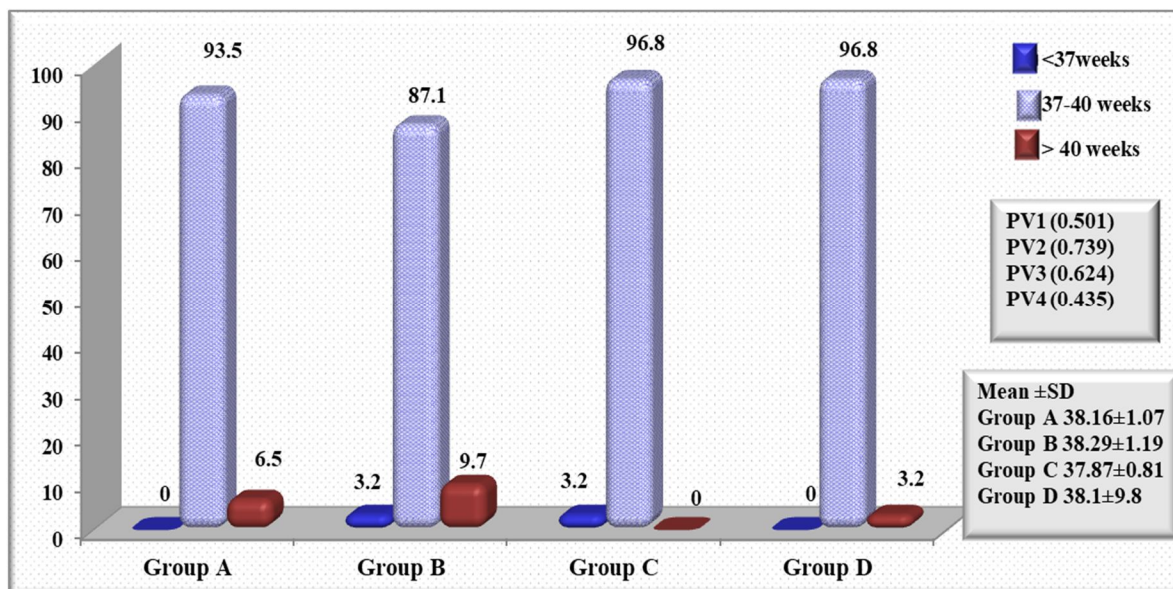


Figure (1) Distribution of the studied women according to their gestational age groups at current delivery in four groups (N=124):

Pv1 (between group A and D)

PV2 (between group B and D)

PV3 (between group C and D)

PV4 (between all groups)

No statistical significant difference (p-value >0.05) (*) statistical significant difference (p-value <0.05)

(**) highly statistical significant difference (p-value <0.01)

Figure (1) demonstrates gestational age groups at current delivery of the studied women in four groups, and reported that (93.5%, 87.1%, 96.8%, and 96.8%) in group A, B, C, and D delivered their baby at gestational age from 37-40 weeks respectively, with no statistical significant difference between all four group at p-value >0.05.

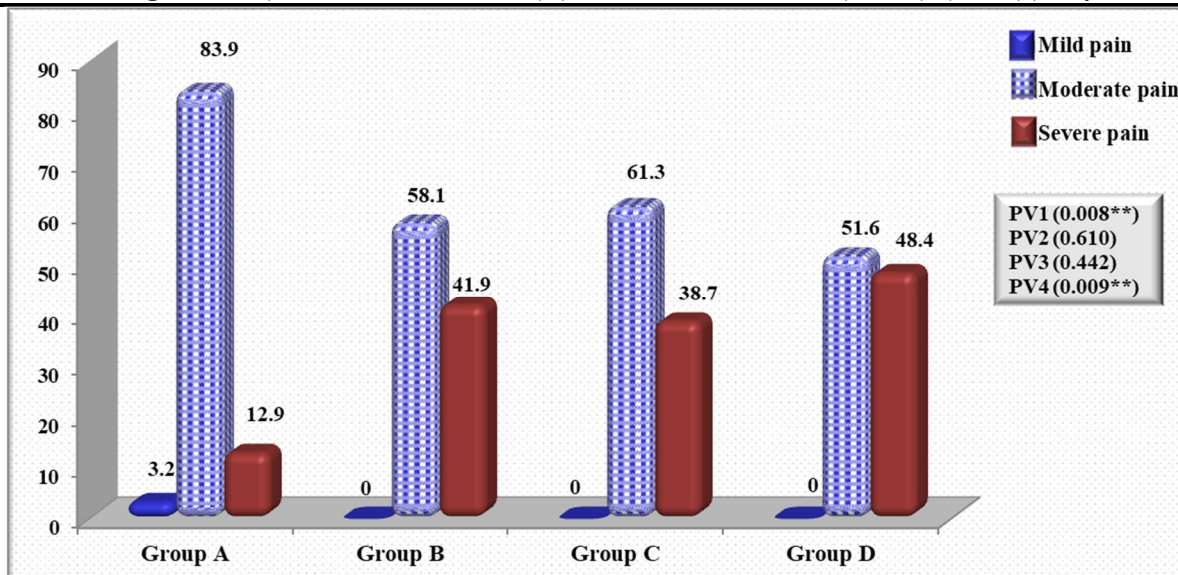


Figure (2) Distribution of the studied women according to their level of pain in four groups (N=124):

