

Chewing Gum after Cesarean Section: It's Effect on Regaining Intestinal Function

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Abstract

Aim: This study aimed to evaluate the effect of chewing gum after cesarean section on regaining intestinal function.

Design: Randomized controlled trial.

Setting: Study was conducted at post-partum ward at Mansoura University Hospital.

Subjects: Eighty pregnant women underwent elective cesarean section and fulfilled the inclusion criteria; were divided equally by simple randomization into the study group (n=40) women chewed sugar free gum for 30 minute every 2 hours starting two hours after cesarean section and the control group (n=40) women received standard post-operative care.

Tools: Two tools were used for data collection (Structured Interviewing schedule and Post-Operative Cesarean Section Assessment Sheet which used to assess the post-operative intestinal parameters).

Results: There was no statistically significant difference between the study group and the control group regarding their general characteristics. Nevertheless, there was statistically significant difference in the mean of intestinal function, whereas the mean interval of intestinal parameters was statistically significant shorter in favor of the study group compared to the control group. The first time of hearing intestinal sound was (3.93 ± 1.02 vs. 4.87 ± 1.96 , $p = 0.008$), the first passage of gas was (6.54 ± 1.37 vs. 7.65 ± 2.42 , $P = 0.013$), the first hungry feeling was (7.63 ± 2.24 vs. 8.83 ± 3.18 , $P = 0.024$), the first defecation was (10.25 ± 2.15 vs. 11.58 ± 1.96 , $P = 0.031$), the first eat was (11.60 ± 2.03 vs. 14.08 ± 3.58 , $P = 0.000$) and time of hospital discharge was (18.18 ± 4.79 vs. 21.15 ± 3.42 , $P = 0.002$) respectively. Moreover, there was a significant correlation between the time of the first eating and the time of discharge ($r = 0.614$, $p = 0.000$).

In conclusion: It was evident that chewing gum is considered an effective and inexpensive method that can be used to shorten the time and hasten regaining of intestinal function after cesarean section.

Recommendations: Integrating chewing gum in nursing care protocol for caring women after cesarean section.

Keywords: Chewing Gum, Regaining, Cesarean Section (CS), Intestinal Function.

I. Introduction

Cesarean section (CS) is one of the most commonly performed surgical operations in the world nowadays (*Rahimparvar et al., 2012*). CS is one of the furthestmost reliable abdominal surgical procedures. Although, it can be life saving for the mother and baby when necessary, it has the risk of producing more complications than normal vaginal birth (*Izveren & Dal, 2011*).

Despite the identified risks of CS operation, the rate is considerably higher than the acceptable rate of 10–15% recommended by the World Health Organization (*World Health Statistics, 2011*) & (*Zakerihamidi et al., 2015*). The woman who had a cesarean delivery has undergone both abdominal surgery and birth. Post-operative nursing care includes the same procedures as for any abdominal surgery with extra aspects of post-partum care (*WHO, 2010*).

Cesarean section surgery is accompanying with some post-operative alteration in autonomic nervous system, that give rise to lateness of intestinal function; and reducing bowel movement and driven problems (*Safdari, 2012*). Ileus is one of the most common problems associated with abdominal surgery, which is defined as the inability to pass the intestinal content or a transitory stopping, delay in recommencement of regular bowel movement for three or five days after abdominal surgery. It is also considered as one of the foremost complications following abdominal surgery, which contributes, to prolonging the hospital stay and increasing the cost of care, abdominal

distention, and postoperative pain. In addition, it results in the inability of the mother to begin breast-feeding and ultimately lateness in recovery (*Akhlaghi et al., 2008*).

In addition, withhold and forbid of oral feeding following cesarean section is one of the traditional practices until resumption of regular bowel movement and resolution of Postoperative Ileus (PI), that is characterized by the presence of certain indicators such as bowel sound, passage of first flatus or stool, and feeling of hunger (*Yaghmaei, 2009*). This is based upon the concern that early postoperative feeding might increase the risk of postoperative illness; a persistent problematic disorder that should be reduced because of its probable serious consequences (*Abd-El-Maeboud et al., 2009*). Actually many causes are supposed to contribute to the continuation of PI, including perioperative narcotics, intraoperative bowel manipulation, anesthetic agents, and postoperative sympathetic hyperactivity (*Schuster et al., 2006*).

