Effect of Gum Chewing on Gastrointestinal Problems among Primipara Women Immediately after Cesarean Section

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Abstract

Background: Cesarean section is most common surgical procedure affect the autonomic nervous system which lead to gastrointestinal problems. **Aim of study:** Was to evaluate effect of gum chewing on gastrointestinal problems among primipara women immediately after cesarean section. **Design:** A quasi-experimental design was utilized. **Setting:** Postpartum unit of Obstetrics and Gynecological department at Benha University Hospital. **Sampling:** A Purposive sample of 204 primiparous women were included in the study and divided into control and study groups. **Tools of data collection:** Three tools were used: A structured interviewing questionnaire, postoperative intestinal function parameters evaluation form and numerical rating scale. **Results:** Mean time of postoperative intestinal function parameters and hospital stay were significantly shorter in the study group than in control group ($P \leq 0.001$). Additionally, after 4, 6, and 8 hours post cesarean section, mean of severity of post-cesarean section gastrointestinal problems were significantly decrease in the study group than in the control group ($P \leq 0.001$). **Conclusion:** Chewing sugar free gum immediately after cesarean section had a positive effect on the intestinal function parameters in terms of time related to the first intestinal sound, first passage of flatus, feeling comfort, and early initiation of breastfeeding. As well as short duration of hospital stay. Also, a significant reduction in severity of post-cesarean section gastrointestinal problems (nausea, vomiting, abdominal pain, and abdominal distention) in the study group compared to control group. **Recommendation:** Chewing gum should be recommended as non-pharmacological routine of care in maternity hospital for relieving gastrointestinal problems immediately after cesarean section.

Key words: Cesarean Section, Gastrointestinal Problems, Gum Chewing, Primipara women.

Introduction

Cesarean section is a common surgical procedure in obstetrics that increased worldwide in the last decades especially in developed countries. Cesarean section is a surgical procedure in which one or more incisions are made through a woman's abdominal layers and uterus to deliver one or more fetuses. Cesarean section is supposed to be performed when a vaginal delivery would put the fetus's or woman's life or health at risk **(Jaiyesimi et al., 2021).**

Additionally, cesarean section rate was much higher than the ideal rate recommended by the World Health Organization, especially on nulliparous women with singleton pregnancies, advanced maternal age due to increased concerns of the family about the safety of the fetus, child birth among primipara women manifested by fear of death, losing the

fetus, fear of delivery pain. So, lead to increased maternal request for elective cesarean section which can be avoided as there is no medical indicator **(Ouyang et al., 2022).**

Immediate postoperative cesarean section complications include thromboembolism, gastrointestinal problems, urinary tract infection and wound infection. Remote complications include endometriosis of the abdominal wall in the surgical scar, formation of adhesions, high possibility of low placental insertion, placental accreta or uterine rupture in later pregnancies **(Eliner et al., 2022).**

Cesarean section is one of the most significant surgeries directly related to postoperative changes in the autonomic nervous system. Cesarean section causes a decrease in bowel movements and results in several problems in post-cesarean section women including paralytic ileus, atelectasis, wound infection, urinary retention, and urinary tract infections **(Wellmann et al., 2021).**

Furthermore, gastrointestinal problems after cesarean section involve ileus, flatulence, nauseas and vomiting are leading to woman's dissatisfaction and prolong hospitalization. Postoperative ileus cause intestinal gas retention, abdominal distension, nausea and abdominal pain. Ileus occurs as a result of peristalsis decrease, manipulation of intestine and immobility. Prevention and reduction of gastrointestinal problems after cesarean section should follow the safest and most inexpensive method **(Bekem et al., 2021).**

Gum chewing has been a recent focus of research as an adjunct method to stimulate the cephalic-vagal reflex to help overcome gastrointestinal retardation postoperative cesarean section. Gum chewing has been added to postoperative ileus protocol of early feeding regimens, early ambulation, and limiting opiate use **(Bhatti et al., 2021).**

The nurse plays an important role in postoperative women elimination activity by providing gum chewing to reduce gastrointestinal problems after cesarean section. Also, the nurse should assess level of consciousness and ability to swallow before providing gum chewing. Chewing gum should not be given to women with dysphagia or with chewing problems as have dental issues or poorly fitting dentures and avoid sleeping with gum in mouth **(White, 2021).**

Significance of the study

Cesarean section associated with increasing the woman morbidity and mortality rate, unhealthy outcomes of newborns and increasing the health care organizations costs. The increase in cesarean section rates are in maternal profile over the last 20 years for several causes. In middle -income countries including Egypt, Turkey, Brazil and Mexico, over 50% of births are now by caesarean section **(Jiang et al., 2021)**.