Pv1 (between group A and D)

PV2 (between group B and D)

PV3 (between group C and D)

PV4 (between all groups)

No statistical significant difference (p-value >0.05) (*) statistical significant difference (p-value <0.05)

(**) highly statistical significant difference (p-value <0.01)

Figure (2) about 83.9%, 58.1%, 61.3, and 51.6% of the women in groups A, B, C, and D, respectively, had a moderate level of pain, according to the study, which shows the passing level of pain of the four groups of women studied. There was a highly statistically significant difference between all four groups at p-value <0.01.

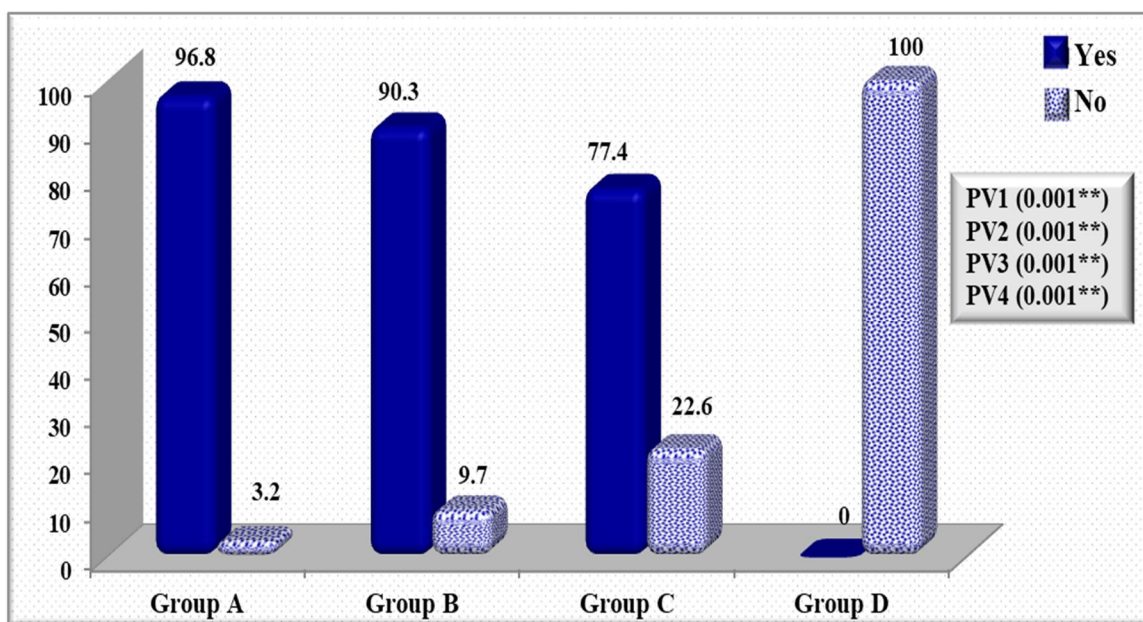


Figure (3) Distribution of the studied women according to their hearing of bowel sound in four groups (N=124):

Pv1 (between group A and D)

PV2 (between group B and D)

PV3 (between group C and D)

PV4 (between all groups)

No statistical significant difference (p-value >0.05) (*) statistical significant difference (p-value <0.05)

(**) highly statistical significant difference (p-value <0.01)

Figure (3) demonstrates hearing of bowel sound post CS (before discharge) of the studied women in four groups, and reported that (96.8%, 90.3%, 77.4%, and 0.0%) in group A, B, C, and D their bowel sound were heard respectively, with highly statistically significant difference between all four group at p-value <0.01.