Thus, early feeding is associated with a high rate of post-operative intolerance (*Dehcheshmeh et al., 2011*). Such a delay in feeding eventuates in the increased breakdown of cell, lateness wound healing, increase the risk of infection and the need for extra intravenous feeding, delay in mother- newborn bond, and ultimately increase of the costs on family and healthcare system (*Rashad & AL Yousef, 2013*).

However, post-operative gum chewing is supposed to act as a type of "sham feeding" which stimulates nerves in the digestive system, causing release of gastrointestinal hormones and increasing the production of saliva and secretions from the pancreas (*Purkayastha et al., 2008*). Chewing gum can enhance the bowel motility as it has direct stimulation of the cephalic-vagal reflex, which stimulates intestinal myoelectric activity, and indirect activating release of gastrointestinal hormones that increase the secretion of saliva and pancreatic juice. This response leads to both humeral and nervous stimulation of bowel motility (*Fanning & Valea, 2011*).

Furthermore, the postpartum period is a time of major physical and psychological transition for the new mother and the whole family. Nursing care takes into consideration the physiological and psychological needs of the mother during the post-partum period. For maintaining nursing care quality, it is important to help the mother to promote comfort after caesarean section surgery and prevent any associated complications (*Çevik & Başer, 2016*). The nurse must accurately observe the mother's physiological functioning and provide timely and focused nursing intervention (*Fraser & Cooper, 2009*).

Significance of the Study:

Cesarean section is one of the most common obstetrical surgeries carried out all over the world (*Vejnović et al., 2012*). In Egypt, the overall rate of delivery by CS has risen dramatically from 27.6% in 2010 to 52% in 2014 (*El-Zanaty & Ann, 2015*). The increase in cesarean section rates is problematic for variety of causes. CS has been connected with increased the women morbidity and mortality rate, unhealthy consequences of newborns and increase the cost of health care organizations (*Karlström et al., 2013*).

Postoperative gastrointestinal dysfunction remains a source of morbidity and the foremost factor of length of stay after abdominal operation such as CS. The effective and harmless promotion of the recovery of gastrointestinal function after abdominal surgery and prevention of postoperative complications has begun widespread concern among medical and nursing staff (*Jakkaew & Charoenkwan, 2013*).

Therefore, recommencement of intestinal function is an important aspect that requires due attention (*Ge et al., 2015*). Using chewing-gum as one of the non-pharmacological interventions and an inexpensive approach that can be used to stimulate the stomach, enhances gastric secretion, increases peristaltic bowel movements and finally hastens regaining of intestinal function can have a significance (*Hitti, 2012*). Moreover, the effect of such a topic in our Egyptian context is essential; thus, the presented study is conducted.

Aim of the study:

This study aimed to evaluate the effect of chewing gum after cesarean section on regaining intestinal function.

Hypothesis:

Women who chewed sugar free gum for 30 minutes every 2 hours, starting two hours after cesarean section regains intestinal function faster than those who did not.

Operational Definitions:

Intestinal Function: The ability of the intestine to perform special activity, It was measured by assessing the following parameters:

Intestinal Sound: The gurgling sounds from the abdomen produced by the muscular contractions of peristalsis.

Passing of Gas or Flatus: Gas expelled from the digestive system, mainly the stomach or the intestines.

Defecation: The release of waste materials from the large intestine.

Feeling Hunger: A physical sense often connected with a desire or craving for food.

II. Subjects and Method

Study Design:

Randomized controlled trial research design was used in the study.

Setting:

The study was conducted at Post-partum ward at Mansoura University Hospital from February 2016 to August 2016.

Subjects:

All pregnant women who fulfilled the following inclusion criteria (age was more than 18 and less than 35 years, underwent elective cesarean section with same pre and intra-operative preparations and care, received spinal anesthesia and accepted to participate in the study).

Exclusion Criteria:

All pregnant women have multiple pregnancies, polyhydramnios, and abnormal placenta. Women who were complained medical disorders such (hypertension, diabetes mellitus, hypothyroidism, past history of bowel injury and peritonitis or pancreatitis. Women with previous abdominal operation except cesarean section, ruptured water sac, muscular and neurological disorders and any complications that will increase operation time or uterine injury. Women unable to chew gum and complaining of gum problems or tooth filling and women could be exposed to any intra-operative and post-operative complications.

