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Effect of Chewing Gum on Bowel Motility in Women Undergoing Post-Operative Cesarean Section

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Abstract

Postoperative paralytic ileus (POI) is one of the common problems after gynecologic surgery, occurring in 10-15% of postoperative women. Gum chewing helps patients regain bowel function faster and stay in the hospital for less time. **Aim**: The present study aimed to evaluate the effect of chewing gum on bowel motility in women undergoing postoperative cesarean section delivery. **Research design:** A quasi-experimental study design was used. **Research setting:** The study was conducted at the Postpartum Department of Maternity and Children's Hospital. **Sampling:** A convenience sample size of 80 post-cesarean section women. Participants were divided into two equal groups: (40) the experimental (chewing gum) group, and (40) the control group (the hospital routine care). **Tools**: Three different tools were used to collect data.: Interview schedule for socio-demographic data and reproductive history **(Tool I)**. Postoperative Assessment Sheet **(Tool II).** Gum chewing outcomes and length of stay in the hospital (tool III). **Results**: the mean timing of the first bowel sound was (1.05±2.25 &7.38±9.10 hour) for the experimental and the control groups; the mean timing of the first flatus was (& 3.50±4.47 8.12±8.6 hour) in both groups respectively. Also, the mean lengths of hospital stay among post-caesarian women were (1.05±2.25& 3.38±5.10 days) for both groups respectively. **Conclusion**: The use of gum chewing following post-Cesarean section delivery has beneficial effects in the prevention of POI in CS delivery and successively shortens the length of stay in the hospital. **Recommendations**: A counseling program should be developed for pregnant women during the antenatal care period for the prevention of postoperative ileus.

Keywords: ***cesarean section, gum chewing, postoperative ileus, flatulence.***

Introduction

Childbirth is a wonderful and memorable part of every woman's life**.** It makes absolutely no difference whether the child is the first, second, or third in the family. Each labour experience is unique and calls for a celebration**.** Even though giving birth is an exciting and anxiety-inducing experience, it is a rewarding time for the woman and her family ***(Ciardulli, et al., 2017)***.

Cesarean section (CS) deliveries are relatively safe for both the mother and the baby. Nonetheless, it is a major operation with risks. A C-section also takes longer to recover from than vaginal birth. It can increase the chances of future pregnancies being difficult. Some women may have difficulty later attempting a vaginal birth. Despite this, many women can give birth vaginally after a cesarean section (VBAC). A Cesarean section (CS) is a surgery to deliver a baby through incisions in a mother's abdomen and uterus to deliver one or more babies. Also, it is performed at any time before labour, it takes about 30-40 minutes to be performed, but the baby is delivered within the first 10 minutes ***(Wen, et al.,2017) & (Pereira, et al., 2015)*.**

After the surgery, the return of the motility is typically first observed in the small bowel in less than 24 hours, then in the stomach between 24 and 48 hours, and finally in the large intestine after more than 48 hours (most often after three days). However, because large bowel function recovery is less predictable than that of other parts of the gastrointestinal tract, clinicians use endpoints like stool passage and flatus as indicators of the clinical ileus resolution. Changes in the autonomic nervous system after surgery are linked to CS, resulting in decreased bowel movements and driven problems. After major intra- or extra-abdominal surgery, ileus also referred to as A non-mechanical obstruction or 'paralytic ileus or postoperative ileus is a malfunction of intestinal motility caused by a non-mechanical insult that disrupts the gastrointestinal tract's normal organized propulsive motor action ***(Selby, et al., 2016).***

After bowel surgery, the risk of postoperative paralytic ileus is the highest (20%), but it can also occur after cholecystectomy (8.5%), appendectomy (6%), hysterectomy (4%), and gynecological surgery is 10-15%**.** The overall incidence for all operative procedures in the abdomen is approximately 8.5%. Postoperative ileus that lasts longer than five days is described as paralytic ileus. It is common problem of post-abdominal surgery, along with longer hospital stays, pain, abdominal distension, inability to start feeding and breastfeeding, and a delay in recovery in the postnatal period ***(Meštrović, 2017), (Craciunas, et al., 2014) & (Ciardulli & Saccone (2017).).***

The postnatal period, or the "fourth trimester," is the time subsequent delivery while the maternal physiologic changes caused by pregnancy slowly disappear**.** The primary objective of nursing care is to ensure the best possible preparation for the mother and the newborn, also the nurse plays an important role in pre & post-operative care by offering comfortable measures, reassurance to relieve anxiety, giving alternative therapies such as sham feeding and referring patients to the physician if severe symptoms occur ***(Ledari, et al., 2013)& (Rashad& Alyousef, 2013)*.**