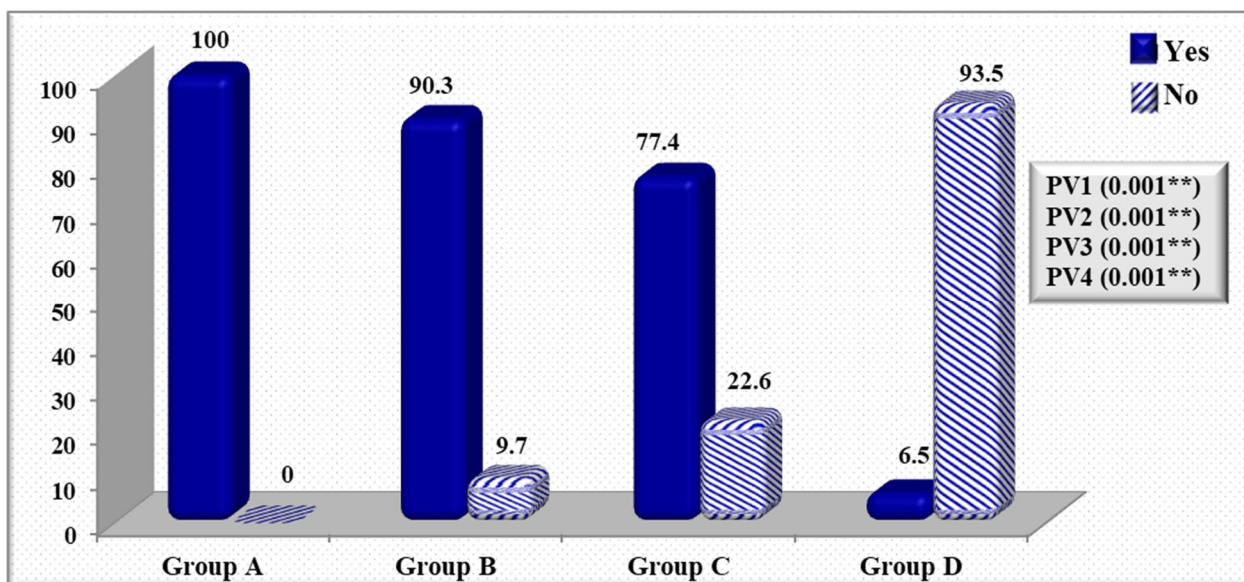


Figure (4) Distribution of the studied women according to passing flatus in four groups (N=124):

Pv1 (between group A and D)

PV2 (between group B and D)

PV3 (between group C and D)

PV4 (between all groups)

No statistical significant difference (p-value >0.05) (*) statistical significant difference (p-value <0.05)

(**) highly statistical significant difference (p-value <0.01)

Figure (4) reports passing flatus post CS (before discharge) of the studied women in four groups, and found that (100%, 90.3%, 77.4%, and 6.5%) in group A, B, C, and D passed flatus respectively, with highly statistical significant difference between all four group at p-value <0.01.

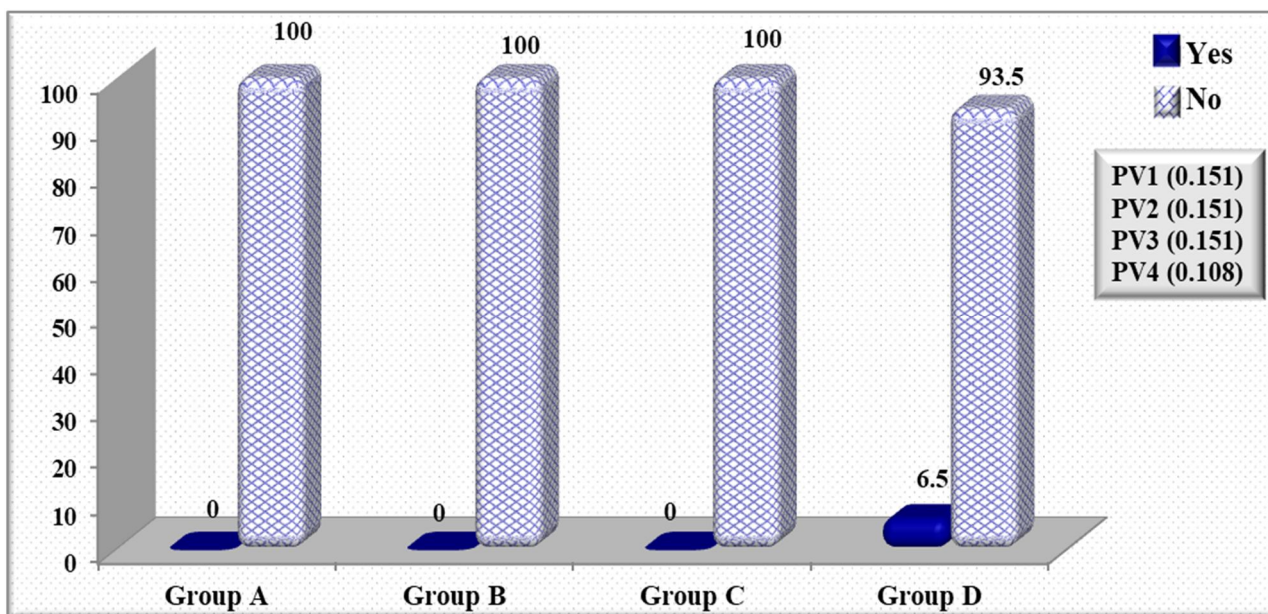


Figure (5) Distribution of the studied women according to passing stool in four groups (N=124):

Pv1 (between group A and D)

PV2 (between group B and D)

PV3 (between group C and D)

PV4 (between all groups)

No statistical significant difference (p-value >0.05) (*) statistical significant difference (p-value <0.05)

(**) highly statistical significant difference (p-value <0.01)

Figure (5) illustrates passing stool post CS (before discharge) of the studied women in four groups, and found that (100%, 100%, 100%, and 93.5%) in group A, B, C, and D passed stool respectively, with no statistical significant difference between all four group at p-value >0.05.