The study in four governorates in Egypt (Cairo, Alexandria, Assiut and Behera) found an overall cesarean section rate of 54.2%, ranging from 22.9 to 94.3% between the different centers Egypt with a rate of 51.8%, now ranks third among the countries with the highest rate of cesarean section **(Sultani et al., 2021).**

Gastrointestinal problems remain cause of maternal morbidity and factor of length of hospital stay after cesarean section. The effective and harmless promotion of gastrointestinal function recommendation and prevention of complications after cesarean section has begun diffused among medical and nursing staff. Therefore, regaining the bowel movement is an essential aspect which requires due attention **(Hartmann et al., 2021).**

In addition, previous studies have been recommended that gum chewing is one of the non-pharmacological nursing interventions,

preventive, safe and inexpensive approach which can be used to accelerate gastric secretion, stimulate the stomach, increase peristaltic bowel movements and ultimately enhance return of bowel motility after cesarean section **(Ertas et al., 2021; Urcanoglu and Yildiz, 2021; Kanza and Şolt, 2021)**. Consequently, this study was conducted to evaluate the effect of gum chewing on gastrointestinal problems among primipara women immediately after cesarean section**.**

Aim of the study

The study aimed to evaluate the effect of gum chewing on gastrointestinal problems among primipara women immediately after cesarean section.

Research hypotheses:

Hypothesis (1): Women who chewing gum immediately after cesarean section will be had faster return to optimal intestinal function than those who do not.

Hypothesis (2): Women who chewing gum immediately after cesarean section will be shown a significant reduction in post-cesarean section gastrointestinal problems as nausea, vomiting and abdominal distention., than those who do not.

Subjects and method

Research design:

A quasi-experimental design was utilized to fulfill the aim of the study.

Setting of the study:

The study was conducted at postpartum unit of Obstetric and Gynecological department at Benha University Hospital.

Sampling:

Sampling type: A Purposive sample.

Sampling size: A total 204 women were included in the study. The sample size was calculated 10% of total number of cesarean women according to the last year (2019), the total number of post cesarean women in obstetric unit in Benha university hospital was 2037 women. So, the sample of 204 primiparous women were included in the study according to the inclusion criteria.

Inclusion criteria:

- Free from any dental problems.
- Primipara women.
- No intra or postoperative complications.
- Able to chew gum immediately after cesarean section.
- Conscious women immediately after cesarean section.
- Women have the desire to participate in the study.

Tools of data collection:

Three tools were used for data collection**.**

Tool I: A structured interviewing questionnaire.

It was developed by the researcher after reviewing of literature **(Andrus et al., 2021; Greetfeld et al., 2021; Moghawry et al., 2022).** It included two parts**:-**

The first part: demographic characteristics of the studied women included (age, education, occupation and residence).

The second part: cesarean section data included (gestational age, indications of cesarean section, types of cesarean section, types of anesthesia). As well as the duration of fasting time per hours of studied women before cesarean section.

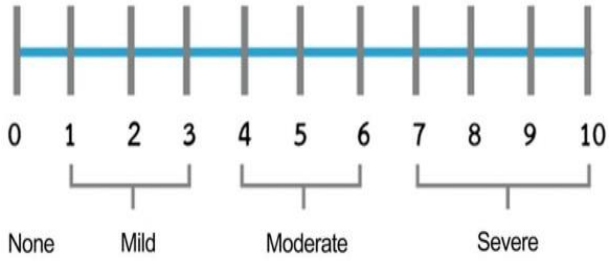
Tool II: Post-operative intestinal function parameters evaluation form.