The human duodenum, stomach, and rectosigmoid have all been shown to be stimulated by sham feeding. Sham feeding increased serum concentrations of the peptide hormone gastrin, the

neuropeptide neurotensin, and pancreatic polypeptide, according to the study. Additionally, sham feeding increased duodenal alkaline secretion. Gum chewing is regarded as a type of sham feeding because it imitates food intake ***(Wen, et al.,2017).*** The stimulation of the cephalic-vagal path, which accelerates intestinal myoelectric activity to counteract the stimulation of the gastrointestinal opioid receptors, is thought to be the physiologic mechanism for the improvement of bowel motility by gum chewing. Bowel motility is stimulated both humorally and neurologically because of this response ***(Ge, et al., 2015) & (Mansour, et al., 2016).***

Chewing gum has recently been used to speed up the recovery of gut function following abdominal, obstetrics, and gynecologic surgeries, resulting in increased bowel motility. This response occurs after chewing to prepare the gut for food intake when normal food is eaten, the intestine might not be able to handle it in the right way. Chewing gum following Cesarean section (CS) has been associated with various improved outcomes, including early flatus, early bowel sounds, and shorter lengths of hospitalization. Furthermore, no evidence of gum chewing-related side effects was found ***(Mansour, et al., 2016).***

Significance of the study

Although it is a mother's dream to be comfortable during the postpartum period, postoperative is still a common issue. All operative procedures in the abdomen are resulting postoperative alterations in the autonomic or vegetative nervous system related to CS and diminished bowel motility which leads to problems. One of the important outcomes of this change in post-CS was postoperative ileus which leads to major problems such as the inability to start feeding ***(Akhlaghi, et al., 2008)***. Delay at the beginning of feeding leads to increase cell breakdown, delayed wound healing, infection, and additional overload on the health care system as well as the family ***(Abd-El-Maeboud, et al., 2009).*** So, post-cesarean section women need to use sham feeding for example gum-chewing for the rapid continuation of intestinal motility. The current work show gum-chewing is safe, inexpensive, and effective in decreasing the incidence as well as consequences of postoperative ileus following CS. Also, shorter hospital stays; with the possibility of lowering overall healthcare costs ***(Lepore, &Fitzgerald, 2015)***.

Aim of the Study

The study aimed to determine the effect of chewing gum on bowel motility in women undergoing postoperative cesarean section.

Research Hypothesis

Women who receive gum-chewing immediately after cesarean section during the postpartum period exhibit faster intestinal motility & less hospital stay than those who receive routine care.

Operational definition

- Gum in this study was sugarless
- Bowel or peristaltic motility in this study will be measured by any of the following three factors: peristaltic sounds (gurgling or rumbling sounds heard through a stethoscope placed to the abdomen), passing flatus, and defecation.

Subjects and methods

Research Design: A quasi-experimental design was adopted to accomplish the aim of the current study**.**

Research Setting: The study was performed at Postpartum Departments affiliated with Maternity and Children Hospital at Hafr Al Batin Governorate, Kingdom of Saudi Arabia. This hospital was chosen because the turnover of deliveries is adequate for the study.

Sampling: A convenience sample size of 80 post-cesarean section women estimated using the Epi info program, in their immediate postpartum period and who was available at the time of data collection were recruited from the above-mentioned setting**.** Subjects were selected by using the non-probability sampling technique according to the following criteria:

1. Age between 25 to < 40 years,
2. Women will be Cesarian delivered.
3. Healthy women (Has no medical or obstetric risks)

The subjects (80) were equally designated into two groups: They were randomly designated into two equal groups of (40) experimental and (40) control. The cesarian women number to be selected from the hospital **(**n=sample size, N=population size (100), e=Margin of errors which is ± 5%):

$$n = \frac{100}{1 + 100(0.0025)} = 80$$

Tools

The data collection for this study was done using three different tools:

Tool one: Socio-demographic and clinical characteristics structured interview schedule: This tool was developed and used by the researcher to collect the basic data. It included two main parts:

Part I: it included socio-demographic data such as age, level of education, current residence, and occupation.

Part II: it contained clinical characteristics and obstetric history including no of pregnancy, no delivery, abortions, and the number of living children as well as weeks of gestation.

Tool two: Postoperative Assessment Sheet: It comprised anesthesia and operation data.