Table (3) Correlation between the studied women level of pain and socio demographic and previous obstetric characteristics between four groups (N=124):

| Socio demographic and previous obstetric characteristics | | level of pain | | | |
|--|---------------------|---|---|--|------------------------------|
| | | Study group | | | Control group |
| | | Group A (Chewing sugarless gum) (31) | Group B (Early oral hydration) (31) | Group C (Early mobilization) (31) | Group D (Control) (31) |
| Age/ years | Pearson Correlation | -.349- | .137 | .000 | .199 |
| | Sig. (2-tailed) | .055 | .462 | .998 | .283 |
| Educational level | Pearson Correlation | .228 | .002 | -.072- | .066 |
| | Sig. (2-tailed) | .217 | .992 | .702 | .724 |
| Occupation | Pearson Correlation | -.272- | .132 | -.230- | NA |
| | Sig. (2-tailed) | .139 | .479 | .214 | NA |
| Residence | Pearson Correlation | .096 | .085 | -.077- | -.010- |
| | Sig. (2-tailed) | .609 | .648 | .679 | .958 |
| Gravidity | Pearson Correlation | -.116- | .256 | -.012- | -.019- |
| | Sig. (2-tailed) | .534 | .165 | .951 | .919 |
| Parity | Pearson Correlation | -.199- | .365* | .112 | -.022- |
| | Sig. (2-tailed) | .284 | .044* | .547 | .905 |
| Previous abortion | Pearson Correlation | .134 | .057 | -.137- | .180 |
| | Sig. (2-tailed) | .472 | .760 | .463 | .332 |

(NA)Not applicable

(**) Correlation is significant at the 0.01 level (2-tailed).

(*) Correlation is significant at the 0.05 level (2-tailed)

Table(3) explains the relationship between the four groups' sociodemographic and past obstetric characteristics and the women's level of pain. It was discovered that group B and the women's parity had a statistically significant relationship at p-value <0.05, but that group B and the women's age, educational attainment, occupation, residence, gravidity, and history of abortion had no statistically significant relationship at p-value >0.05. When looking at the age, educational attainment, occupation, place of residence, gravidity, parity, and history of abortions of the women under study, group A, C, and D did not show any statistically significant relationships (p-value >0.05).

Table (4) Correlation between the studied women hearing of bowel sound and socio demographic and previous obstetric characteristics in four groups (N=124):

| Socio demographic and previous obstetric characteristics | | Hearing of bowel sound | | | |
|--|---------------------|---|---|--|------------------------------|
| | | Study group | | | Control group |
| | | Group A (Chewing sugarless gum) (31) | Group B (Early oral hydration) (31) | Group C (Early mobilization) (31) | Group D (Control) (31) |
| Age/ years | Pearson Correlation | -.349- | .166 | .226 | NA |
| | Sig. (2-tailed) | .055 | .371 | .221 | NA |
| Educational level: | Pearson Correlation | .228 | .016 | -.137- | NA |
| | Sig. (2-tailed) | .217 | .932 | .461 | NA |
| Occupation: | Pearson Correlation | -.272- | -.199- | .099 | NA |
| | Sig. (2-tailed) | .139 | .282 | .598 | NA |
| Residence: | Pearson Correlation | .096 | .160 | .025 | NA |
| | Sig. (2-tailed) | .609 | .389 | .894 | NA |
| Number of gravida: | Pearson Correlation | -.116- | -.031- | .237 | NA |
| | Sig. (2-tailed) | .534 | .868 | .200 | NA |
| Number of parity: | Pearson Correlation | -.199- | .064 | .107 | NA |
| | Sig. (2-tailed) | .284 | .732 | .566 | NA |
| Previous abortion: | Pearson Correlation | .134 | .107 | -.387* | NA |
| | Sig. (2-tailed) | .472 | .566 | .032 | NA |

(NA)Not applicable (as 100% of women in group D their bowel sound not heard)

(**) Correlation is significant at the 0.01 level (2-tailed).