It was developed by **Van bree et al., (2016)** and was adapted by the researcher to assess intestinal function parameters. It consisted of five items (time of first audible intestinal sound, time of first passage of flatus, time of first passage of stool, time of first drinking fluids, time of feeling of comfort, and time of early initiation of breastfeeding). As well as, the duration of hospital stay per hours of studied women.

Tool III: Numerical rating scale.

It was developed by **Gillian et al., (2011)** and was adapted by the researcher to assess severity of post-cesarean symptoms as nausea, vomiting, abdominal pain, abdominal distention and heartburn. It is a standard tool having ratings from (0-10). The total scoring was calculated and interpreted as following scoring:

- 0 representing no post-cesarean section gastrointestinal problems (nausea, vomiting, abdominal pain, and abdominal distention)
- 1-3 representing mild post-cesarean section gastrointestinal problems (nausea, vomiting, abdominal pain, and abdominal distention).
- 4-6 representing moderate post-cesarean section gastrointestinal problems (nausea, vomiting, abdominal pain, and abdominal distention).
- 7-10 representing severe post-cesarean section gastrointestinal problems (nausea, vomiting, abdominal pain, and abdominal distention).



Tools validity and reliability

Tools of data collection were reviewed by a panel of three experts in the field of Obstetrics and Gynecological nursing and medicine to ascertain content validity. Modifications were done according to the panel judgment to clarity of sentences, consistency and appropriateness of content, the sequence of items, accuracy, relevance, comprehensiveness, simplicity and applicability of the tools. Reliability of tools was done by Cronbach's alpha test. The internal consistency for post-operative intestinal function parameters evaluation form was 0.85 and Numerical Rating Scale was 0.87.

Ethical considerations:

- The study approval was obtained from the Scientific Research Ethical committee at Faculty of Nursing Benha University before starting the study.
- The aim of the study was explained to each woman before applying the tools to gain confidence and trust.
- An oral consent was taken by the researcher from women to participate in the study
- The data was collected and treated confidentiality.
- Each woman had the right to refuse to participate or withdraw from the study at any time without penalty.
- The researcher was ensured the fullest respect, dignity, and privacy.

Pilot study:

The pilot study was carried out for 10% of the total sample size (20) women to assess objectivity, applicability, clarity and feasibility of the tools and to find out the possible obstacles and problems that might face the researcher and interfere with data collection and to estimate the time needed for data collection. No modifications were done in the tools. So, women involved in the pilot were included in the main study sample.

Field work:

- The current study started from the beginning of May 2021 to the end of January 2022 covered nine months.
- The researcher visited the previous mentioned setting 3 days / week (Saturday, Monday, Wednesday) from 9 Am to 3 Pm to collect data from women until sample size was completed.

- The researcher reviewed the list operation to know the number of cases per day (odd number in the study group and even number in the control group).
- The researcher began to great, welcome women and explained the aim of the study to gain confidence, trust and cooperation.
- Oral consent was taken from each woman.
- The researcher interviewed about one to three women per day according to the availability of primiparous women who met the inclusion criteria.
- Each woman was interviewed individually to collect data. The interview took about 25 minutes for each woman.
- The researcher collected data from the control and study groups by using the previous mentioned tools (A structured interviewing questionnaire, Post-operative (CS) intestinal function parameters evaluation form **Van bree et al., (2016)** and Numerical rating scale **Gillian et al., (2011)**.
- Women were asked in Arabic language and researcher documented the woman's answer in the tools utilized.
- The researcher collected data from control group before study group to avoid contamination of the sample.
- For the control group, women were not given anything by mouth postoperatively and followed only routine hospital care.
- For the study group, The researcher provided each woman with a adequate number required for chewing sugarless gum sticks to complete the study.
- The researcher encouraged women to chew one stick of sugarless gum for 15 minutes every two hours, starting immediately post recovery at 2 hours after cesarean section **(Mahmoud and Mohamed, 2018).**
- The woman continued chewing gums until flatus or stool occurred **(Jakkaew and Charoenkwan, 2017)**.
- The researcher provided each women with a new stick of gum if its consistency is changed during chewing for replacement.
- The researcher evaluated the effect of chewing gum on women conditions by using the same previous mentioned tools used in pretest (Tool II and Tool III) after chewing gum.
- No gum chewing during sleep.
- Each woman in both groups was assessed for the severity of post-cesarean section gastrointestinal problems nausea, vomiting, abdominal pain, and abdominal distention, by Numerical rating scale every 2 hours post cesarean section, 4 hours, 6 hours and 8 hours post cesarean section **(Moghawry et al., 2022).**
- Total tools were took 20-25 minutes, tool I took about 5minutes for each woman, Tool II took about 15 minutes for each woman, Tool III took about 5 minutes for each woman.
- After finishing the collecting data was tabulated and analyzed to achieve the aim of the study and support the study hypothesis.
- After collecting data explain to woman in control group the benefits of chewing gum after surgery.