Tool three: gum chewing outcomes: It was constructed by the researcher after the review of the literature. It was including two main parts

Part I: it included gum-chewing outcomes in preventing postoperative ileus such as the sound of the bowels returning, the passage of flatus, timing of auscultating first intestinal sound, timing of the first defecation, and feeling hungry.

Part II: It refers to the length of time hospital stays.

Validity & reliability of tools

- Tools were tested for content validity by a jury of five experts, three from a specialty in obstetrics and gynecologic nursing and two from medical surgical nursing.
- Tool's reliability was tested by the Alpha Cronbach test (internal consistency) and the results were satisfactory (90%).

Administrative Design and Ethical Considerations

The official agreement was taken from the counsel of the Department of Hospitals and Health Services Administration and the ethical committee of scientific research that was authorized by Gulf Colleges. The approval containing the title and aim of the study was forwarded to the executive directors of the Health Affairs Department at Hafr Al Batin Governorate to take the permission to collect data from Maternity and Children Hospital. Oral informed consent was obtained after an explanation of the study's purpose. Each of those who agreed to share in the study was assured of their

confidentiality, privacy, and right to withdraw from the study at any time**.**

Pilot study

A pilot study was conducted on 8 parturient (representing 10% of the total sample) to evaluate the applicability of the data collection plan to those who were not included in the main study sample. According to the results of the pilot study, tool items were changed to make them clearer for the study sample, assessment points were reorganized, and the data collection plan was changed.

Field Work

The study consumed one year started from, January 2017 to October 2017, and was collected from Postpartum Department at Maternity and Children's Hospital three days a week from 9:30 am to 6:30 PM. The average time required to complete the tools for both groups was between 2 to 5 hours depending on the degree of understanding, cooperation, and the response of the interviewee. The control group was started with and completed before starting the study group to avoid contamination of the sample ***(Shang, et al., 2010)*.** There were four stages to the study: assessment, planning, implementation, and evaluation:

1. Assessment phase: researcher interviewed caesarian women in the obstetric department and filled in the questionnaires.
2. Planning phase: the study's purpose has been explained by the researcher to each woman who was already prepared for caesarian delivery in the inpatient obstetric department and oral consent was obtained for participation in the study. Those who agreed to participate were assured of confidentiality, privacy, and the right to withdraw from the study at any time. Basic data were collected from both groups using tool I. Participants were equally allocated to one of two study groups as follows: Group 1, the study group, which compromised (40) women to whom gum chewing was given. Group 2, the control group, comprised (40) women upon whom routine hospital care was used.
3. Implementation phase: Each participant in both groups was separately interviewed during their postoperative cesarean section in the postpartum ward. The study group was instructed to chew two pieces of sugarless gum for 30 minutes/three times daily in the morning, noon, and evening immediately after recovery from anesthesia, while the hospital routine care group was instructed to follow the hospital's standard of care.
4. Evaluation phase: after implementation, each woman in both groups was investigated abdominally in the postpartum department, group 1 of the study, which could chew sugarless gum, the physician and researcher used a stethoscope to auscultate the peristaltic movement (gurgling sounds) and requested to report the time of passing flatus or stool. Also included in Group (B) is routine hospital care, which includes nothing by mouth until auscultating intestinal sound or the passage of the flatus. Auscultation of the bowel movement was performed by the researcher (directly at the end of surgery was (0) point, then at 30 minutes, one-hour intervals, and two hours after surgery and documented the sound, passage of flatus, and stools).

Statistical analysis:

Data was done by the researcher after collection by using Statistical Package for Social Sciences (SPSS version 22) program. Descriptive & analytical statistics were applied. The collected data were categorized, coded, computerized, tabulated, and analyzed using frequency distribution tables, percentages, means, and standard deviations. Using the difference sample test, Fissure exact test, t-test, and chi-square test determine relations among groups. Statistically significant differences were considered when (P-value≤ 0.05), and high significance when (P-value ≤0 .001), and no statistically significant differences were considered when (P-value > 0.05).

Results

Table (I) reveals the age mean was (23.20 ± 4.17 years) for the experimental group and (23.53 ± 4.39 years) for the control group with no statistically significant difference observed between the two groups regarding the socio-demographic data.

Table (II) shows that the gravidity mean was almost equal among both groups (2.95 ± 1.548 & 2.98 ± 1.656 times) respectively. Three-quarters (72.50 % & 75%) of the study sample had no abortion respectively. However, their mean weeks of gestation were almost equal for both groups (38.65 ± 1.001 and 38.68 ± 1.023 weeks) respectively.