(*) Correlation is significant at the 0.05 level (2-tail)

Table (4) demonstrates the relationship between the four groups' sociodemographic and past obstetric characteristics and the women's auditory perception of bowel sounds. It was discovered that group C and the women's prior abortion had a statistically significant relationship at p-value <0.05, but that group C and the women's age, educational attainment, occupation, residence, gravidity, and parity had no statistically significant relationship at p-value >0.05. When looking at the age, educational attainment, occupation, place of residence, gravidity, parity, and history of abortions of the women under study, there was no statistically significant relationship found in groups A and B (p-value >0.05). Since none of the women in group D had their bowel movements performed before being released from the hospital, the p-value was (NA).

Table (5) Correlation between the studied women passing flatus and socio demographic and previous obstetric characteristics between four groups (N=124):

| Socio demographic and previous obstetric characteristics | | Passing flatus | | | |
|--|---------------------|---|---|--|------------------------------|
| | | Study group | | | Control group |
| | | Group A (Chewing sugarless gum) (31) | Group B (Early oral hydration) (31) | Group C (Early mobilization) (31) | Group D (Control) (31) |
| Age/ years | Pearson Correlation | NA | -.112- | -.214- | .276 |
| | Sig. (2-tailed) | NA | .547 | .247 | .133 |
| Educational level: | Pearson Correlation | NA | -.016- | .137 | .157 |
| | Sig. (2-tailed) | NA | .932 | .461 | .399 |
| Occupation: | Pearson Correlation | NA | .199 | -.099- | NA |
| | Sig. (2-tailed) | NA | .282 | .598 | NA |
| Residence: | Pearson Correlation | NA | -.160- | -.025- | -.232- |
| | Sig. (2-tailed) | NA | .389 | .894 | .210 |
| Number of gravida: | Pearson Correlation | NA | .031 | -.237- | .155 |
| | Sig. (2-tailed) | NA | .868 | .200 | .405 |
| Number of parity: | Pearson Correlation | NA | -.064- | -.107- | .181 |
| | Sig. (2-tailed) | NA | .732 | .566 | .329 |
| Previous abortion: | Pearson Correlation | NA | -.107- | .387* | -.291- |
| | Sig. (2-tailed) | NA | .566 | .032 | .113 |

(NA)Not applicable (as 100% of group A passed flatus)

(**) Correlation is significant at the 0.01 level (2-tailed).

(*) Correlation is significant at the 0.05 level (2-tailed).

Table (5) past obstetric characteristics and the flatus-suffering women. It was discovered that group C and the women's prior abortion had a statistically significant relationship (p-value <0.05), but that group C and the women's age, education level, occupation, residence, gravidity, and parity had no statistically significant relationship (p-value >0.05). At p-value >0.05, there was no statistically significant relationship found between group B and D and the examined women's age, parity, education level, occupation, place of residence, gravidity, or history of abortion. Since all of the women in group A experienced flatus prior to being released from the hospital, the p-value was (NA).

Table (6) Correlation between the studied women level of pain, hearing bowel sound, passing flatus and stool in four groups (N=124):

| Items | | Level of pain | | | |
|------------------------|---------------------|---|---|--|------------------------------|
| | | Study group | | | Control group |
| | | Group A (Chewing sugarless gum) (31) | Group B (Early oral hydration) (31) | Group C (Early mobilization) (31) | Group D (Control) (31) |
| Hearing of bowel sound | Pearson Correlation | -.045- | .164 | .046 | NA |
| | Sig. (2-tailed) | .809 | .378 | .806 | NA |
| Passing flatus | Pearson Correlation | NA | -.164- | -.046- | .008 |
| | Sig. (2-tailed) | NA | .378 | .806 | .964 |
| Passing of stool | Pearson Correlation | NA | NA | NA | -.008- |
| | Sig. (2-tailed) | NA | NA | NA | .964 |

(NA)Not applicable (as 100% of group A passes flatus and no one passed stool in group A, B and C)

(**) Correlation is significant at the 0.01 level (2-tailed).

(*) Correlation is significant at the 0.05 level (2-tailed).

Table (6) shows the correlation between the pain level of the women under study, their ability to hear bowel sounds, and their frequency of flatulence and stool in four groups. It was discovered that, in group A, there was no statistically significant relationship between the women's pain level and their ability to hear bowel sounds at p-value >0.05. With a p-value >0.05, there was no statistically significant correlation found between the pain level of the women in group B and their ability to pass flatus or hear bowel sounds. The study participants' level of pain, hearing bowel sounds, and passing flatus did not significantly correlate in group C (p-value >0.05). At p-value >0.05, there was no statistically significant correlation observed in group D between the pain level of the women under study and their frequency of flatulence and stools.