Limitations of the study:

- Taking extra time for completing data collection due to noise and interruption done by the participant relatives (visitors).
- Taking extra time and effort due to some women were exhausted and refused to complete the duration of chewing gum 15

minutes every 2 hours and the researcher replaced them with new participants.

Statistical analysis:

All collected data were verified prior to computerized entry. The statistical package for social science (SPSS version 25) was used for the purpose, followed by data tabulation and analysis. Descriptive statistics were applied (e.g. mean, standard deviation, frequency and percentages). Tests of significance were used (Chi-square, Fisher Exact test, and Independent T test). Pearson correlation was used to investigate correlation between the study variables. A significant level value was considered when:

- No statistically significant difference obtained at $P > 0.05$.
- Significant statistically difference obtained at $P \leq 0.05$.
- A highly statistically significant differences obtained at $P \leq 0.001$

Results:

Table (1) represents that 31.3% aged 30 < 35 years, with a mean age 28.26±5.11 in the study group. While, 32.4 % aged 20 < 25 years, with a mean age 27.41±5.69 years in the control groups. As regards educational level, 62.8 % and 67.6 % in study and control groups respectively had primary education. Concerning occupation, 71.6 % in study group and 78.4 % in control group were housewives. As far as residence, 69.6 % in study group and 74.5% in control group lived in rural areas. There were no statistically significant differences existed between study and control groups regarding demographic characteristics as ($p > 0.05$).

Table (2) shows that 55.9 % in study group and 46.1% in control group reported the main indication for cesarean section related to placenta problems. While, 17.6 % and 13.7 % in study and control groups respectively related to fear of normal vaginal delivery. As well as, 38.2 % 27.5 % in study and control groups respectively related to umbilical cord prolapse.

Figure (1) illustrates types of cesarean section among women in study and control groups. There were 13.7% of elective cesarean section in study group and 23.5% in control group. While, 86.3 % of emergency cesarean section in study group and 76.5 % in control group. The majority in both groups had emergency cesarean section.

Table (3) demonstrates that mean time of post-operative (CS) intestinal function parameters were significant shorter in study group than in control group ($P \leq 0.001$). The mean time of first intestinal sound, first passage of flatus, first drinking fluids, feeling comfort, early initiation of breastfeeding were 5.29±1.12, 9.55 ± 1.69, 5.83 ±1.07, 4.12±0.92, 1.51± 0.49 hours in the study group compared to 7.60±1.39, 12.34±2.63, 7.73±1.62, 5.78±0.71, 2.73 ± 0.88 in the control group respectively.

Table (4) shows that there were no statistically significant differences between both groups after 2 hours post cesarean section in nausea, vomiting, abdominal pain, and abdominal distention ($p > 0.05$). On the other hand, after 4,6, and 8 hours post cesarean section. Mean of severity of post cesarean section gastrointestinal problems were significant decrease in the study group than in the control group ($P \leq 0.001$).

Figure (2) illustrates that mean duration of hospital stay was 6.33 hours in the study group compared to 8.12 hours in the control group with highly statistically significant difference between both groups ($p < 0.0001$).