Table (III) clarifies that types of anesthesia (52.50%) for both groups were spinal. Regarding the types of CS operation, (72.50%) of both groups had an elective CS operation respectively, (70 % & 72.5%) of both groups were less than 30 min for the duration of operation respectively.

Table (V) illustrates that the mean timing of the first bowel sound was (1.05±2.25 &7.38±9.10 hour) for the experimental and the control groups respectively; the mean timing of the first flatus was (4.47±3.50 & 8.12±8.6 hour) in both groups respectively. However, a high statistically significant difference was observed between the two groups concerning their outcomes of gum chewing after interventions, where (P value= 0.000).

Table (IV) demonstrates that (1.05±2.25& 3.38±5.10 days) for the experimental and the control groups were the mean lengths of hospital stay among post caesarian women. There was a high statistically significant difference detected among the two groups after interventions where (P-value = 0.000).

Table (I): Socio-demographic data for the studied sample (n=80).

Socio-demographic data	**Experimental group**		**Control Group**		**F / χ^2 (P)**
	No (40)	**%**	**No (40)**	**%**	
Age (years)					
- 25-<30	30	75.00	31	77.5	
- 30-<35	8	20.00	6	15.00	X^2 =12.45
- 35-<40	2	5.00	3	7.50	P = 0.772
MEAN ± SD	23.20 ± 4.17		23.53 ± 4.39		
Level of education:					
- Illiterate/read and write	12	30.00	16	40.00	
- Primary/preparatory	11	27.50	9	22.50	
- Secondary	15	37.50	13	32.50	X^2 =0. 914

- University or above	2	05.00	2	05.00	P = 0.822
Occupation - Housewife - Working	 21 19	 52.50 47.50	 27 13	 67.50 32.50	 X^2 = 1.88 P = 0 .171
Current residence: - In Hafer Al-Baten - Outside of Hafer Al-Baten	 25 15	 62.50 37.50	 27 13	 67.50 32.50	 **F**= 0.22 P = (0.639)

χ^2 (P): Chi-Square Test & P for χ^2 Test *: Significant at P ≤0.05

Table (II): Clinical characteristics for the studied sample (n=80).

Clinical characteristics	**Experimental group**		**Control Group**		χ^2 **(P)**
	No (40)	**%**	**No (40)**	**%**	
Gravidity: 1- 4 – 8	 27 13	 67.50 32.50	 28 12	 70.00 30.00	 0.058 (0.810)
Mean ± SD	2.95 ± 1.548		2.98 ± 1.656		
Parity: 0 1-2 3-4	 13 23 4	 32.50 57.50 10.00	 12 23 5	 30.00 57.50 12.50	0.151 (0.927)
Mean ± SD	1.55 ± 1.449		1.53 ± 1.536		
Number of abortions: 0 1-3	 29 11	 72.50 27.50	 30 10	 75.00 25.00	 0.05 (0.799)
Number of living children: 0 1- 4 – 6	 13 23 4	 32.50 57.50 10.00	 11 24 5	 27.50 60.00 12.50	 0.299 (0.861)
Mean ± SD	1.58 ± 1.448		1.63 ± 1.547		
Weeks of gestation: 37- 40-41	 32 8	 80.00 20.00	 33 7	 82.50 17.50	0.082 (0.775)
Mean ± SD	38.65 ± 1.001		38.68 ± 1.023		

Table (III): Anesthesia and Operation data for the studied sample (n=80).

Anesthesia and Operation data	**Experimental group**		**Control group**		χ^2 **(P)**
	No (40)	**%**	**No (40)**	**%**	
Types of Anesthesia: - General - Spinal	 19 21	 47.50 52.50	 19 21	 47.50 52.50	 0.0 (1.000)
Mean ± SD	2.6 ± 0.6		2.6 ± 0.6		
Types of C.S Operation: - Elective - Selective	 29 11	 72.50 27.50	 29 11	 72.50 27.50	 0.0 (1.000)
Mean ± SD	46.4 ± 8.7		46.4 ± 8.7		
Duration of Operation: - <30(min) - 30 – <45 (min)	 28 12	 70.00 30.00	 29 11	 72.50 27.50	 0.061 (0.805)

Table (V): The outcomes of gum-chewing in women undergoing CS for the studied sample (n=80).