Discussion

One of the most dependable abdominal surgical procedures is the cesarean section. When necessary, a cesarean section can save the mother's and the baby's lives, but it also carries a higher risk of complications compared to vaginal delivery (Sahin & Terzioglu, 2020). Postoperative ileus, or the transient disruption of intestinal motility

following abdominal surgery, is a significant issue. Abdominal massage, early nutrition initiation, early postoperative mobilization, and gum chewing are among the techniques used to restore intestinal motility (Buchanan and Tuma, 2023). Therefore, the current study aims to evaluate the effect of post cesarean nursing instructions on women pain level and bowel motility after cesarean birth.

The actual study shows that, with regard to the sociodemographic characteristics of the four groups of women under study, there was no statistically significant difference between them in terms of age, educational attainment, occupation, and place of residence (p -value >0.05). In a similar vein, **Hassan et al. (2019)** conducted a study in Egypt to assess the impact of three distinct nursing interventions on intestinal motility and post-cesarean section satisfaction in women. Their findings revealed no statistically significant differences between the four groups with respect to age, educational attainment, and occupation at p -value >0.05 . According to the researcher, the existence of non-significant values between groups aids in preventing bias and supports the validity of the study's conclusions.

The actual study demonstrates that more than half of the women in groups A (chewing sugarless gum), C (early mobilization), and D (control group) and more than one third in group B (early oral hydration) performed CS related to prior CS, pointing to the most recent cesarean section data of the four groups of women studied. In terms of the length of their most recent CS, over half of group A's CS were completed. While more than two fifths, more than half, and more than three fifths in groups B, C, and D had their CS performed within 30 minutes, there was no statistically significant difference between the four groups at p -value >0.05 . Instead, the CS was performed within 30 to 60 minutes.

A similar conclusion was reached by **Hassan et al. (2019)**, who demonstrated that, at p -value >0.05 , there was no statistically significant difference between the four groups with regard to the duration and history of CS. Additionally, **Gayathri R. et al. (2020)**, who conducted research in India to examine the impact of gum chewing on post-csection bowel function recovery, clarified that there was no statistically significant difference in the duration of CS between the gum-chewing group and the control group at p -value >0.05 . Furthermore, it was explained by (Adeli et al., 2019) that there was no statistically significant difference in the duration of CS between the early feeding group and the traditional feeding group at p -value >0.05 .

In line with earlier research (**Panjabi et al., 2022**), which showed that there was no statistically significant difference in the indication of CS at p -value >0.05 between the early and late ambulation groups. It was clear from all prior similarities that the studied women shared similar prior CS behaviors in terms of early hydration, early ambulation, gum chewing, and control group.

Regarding the gestational age groups at which the four groups of women under study gave birth, the current study shows that, at p -value >0.05 , there was no statistically significant difference between any of the four groups. The majority and vast majority of the women in groups A (chewing sugarless gum), B (early oral hydration), C (early mobilization), and D (control group) delivered their last child between 37 and 40 weeks of gestation, respectively.

Accordingly, (**Shaban & Dieb, 2019**) conducted a study to evaluate the efficacy of chewing gum as a simple, safe, and safe alternative to treat paralytic ileus. They found that there was no statistically significant difference in gestational age between the gum-chewing group and the control group at p -value >0.05 . **Adeli et al., (2019)**, supporting early feeding, demonstrated that, at a p -value >0.05 , there was no statistically significant difference between the early feeding group and the traditional feeding group with regard to weeks of gestation. Additionally, (**Singh et al.,**

2020), who conducted their investigation to evaluate the impact of early ambulation on post-operative recovery in women who had cesarean sections, and clarified that there was no statistical significant difference between early mobilization group and late mobilization group regarding weeks of gestational at delivery at p -value >0.05 . From the researcher point of view, all previous studies were implemented on randomly choosing the group that the studied women involved to, so when compared between them regarding weeks of gestation it reported that no significant was reported between groups.

When comparing early versus traditional oral feeding, researchers **Apinun Luksanachinda et al. (2019)** compared the return of bowel movements between women receiving late oral feeding (LOF) and those receiving early oral feeding (EOF) during regionally anesthetized women undergoing cesarean sections (C-sections). Maternal satisfaction and gastrointestinal secondary outcomes showed no statistically significant difference in vomiting between study and control groups at p -value >0.05 . Similarities could return to vomiting not affecting early feeding following surgery, but they could also return to other conditions like anesthesia.

There were differing views expressed by **Bang et al. (2023)**, who conducted a study in Korea to ascertain the anxiolytic effects of chewing gum in pregnant women undergoing regional anesthesia for an elective cesarean section. They discovered that there was no statistically significant difference in nausea between the study and control groups at p -value >0.05 . Moreover, **Wahba et al. (2022)** found no statistically significant difference in nausea between the study and control groups at p -value >0.05 in their prospective evaluation of the advantages and safety of early hydration on bowel movement following Cesarean Section. Additionally, there was a statistically significant difference (p -value <0.05) in abdominal distention between the study and control groups. Difference may back to changing in the time or method of applying the action with intervention group.