Sample Size:

The sample size of women was calculated according to the following formula; assuming average time for first passage of flatus is 25.02 ± 5.8 hours among the group-chewed gum and 31.08 ± 9.7 among control group in a previous study (*Ledari et al, 2013*). Using DSS research.com sample size calculator at Alpha error 3% (97% significance level) and 10% β error (power of study 90%), sample size is 35 and 10% for drop out = 39. Therefore, 80 women recruited in the current study.

Groups' Allocation:

Eighty women were randomly assigned into two equal groups of forty by using a closed envelope containing study or control group cards. In relation to **Study Group** that included forty women, chewed one stick of sugar free gum for 30 minutes every 2 hours starting two hours after cesarean section until regaining of intestinal function and **Control Group** consisted of forty women who received standard routine post-operative care.

Tools for Data Collection:

To achieve the aim of this study, two tools were used for data collection:

Tool I: Structured Interviewing Schedule: It consisted of two parts:

Part 1: It included four items to assess the general characteristics of women such (age, educational level, occupation, residence).

Part 2: It included four closed ended questions to assess the obstetrical history of post cesarean section women such (number of gravidity and the gestational age).

Tool II- Post-Operative Cesarean Section Assessment Sheet:

It included six Items for assessing the post-operative parameters of intestinal function such (time of first intestinal sound, time of first passage of flatus, time of first feeling of hunger, time of first defecation, time of first eating) and the time of hospital discharge by hour after CS.

Development of the Study Tools Validity:

The researchers established tools used in the study after reviewing the current national and international related literatures using books, articles and scientific journals. Tools were reviewed and

three experts in maternity nursing and medicine field-tested the content validity. The tools were modified according to the experts' suggestions.

Reliability:

Reliability of tools was tested for women after postoperative cesarean section through a pilot study by using Cronbach's α (alpha). Tool II had an internal consistency reliability estimate of 0.862 and hence the questionnaire was found to be highly reliable.

Pilot Study:

A pilot study was conducted on eight women in order to test the applicability and relevance of the study tools and to test clarity of the designed questionnaire as well as to estimate the time needed to answer them; and then the necessary modifications were done, these women were excluded from the study sample.

Ethical Considerations:

- An ethical approval was taken from the Head of the Obstetrics and Gynecology Department at Mansoura University Hospital, to obtain the official permission to conduct the study after explaining the aim of the study.
- Written informed consents were attained from every woman recruited in the study & after clarification of the nature and the objectives of the study.
- Women were reassured about the Anonymity, privacy, safety & confidentiality of the collected information throughout the whole study.
- Women were informed about their rights to refuse participation or leave the study at any time.

Field Work:

- The actual fieldwork of the research occurred for six months period beginning on February 2016 until August 2016.
- The study had been conducted on eighty women undergo cesarean section surgery, who fulfilled the inclusion criteria; they were included on the day of admission to surgery.
- A written informed consent was obtained from each participant. The participants were given an in-depth description on the research approach prior to entering the study.
- The study and the control group were allocated by using simple random method through using closed envelope containing study or control group cards. Then, Researchers collected demographic and obstetric history data.
- After two hours of cesarean section, the women in the study group were chewed sugar free gum for 30 minutes every two hours until regaining of intestinal function. Meanwhile, women in the control group followed the postoperative routine care.
- Then, the researchers used post-operative cesarean section assessment sheet to assess the post-operative intestinal parameters.
- Each woman in both groups was examined abdominally using a stethoscope to detect the intestinal sound every one hour, and asked them to report immediately the time of either feeling an intestinal movement, passing flatus or stool, first time of feeling hunger, first time of eat and document the time of hospital discharge.
- All women experienced intra or post-operative complications were excluded from the study and other cases has been involved for reparation.
- The collected data were coded, analyzed then the results were compared between the two groups.

Statistical Analysis:

Statistical Package for Social Sciences (SPSS) version 16.0 was used for statistical analysis. Data was presented using descriptive statistics in the form of frequencies and percentages for qualitative variables, means and standard deviations for quantitative variables. Qualitative variables were compared using (χ^2) test while (t) test was used for comparison of quantitative data. Correlation coefficient (r) was done to find correlation between two quantitative variables. Cronbach's α (alpha) was used for testing reliability. Statistical significance was considered at p-value ≤ 0.05 .

II. Results

Table 1: Frequency Distribution of the Studied Groups According to their General Characteristics.