Table (1): Distribution of the studied sample (study and control groups) according to demographic characteristics (n=204)

Groups / Variables	Study group n=102		Control group n=102		X^2	P-value
	No	%	No	%		
Age (years)						
20 < 25	28	27.5	33	32.4	1.274	0.735 ns
25 < 30	26	25.5	23	22.5		
30 < 35	32	31.3	27	26.5		
≥ 35	16	15.7	19	18.6		
Mean±SD	28.26±5.11		27.41±5.69		t=1.126	0.261 ns
Educational level						
Read and write	5	4.9	9	8.8		
Primary education	64	62.8	69	67.6	4.268	0.234 ns
Secondary education	18	17.6	17	16.7		
University education	15	14.7	7	6.9		
Occupation						
Working	29	28.4	22	21.6	1.281	0.258 ns
Housewife	73	71.6	80	78.4		
Residence						
Urban	31	30.4	26	25.5	0.619	0.435 ns
Rural	71	69.6	76	74.5		

ns no statistically significant difference (p > 0.05) t= independent t test

Table (2): Distribution of studied sample (study and control groups) according to indications of cesarean section (n=204)

Groups / Variables	Study group n=102		Control group n=102		X^2	P-value
	No	%	No	%		
Indications of cesarean section*						
Abnormal fetal presentation	33	32.4	24	23.5	1.972	0.160 ns
Tight of pelvic	23	22.5	16	15.7	1.553	0.213 ns
Fear of normal vaginal delivery	18	17.6	14	13.7	0.593	0.441 ns
Premature rupture of membrane	35	34.3	26	25.5	1.894	0.169 ns
Umbilical cord prolapse	39	38.2	28	27.5	2.860	0.091 ns
Placenta problems	57	55.9	47	46.1	1.589	0.207 ns

ns no statistically significant difference (p > 0.05) *No mutual responses

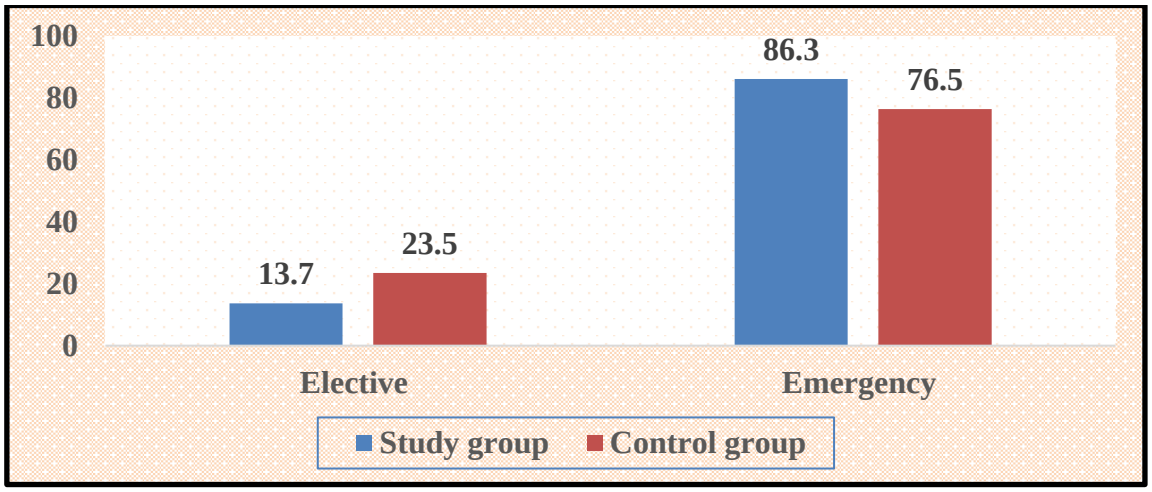


Figure (1): Distribution of studied sample in the study and control groups according P value= 0.072 according to types of cesarean section (n=204).

Table (3): Comparison between study and control groups regarding post operative intestinal function parameters (n=204)

Groups / Parameters	Study group n=102 Mean ± SD	Control group n=102 Mean ± SD	Independent t test	P-value
Time of the first intestinal sound (hours)	5.29 ± 1.12	7.60± 1.39	13.508	0.000**
Time of first passage of flatus (hours)	9.55 ± 1.69	12.34 ± 2.63	9.003	0.000**
Time of first passage of faeces (hours)	16.82 ± 2.38	20.81 ± 3.11	10.491	0.000**
Time of first drinking fluids (hours)	5.83 ± 1.07	7.73 ± 1.62	12.111	0.000**
Time of feeling comfort (hours)	4.12 ± 0.92	5.78 ± 0.71	9.820	0.000**
Time of early initiation of breast feeding (hours)	1.51 ± 0.49	2.73 ± 0.88	11.121	0.000**