In many countries, cesarean delivery is the most common surgical procedure, and in recent years, its frequency has grown. It is acknowledged that the best method for both elective and emergency cesarean deliveries is spinal anesthesia. The primary drawback of spinal anesthesia is its inability to provide long-lasting postoperative analgesia, necessitating the postoperative administration of additional medications to maintain effective and sustained pain management. Patients who are in pain during parturition have trouble walking and sometimes assume an antalgic posture, which makes breastfeeding difficult (**Zandomenico et al., 2022**).

With regard to the pain levels of the four groups of women under study, the actual study indicates that, in group A (chewing sugarless gum), group B (early oral hydration), group C (early mobilization), and group D (control group), the majority of the women had moderate pain levels, with a highly statistically significant difference between all four groups at p -value <0.01 .

In line with earlier research, **Darwish et al. (2022)** conducted an evaluation of the perinatal maternal outcomes of ERAS versus routine care protocols in women undergoing elective cesarean sections (CS) in a lower middle-income nation with limited resources—which is ranked as the third-most CS-performed nation globally using a multidisciplinary team (MDT) management approach. They found a highly

statistically significant difference in pain level at p-value (<0.01) between the study and control groups.

Additionally, **Elsherif et al. (2023)** studied the impact of gum chewing on gastrointestinal issues in primipara women right after cesarean section in Egypt, and demonstrated a highly statistically significant difference in pain level at p-value (<0.01) between the study and control groups. Furthermore, **(Roheman et al., 2020)** discovered a highly statistically significant difference in the level of pain at p-value (<0.01) between the study and control groups after conducting their study in Indonesia to ascertain the impact of early mobilization on the decrease in pain intensity among post-Cesarean Section patients at Cirebon Hospital. According to the researcher, earlier research shows how important gum chewing, early mobilization, and early oral hydration are in reducing post-CS pain compared to individuals who did not receive traditional care.

Regarding the hearing of bowel sounds after CS (before discharge) of the women under study, this study reports that in group A (chewing sugarless gum), group B (early oral hydration), group C (early mobilization), and group D (control group), respectively, the majority, the majority, more than three quarters, and no one heard their bowel sounds. There was a highly statistically significant difference between all four groups at p-value <0.01 .

In a similar vein, **Gayathri R. et al. (2020)** demonstrate that a significant proportion of the study group and a smaller percentage of the control group heard their bowel sounds, with a statistically significant difference between the two groups at p-value <0.01 . Additionally, **Wahba et al. (2022)** provided clarification, stating that there was a highly significant statistical difference (p-value <0.01) in the two groups' ability to hear bowel sounds.

Additionally, **(Alphones & Miranda, 2023)** discovered a highly statistically significant difference in the ability to hear bowel sounds between the two groups when examining the impact of planned early ambulation on postoperative recovery among cesarean mothers in Mangalur (p-value <0.01). Agreement in all previous findings explored that there were a vital effect to early ambulation, early hydration, and chewing gum on bowel movement after CS.

Conversely, **Hassan et al. (2019)** found that among the women under study, the sound was perceived by less than one-sixth, more than one-sixth, and one-fifth of the gum-chewing, early ambulation, and early hydration groups, respectively. If there isn't a statistically significant difference between all groups at p-value >0.05 , the difference might start to fluctuate during the follow-up period.

The actual study reports that all, the great majority, more than three quarters, and less than one tenth of the studied women in groups A (chewing sugarless gum), B (early oral hydration), C (early mobilization), and D (control group) passed flatus, respectively, post-CS (before discharge). There was a highly statistically significant difference between all four groups at p-value <0.01 .

Similar results were reported by **Akalpler & Okumus (2018)**, who conducted a study under spinal anesthesia to examine the impact of gum chewing on postoperative bowel function in women following cesarean delivery. They found a highly significant difference between the two groups at p-value <0.01 .

Furthermore, **Wahba et al. (2022)** elucidated that a highly significant statistical difference (p-value <0.01) was observed between the studied group (which received early oral

hydration) and the control group (which received traditional hydration). And **(Alia et al., 2021)**, who used their study to investigate the impact of early exercise following a cesarean section on the early return of women to their functional activities, reported that there was a highly significant difference (p-value <0.01) between the control group (traditional mobility) and the studied group (early exercise). Similarity in all previous findings, ensured the vital role to gum chewing, early oral hydration, and early mobility on enhancing post CS recovery through passing flatus.

The actual findings show that all of the studied women in groups A (chewing sugarless gum), B (early oral hydration), and C (early mobilization) passed stool post CS (before discharge), while the majority of them in group D (control group) did not. There was no statistically significant difference between the four groups at p-value >0.05 .