Outcomes	**Experimental group**		**Control group**		**t(P)**
	No (40)	**%**	**No (40)**	**%**	
Return of bowel sound (hr.): **<5 hours** **5 hours** **>5 hours**	25 11 4	62.50 27.50 10.00	0 5 35	0.00 12.50 87.5	**t** = -6.79 **P** = (0.000) *
Mean ± SD	1.05±2.25		7.38±9.10		
Passage of flatus(hr.): **<5 hours** **5 hours** **>5 hours**	 24 10 6	 60.00 25.00 15.00	 0 3 37	 0.00 7.50 92.50	 **t** = -7.95 **P** = (0.000) *
Mean ± SD	3.50±4.47		8.12±8.67		

Timing of auscultating 1st intestinal sound: <5 hours 5 hours >5 hours	18 12 10	45.00 30.00 25.00	0 8 32	0.00 20.00 80.00	**t** = -6.84 **P** = (0.000) *
Mean ± SD	4.05±5.25		10.38±11.10		
Timing of 1st defecation: <5 hours 5 hours >5 hours	 11 25 4	 27.50 62.50 10.00	 0 6 34	 0.00 15.00 85.00	**t** = -6.89 P = (0.000) *
Mean ± SD	5.63±6.03		9.50±9.31		
The feeling of hungry (hr.) <5 hours 5 hours >5 hours	15 15 10	 37.50 37.50 25.00	0 8 32	0.00 20.00 80.00	**t** = -8.05 **P** = (0.000)*
Mean ± SD	5.38±6.48		8.00±9.31		

t: for t-test &P for t-test *: significant at P ≤ 0.0 5

Table (IV): the length of hospital stay based on the search results for the studied sample (n=80).

Length of the hospital (days)	**The experimental group (40)**		**Control group (40)**	
	No	%	No	%
- One day	-	-	-	-
- Two days	20	50.00	-	-
- Three days	12	30.00	1	2.50
- Four days	7	17.00	28	70.00
-Fife days	1	2.50	10	25.00
-Six days	-	-	1	2.50
MEAN ± SD	1.05±2.25		3.38±5.10	
t. test & P value	**t** = -6.79 **P** = 0.000*			

Discussion

Evidence-based maternity care utilizes the most up-to-date study on the safety and effectiveness of specific practices to inform maternity care results and help mothers and newborns attain the best possible outcomes. Sham feeding, such as gum chewing for rapid resumption of intestinal motility following cesarean section, is one of these practices ***(Sakala, & Corry, 2008).*** The present study was conducted to investigate the effect of chewing gum as a sham feeding on bowel motility in women undergoing postoperative cesarean section. Given gum chewing has an advantage such as a non-invasive, safe, and inexpensive way to provide the benefits of early stimulation of the gastrointestinal tract ***(Craciunas, et al., 2014).***

According to the findings of this study, both the chewing gum and the hospital routine care groups were similar in terms of socio-demographic, reproductive, and clinical characteristics, as well as their current labor history (Tables I & II). Concerning gum-chewing results, there was a highly statistically significant difference between the two groups (Table V). After interventions, there was a highly statistically significant difference in the length of hospital stay (LOS) between the two groups (Table IV).

The current finding agreed with the study by ***(Ledari, et al., 2013) & Rashad &Alyousef,2013).*** Who found no statistically significant difference in socio-demographic data and clinical characteristics between the experimental and the control groups. There was also a statistically significant difference throughout the operation. However, there were no statistically significant differences between them in terms of anesthesia type or operation.

The current findings partially agree with ***(Kafali, et al., 2010)***. They found that peristaltic sounds appeared in the study group in a significantly shorter time than the control group with the mean being less than five hours versus six hours, also, they found a higher rate of postoperative flatus passage and spent less time in the hospital than in the hospital routine care group, but the difference was not statistically significant.

Furthermore, the study agrees with the results of ***(Abd-El-Maeboud, et al., 2009)*** who found both groups had similar postoperative analgesic requirements, but the gum-chewing group had a lower postoperative antiemetic requirement than the control group. they recommended that chewing gum increases the return of bowel activity after a cesarean section, as measured by bowel sounds and the passage of flatus or stool. We can conclude that, due to its tolerability and effects on bowel function, gum chewing is a simple method for restoring bowel function after CS, with the potential to reduce overall healthcare costs if used regularly.