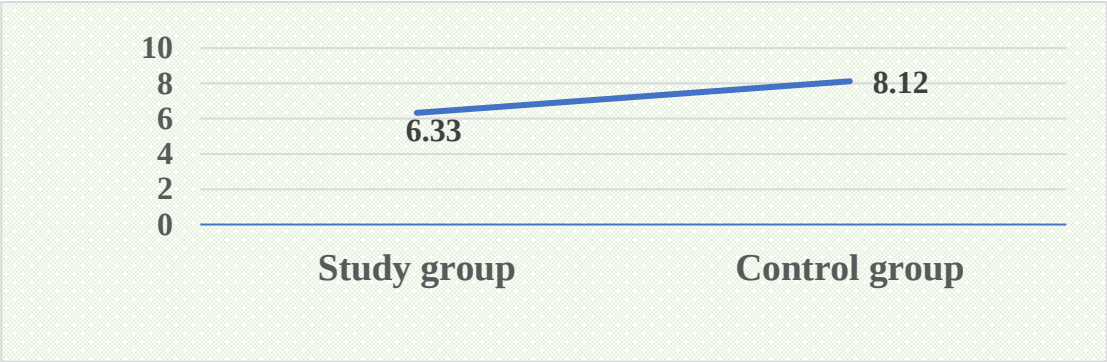
****A highly statistically significant difference (P ≤ 0.001)**

Table (4): Comparison between study and control groups regarding severity of post cesarean section symptoms (n=204)

Groups / Symptoms	Study group n=102	Control group n=102	Independent t test	P-value
	Mean ± SD	Mean ± SD		
Nausea				
At 2 hours post cesarean section	3.99 ± 1.12	3.75 ± 1.71	1.163	0.246 ns
At 4 hours post cesarean section	3.64 ± 1.23	4.08 ± 1.56	2.259	0..025*
At 6 hours post cesarean section	2.31± 1.65	3.95 ± 1.55	7.282	0.000**
At 8 hours post cesarean section	1.70 ± 0.54	3.74 ± 1.15	16.190	0.000**
Vomiting				
At 2 hours post cesarean section	4.17 ± 1.44	3.88 ± 1.59	1.339	0.182 ns
At 4 hours post cesarean section	3.21 ± 1.37	4.49 ± 1.38	6.668	0.000**
At 6 hours post cesarean section	1.96 ± 1.25	4.76 ± 1.34	15.475	0.000**
At 8 hours post cesarean section	1.71 ± 0.46	4.81 ± 1.13	25.701	0.000**
Abdominal pain				
At 2 hours post cesarean section	5.66 ± 1.79	5.29± 1.84	1.422	0.157 ns
At 4 hours post cesarean section	4.28 ± 1.29	5.74± 1.48	7.433	0.000**
At 6 hours post cesarean section	2.66 ± 1.19	5.89± 1.43	17.532	0.000**
At 8 hours post cesarean section	1.92 ± 0.51	5.97± 1.61	24.289	0.000**
Abdominal distention				
At 2 hours post cesarean section	2.74 ± 1.24	2.62 ± 1.03	1.738	0.123 ns
At 4 hours post cesarean section	1.67 ± 0.98	3.89 ± 1.05	15.570	0.000**
At 6 hours post cesarean section	0.85 ± 0.87	3.92 ± 0.86	25.417	0.000**
At 8 hours post cesarean section	0.41± 0.78	3.12 ± 2.24	11.511	0.000**

ns no statistically significant difference (p > 0.05)

****A highly statistically significant difference (P ≤ 0.001)**



P value= 0.000

Figure (2): Mean duration of hospital stay (hours) after cesarean section between studied sample in the study and control groups (n=204)

Discussion

The present study aimed to evaluate effect of gum chewing on gastrointestinal problems among primipara women immediately after cesarean section**.** The study included two hypothesis as **Hypothesis (1):** Women who chewing gum immediately after cesarean section will be had faster return to optimal intestinal function than those who do not. **Hypothesis (2):** Women who chewing gum immediately after cesarean section will be shown a significant reduction in post-cesarean section gastrointestinal problems as nausea, vomiting, abdominal distention and .. etc., than those who do not. Which was supported through three main sections as the following. **Section (I):** characteristics of the studied sample, **Section (II):** post-operative (CS) intestinal function parameters between study and control groups, **Section (III):** severity of post-cesarean section gastrointestinal problems between study and control groups.