Character	Item	Study group N.= 40		Control group N.= 40		Significance test
		No.	%	No.	%	
Age	18-23	10	25.0	9	22.5	$\chi^2 = 0.080, P0.961$
	24-29	18	45.0	19	47.5	
	30-35	12	30.0	12	30.0	
	Mean \pmSD	26.80 \pm 6.13		26.95 \pm 5.88		t= 0.112, P0.917
Education	Basic	4	10.0	4	10.0	$\chi^2 = 3.773, P0.287$
	Secondary	24	60.0	31	77.5	
	University	12	30.0	5	12.5	
Work	House wife	33	82.5	34	85.0	$\chi^2 = 0.092, P0.762$
	Working	7	17.5	6	15.0	
Residence	Rural	17	42.5	10	25.0	$\chi^2 = 2.739, P0.098$
	Urban	23	57.5	30	75.0	

Table (1) shows that there was no statistically significant difference between both groups regard their general characteristics. The study results showed that about half of women were at age 24-29 years with a mean age of 26.80±6.13 yrs. and 26.95±5.88 yrs. of women in study group and control group respectively. The majority was secondary educated (60.0% and 77.5%), house wives (82.5% and 85.0%) and from urban areas (57.5% and 75.0%) respectively.

Table 2: Frequency Distribution of the Studied Groups According to their Obstetric History.

Data	Item	Study Group N.= 40		Control Group N.= 40		Significance test
		No.	%	No.	%	
Gravidity	One	6	15.0	10	25.0	$\chi^2 = 3.776, P0.287$
	Two	11	27.5	14	35.0	
	Three	15	37.5	13	32.5	
	Four+	8	20.0	3	7.5	
Abortion	None	21	52.5	25	62.5	$\chi^2 = 3.773, P0.287$
	One	12	30.0	10	25.0	
	Two	5	12.5	4	10.0	
	Three+	2	5.0	1	2.5	
Dilatation & Curettage	None	24	60.0	27	67.5	$\chi^2 = 0.092, P0.762$
	One	10	25.0	8	20.0	
	Two	4	10.0	3	7.5	
	Three+	2	5.0	2	5.0	
Gestational age	38 weeks	18	45.0	17	42.5	$\chi^2 = 4.639, P0.098$
	39 weeks	18	45.0	21	52.5	
	40 weeks	4	10.0	2	5.0	
	Mean ±SD	38.65±0.66		38.57±0.50		

Table (2) showed that more than two thirds of the women had gravidity 2-3 times (65.0% in the study group and 67.5% in control). The percentages of abortions and dilatation & curettage were 47.5% and 40.0% in the study group compared to 37.5% and 32.5% in the control group respectively. The gestational age was nearly the same in both groups and there was no statistically significant difference for all items of obstetric history in both groups.

Table 3: Mean of Post-Operative Parameters of Intestinal Function among the Studied Groups.

Parameters	Study group N.= 40		Control group N.= 40		Significance test
	Mean	±SD	Mean	±SD	
Time of the first intestinal sound	3.93	±1.02	4.87	1.96	t = 2.714, P0.008
Time of the first gas passage	6.54	±1.37	7.65	2.42	t = 2.542, P0.013
Time of first hungry feeling	7.63	±2.24	8.83	3.18	t = 2.300, P0.024
Time of the first defecation	10.25	±2.15	11.58	1.96	t = 2.194, P0.031
Time of the first eat	11.60	±2.03	14.08	3.58	t = 3.810, P0.000
Time of discharge from hospital	18.18	±4.79	21.15	3.42	t = 3.197, P0.002

Table (3) shows the mean of postoperative parameters of intestinal function among the studied groups. There was statistically significant difference in the mean of post-operative interval of intestinal function, where the mean time of intestinal parameters was significantly shorter in favor of the study group than the control group. The first time of hearing intestinal sound was (3.93±1.02 vs. 4.87±1.96 hr., p= 0.008), the first passage of gas was (6.54±1.37 vs. 7.65±2.42 hr., P=0.013), time of first hungry feeling was (7.63±2.24 vs. 8.83±3.18 hr., P=0.024), time of the first defecation was (10.25±2.15 vs. 11.58±1.96 hr., P=0.031), time of the first eat was (11.60±2.03 vs. 14.08 ±3.58 hr., P0.000) and time of discharge from hospital was (18.18±4.79 vs. 21.15±3.42 hr., P=0.002) respectively.