Furthermore, the current findings, on the one hand, are consistent with the study by ***(Shang, et al., 2010).*** They discovered that the gum-chewing group's bowel sounds, and flatus were less than five hours earlier than the hospital routine care group. Patients with mild ileus symptoms chewed their gums less than those in the control group. All the differences between the two groups were extremely important. However, it differs from their study in that it may not allow for early hospital discharge, lactation, or defecation. This result was also in agreement with ***(Dehcheshmeh, et al., 2011).*** Their findings demonstrated the value of chewing gum to decrease the time it takes to feel the first **peristaltic** movement and pre-postoperative ileus.

Furthermore, the current findings are in line with findings by ***(Jakkaew & Charoenkwan'svent, 2013)***, who observed that the gum-chewing group had a faster median time than the first flatus. In the gum-chewing group, there was also a trend to reduce abdominal cramping on days one and two. However, there was no difference between the chewing gum and the hospital routine care groups regarding bowel function recovery and ileus-related complications. Around three-quarters of the women in each group tolerated their first meal well. In addition, the current study agrees with ***(Zhu, et al., 2014).*** who conducted six randomized controlled trials involving 939 women, which were included in our meta-analysis. The combined outcomes showed that chewing gum is better than not chewing gum.

Furthermore, the current finding was supported by the findings of ***(Ajuzieogu, et al., 2014),*** who found that the meantime to the first bowel sounds, the first flatus, and the meantime to defecation were significantly reduced in gum-chewing patients compared to control patients. Gum chewing was observed to be enjoyable by the patients, with no reported side effects. Furthermore, the current results are consistent with ***(Craciunas, et al., 2014)***, who analyzed seven randomized controlled trials involving 1462 women (728 in the chewing gum group and 734 controls). There was a lot of variation among the trials that were included. Chewing gum reduced the risk of POI in women who had Cesarean sections.

Furthermore, the current finding is consistent with the findings of ***(Lepore & Fitzgerald, 2015),*** who discovered that chewing gum postoperatively was associated with a significant reduction in time to the first flatus, time to the first bowel sound, and the length of hospital stay, with significant heterogeneity for time to the first bowel sound in the random-effects model.

Furthermore, it agrees with the study done by ***(Huang & Him, 2015).*** They found that chewing gum after cesarean delivery can significantly shorten the time to first flatus and the first hearing of normal intestinal sounds. Time to the first defecation and length of hospital stay was also reduced in the chewing gum group; however, these outcomes were not statistically significant. In addition, the result agrees with the meta-analysis of ***(Wen, et al., 2017)*** who discover that gum-chewing has significant benefits in decreasing the time to the first passage of flatus, defecation, bowel sound, bowel movement, and the length of hospital stay.

On the other hand, **(*Su'a, et al., 2015)***. They found no improvement in clinical outcomes. Overall, there was a small advantage in terms of decreasing the time to flatus and bowel motion, but there was no difference in the length of stay or complications. In addition, ***(Forrester, et al., 2014).*** disagree with the current findings, stating that no statistically significant differences in postoperative outcomes were found among the study groups. According to the findings of the study, chewing gum has a positive effect on intestinal function recovery following cesarean delivery in the early postoperative period.

Finally, chewing gum after Cesarean section appears to be safe, well-tolerated, free of complications, related to the rapid resumption of intestinal motility, and effective in reducing the incidence and consequences of postoperative paralytic ileus (POI). Shorter hospital stays, which have the potential to lower overall healthcare costs, are also less expensive than if they were used regularly. the length of time spent in the hospital or any complications. In addition, the study by ***(Forrester, et al., 2014)*** disagrees with the current findings, stating that no statistically significant difference in postoperative outcome was found among the study groups.

Conclusion and Recommendations

The current study findings concluded that

The use of gum chewing following post-Cesarean Sections has beneficial effects in the prevention of postoperative ileus and successively shortens the length of hospital stay.

The study findings recommended that

1. A counseling program should be developed for pregnant women during the antenatal care period for the prevention of postoperative paralytic ileus.
2. Further studies are still needed to assess the effect of chewing gum on lactation, vomiting, and early recovery.
3. Further studies are still needed to evaluate the effect of gum chewing on different gynecological surgery.

Limitations of the study

- Difficulty in data collection due to interruption of the health care team and women's families during visiting time.
- Having a little experience and knowledge about the aim of the study although of full explanation

Abbreviations:

- **KSA**: Kingdom of Saudi Arabia
- **POI**: Postoperative Ileus or postoperative paralytic ileus.
- **CS**: Caesarian Section.
- **SPSS:** Statistical Package for Social Sciences.
- **LOS**: Length of Hospital Stays.
- **VBAC:** Vaginal Birth After Cesarean.

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