Section(I): concerning characteristic of the studied sample. The present study revealed that there was no statistically significant difference among studied sample regarding demographic characteristics (age, educational level, occupational status and residence). This may be due to homogeneity of the study sample. The result of the current study revealed that mean age of studied women were 28.26±5.11 and 27.41±5.69 years for study and control groups respectively. The current result was supported by **Li et al., (2017)** who conducted the study about " Geographic Variations and Temporal Trends in Cesarean Delivery in China and reported that no significant difference between the study and control groups regarding demographic characteristics (age, educational level, occupational status and residence).

Regarding indications of cesarean section among women in study and control groups. The present study revealed that more than half in study group and less than half in control group related to placenta problems. There was no statistically significant difference between both groups regarding the indications of cesarean section.

In the same line in the agreement of the current study results **Feng, (2017)** who conducted the study about " Effect of Chewing Gum on Gastrointestinal Function Recovery after Cesarean Section" in Japan and stated that no statistically significant difference between both groups regarding cesarean section indications including placenta previa and umbilical cord prolapse.

Concerning types of cesarean section among women in the study and control groups. In the present study there were more than one tenth of the woman in the study group have elective cesarean section and less than one quarter in control group. While, the majority of study and control groups had emergency cesarean section. There were no statistically significant difference between both groups. This may be due to around half of women in both groups had placenta problems as the indication of cesarean section.

The current study findings were consistent with **Gayathri et al., (2020)** who conducted the study about "Effect of chewing gum on bowel recovery following cesarean section: a randomized controlled trial" in America and reported no statistically significant difference between both study and control groups regarding types of anesthesia and cesarean section.

Section (II): according to post-operative (CS) intestinal function parameters between study and control groups. The present findings demonstrated that mean time of post-

operative intestinal function parameters and duration of hospital stay after cesarean section were significant shorter in study group than in control group. This may be due to chewing gum is an accessible, effortless, safe, harmless, cheap method in declining ileus and accelerating gastrointestinal recovery after cesarean section and that increase women desiring to chewing more gum. This is supported study hypothesis which stated that women who chewing gum immediately after cesarean section will be had faster return to optimal intestinal function than those who do not.

This result agreement with **Xu et al., (2018)** who conducted the study about "The impact of chewing gum on gastrointestinal function following cesarean section" and revealed that chewing gum improved the recovery of bowel function by shortening the times to first intestinal sound, first passage of flatus, first passage of faeces, first drinking fluids, first feeling comfort, time of early initiation of breast feeding as well as less time of duration of hospital stay for study group than in control group.

On the other hand, the result of **Kiyat and Sut, (2022)** who conducted the study about "The Effect of Xylitol Gum Chewing after Cesarean section on Bowel Functions: A Randomized Controlled Study" and stated that no difference in starting time of first bowel sounds (P = .070) and the first feeling of hunger (P = .098) among the groups. This may be due to manipulation during operation, post-operative effects of anesthesia, or the opioid analgesics used and different study settings.

Section (III): concerning the severity of post-cesarean section gastrointestinal problems between study and control groups the findings of the present study reported that there were no statistically significant between both groups after 2 hours post-cesarean section. On the other hand after 4, 6, and 8 hours post-cesarean section mean of severity of post cesarean section gastrointestinal problems were significant decrease in the study group than in the control group. This may be due to chewing gum is generally well tolerated, inexpensive, reliably improves gut motility that secondary related to decreased severity of post-cesarean section gastrointestinal problems as nausea, vomiting, abdominal pain, and abdominal distention. This is supported the study hypothesis which stated that Women who chewing gum immediately after cesarean section will be shown a significant reduction in post-cesarean section gastrointestinal problems as nausea, vomiting, abdominal pain and abdominal distention than those who do not.