Consistent with earlier research, **Hassan et al. (2019)** found that approximately 50% of the female participants in the gum chewing, early mobilization, and early oral hydration groups passed stool, respectively. at p-value >0.05 , with no statistically significant difference observed across all groups. According to the researchers, these outcomes were caused by intervention because postoperative ileus is common and can result in a lengthy hospital stay among other issues.

Conversely, **Shaban and Dieb (2019)** demonstrated a highly statistically significant difference (p-value <0.01) between the two groups. Differences could be attributed to shifting techniques, such as comparing the two groups' exclusive use of chewing gum rather than their combination of methods.

Despite the fact that surgical procedures are carried out to guarantee patients' health and get rid of their symptoms, they can have a number of negative effects on the patient. Numerous complications could arise during surgery, particularly in the recovery phase. Paralytic ileus, also known as postoperative ileus, is one of these side effects. Ileus causes the gastrointestinal tract to fill with gas and fluid and causes neither decreased flatus nor delayed intestinal movements. Individuals may have symptoms like nausea, vomiting, and abdominal pain, which are indicative of an intestinal blockage **(Bayraktar & Kutlu, 2021)**.

In relation to the correlation between the pain levels of the women under study and their sociodemographic characteristics and obstetric history in four groups, the current study shows that there was a statistically significant relationship between group B and the women under study's parity at p-value <0.05 , but not between group B (early oral hydration) and the women under study's age, educational attainment, occupation, residence, gravidity, or history of prior abortions at p-value >0.05 . Groups A (chewing sugarless gum), C (early mobilization), and D (control group) did not exhibit any statistically significant correlation with the age, educational attainment, occupation, residence, gravidity, parity, or history of previous abortions of the women under study (p-value >0.05).

Similar results were published by **Alphones & Miranda in 2023**, who show that, at a p-value >0.05 , there was no statistically significant relationship between the women's age, parity, occupation, or educational attainment and their level of pain. This agreement investigated the idea that obstetric or demographic factors had no bearing on the degree of pain experienced by laboring women.

Regarding the relationship between the four groups' sociodemographic characteristics and obstetric history and the

studied women's hearing of bowel sounds, the actual study reveals that there was a statistically significant relationship between group C (early mobilization) and the studied women's prior abortion at p -value <0.05 , but not between group C and the studied women's age, educational attainment, occupation, residence, gravidity, or parity at p -value >0.05 . There was no statistically significant relationship found between the two groups (A, chewing sugarless gum) and B, drinking water early in the day, and the age, education, employment, place of residence, gravidity, parity, and history of abortion of the women under study (p -value >0.05). None of the women in group D (control group) had their bowel movements heard prior to being released from the hospital, so the p -value was (NA).

Consistent with earlier research (Sahin & Terzioglu, 2020), which found no statistically significant relationship between them and the age and parity of the women under study at p -value >0.05 . Additionally, Singh et al. (2020) showed that, at p -value >0.05 , there was no statistically significant relationship between the early ambulation group and the age, educational attainment, occupation, gravidity, or parity of the women under study. According to the researcher, these agreements guaranteed that women's bowel movements were unaffected by their demographics or obstetrical features.

Regarding the relationship between the study's four groups' sociodemographic characteristics and obstetric history and the flatus-suffering women, the results show that group C (early mobilization) and the women's prior abortion were statistically significantly correlated at p -value <0.05 , but group C and the women's age, educational attainment, occupation, residence, gravidity, and parity were not statistically significantly correlated at p -value >0.05 . At p -value >0.05 , there was no statistically significant relationship found between the early oral hydration group (B) and the control group (D) and the studied women's age, educational attainment, occupation, place of residence, gravidity, parity, and history of abortion. Since all of the research subjects experienced flatus prior to hospital discharge in group A (chewing sugar-free gum), the p -value was (NA).

In a similar vein, (Sahin & Terzioglu, 2020) demonstrated that, at p -value >0.05 , there was no statistically significant relationship between the age and parity of the women under study and passed flatus. According to the researcher, consistency with earlier results indicates that there is no relationship between an individual's personal traits and their ability to pass flatus, and that this is influenced by interventions such as early hydration, early ambulation, and gum chewing.

Conclusion:

Gum without sugar When it comes to intestinal motility and women's pain level following cesarean section birth, chewing, early mobilization, and early hydration are effective strategies. Chewing gum, however, had a greater effect on passing flatus and hearing bowel sounds.

Recommendations:

Based on the study findings, it was recommended that:

- Since chewing gum had a greater impact on flatulence passage and bowel sound, the study's conclusions should be applied to a larger sample size.
- Introducing health education programs for expectant mothers about the benefits of chewing gum, staying

hydrated early, and walking after giving birth via cesarean section.

- Using a larger sample size, investigating the impact of chewing gum, early hydration, and ambulation on a distinct kind of lower abdominal gynecological surgery.

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