Also, **Yin et al., (2018)** who conducted a study about "Gum chewing: another simple potential method for more rapid improvement of post-operative gastrointestinal function " and demonstrated a highly statistically significant differences between both study and control groups regarding postoperative gastrointestinal symptoms as nausea, vomiting, abdominal pain, and abdominal distention.

The current results were supported with a study conducted by **Elgzar, (2019)** entitled "The Effect of Non-Sugared Gum Chewing With Early Ambulation versus Early Ambulation Only on Recovery of Bowel Function after Elective Cesarean Section" and reported a highly statistically significant differences between both study and control groups regarding the severity of post-cesarean section symptoms.

The current study was in contrast with **Nantasupha et al., (2018)** who conducted the study about "Effect of conventional diet schedule, early feeding, and early feeding plus domperidone on post-cesarean diet tolerance"

at Mahidol University, Bangkok, Thailand and displayed that no significant differences in the rates of unfavorable postoperative outcomes among the study and control groups regarding nausea, vomiting, abdominal pain, and abdominal distention and heartburn ($p > 0.05$). This may be due to different of study settings.

Conclusion

Chewing sugar free gum immediately after cesarean section had a positive effect on the intestinal function parameters post-operatively (Cesarean section) in terms of time related to the first intestinal sound, first passage of flatus, first drinking fluids, feeling comfort, and time of early initiation of breastfeeding. As well as a reduction in severity of post-cesarean section gastrointestinal problems as nausea, vomiting, abdominal pain, and abdominal distention, in the study group compared to control group. So, the study hypotheses were supported and the aim of the study was achieved.

Recommendations:

- Chewing gum should be recommended as non-pharmacological routine of care in maternity hospital for relieving gastrointestinal problems immediately after cesarean section.
- Implementing health education sessions for postpartum women regarding benefits of chewing gum immediately after cesarean section.

Further studies need to be performed:

- Applying comparison study between primi and multipara women about effectiveness of chewing gum immediately after cesarean section on relieving postpartum gastrointestinal problems.
- Applying the same study on large sample size in different settings for generalization of results.
- Conducting awareness program periodically for pregnant women about effectiveness of chewing gum immediately after cesarean section on relieving postpartum gastrointestinal problems.

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تأثير مضغ اللبان علي الاضطرابات الهضمية بين السيدات البكريات مباشرةً بعد الولادة القيصرية

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تُعد الولادة القيصرية الإجراء الجراحي الأكثرشيوعًا في جراحات التوليد ولكن تؤدي إلى تغييرات في الجهاز العصبي اللاإرادي لدى السيدات بعد الجراحة والتي تؤدي إلى الإاضطرابات الهضمية. لذا هدفت الدراسة إلى تقييم تأثير مضغ اللبان على الإضطرابات الهضمية بين السيدات البكريات مباشرةً بعد الولادة القيصرية. تم إستخدام تصميم شبه تجريبي في هذة الدراسة. وقد أُجريت هذة الدراسة بقسم أمراض النساء و التوليد بمستشفى بنها الجامعي. وحدة ما بعد الولادة علي 204 سيدة بكرية خضعن للولادة القيصرية وقسمت إلى مجموعتين متساويتين المجموعة الضابطة ضمت (102) سيدة تلقوا الرعاية الروتينية الخاصة بعد الولادة القيصرية ومجموعة الدراسة ضمت (102) سيدة طبق عليهن مضغ اللبان الخالى من السكر مباشرةً بعد الولادة القيصرية. حيث كشفت النتائج أن: متوسط الوقت لإسترجاع حركة الأمعاء بعد الولادة القيصرية كان أقل بشكل ملحوظ في مجموعة الدراسة عنها في المجموعة الضابطة بالإضافة إلى ذلك ، متوسط شدة أعراض إضطرابات الجهاز الهضمي بعد الولادة القيصرية انخفضت بشكل ملحوظ في مجموعة الدراسة عنها في المجموعة الضابطة مما يدعم فرضيات الدراسة.كما أُوصت الدراسة بمضغ اللبان كرعاية روتينية طبيعية في مستشفى الولادة للتخفيف من مشاكل الجهاز الهضمي مباشرةً بعد الولادة القيصرية.