Table (4): Correlation between Time of Discharge after CS and Post-Operative Intestinal Parameters among Study Group.

Intestinal Parameters	Time of Discharge	
	R	P
Time of the first intestinal sound	0.365	0.020
Time of the first gas passage	0.390	0.013
Time of first hungry feeling	0.415	0.008
Time of the first defecation	0.575	0.000
Time of the first eat	0.614	0.000

Table (4) shows the correlation between time of discharge after CS and post-operative intestinal parameters in the study group. It showed that there was a statistical significant mild to moderate correlation between time of discharge and intestinal parameters, i.e. the shorter the time of hearing first intestinal sound, first time of passage gases, defecation, hunger feeling and eating, the shorter the duration of hospital admission and early discharge.

Figure (1): Correlation between time of discharge and time of the first eating after CS among women in the study group.

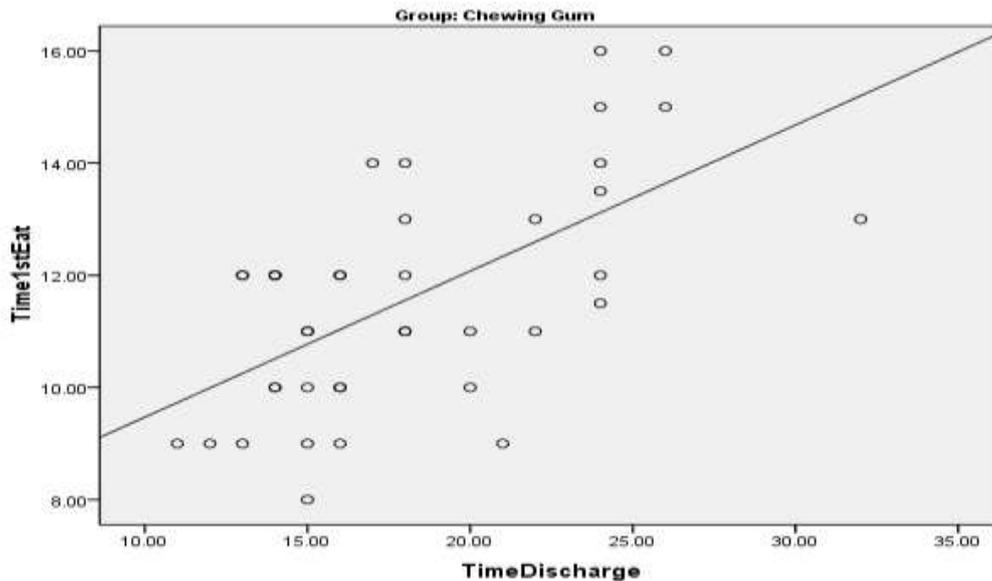


Figure (1) shows the correlation between time of the first eating and time of discharge in the study group. There was statistically significant moderate correlation between time of first eating and time of discharge ($r = 0.614$, $p = 0.000$).

III. Discussion

The current study aimed to evaluate the effect of chewing gum after cesarean section on regaining intestinal function. The study findings revealed that there was statistically significant difference between both groups regarding their intestinal parameters whereas the mean interval of intestinal parameters was statically significant shorter in favor of the study group than the control group, these study findings are supported the research hypothesis that women who chewed gum after cesarean section regains intestinal function faster than those who didn't.

The findings of the present study revealed that there was no statistically significant difference between both groups as regard to their general characteristics; age group, educational level, work and residence; likewise there was no statistically significant difference between the two groups regarding their obstetrics variable, this means that good matching existed between both groups.

These findings were in agreement with *Abd-El-Maeboud et al., (2009)* who studied the effect of gum chewing on bowel movement return after CS in Egypt and found that there was no statistically significantly difference in the general characteristics between the gum-chewing group and the control group. In addition, *Yaghmaei et al., (2010)* compared the oral intake profile at two and eight hours among post-operative cesarean section women in Iran and found no statistically significant difference in the demographic characteristics between two groups.

Furthermore, *Ledari, (2013)* studied the sugarless gum chewing effect on reducing ileus post CS in Iran, reported that there was no significant difference in terms of age, BMI, number of pregnancies, miscarriage, D&C and type of cesarean section between sugarless gum chewing group and control group.

Concerning the parameters of intestinal function, the present study findings revealed that the mean of intestinal parameters were significantly better and had shorter average time in the study group compared to the control group. As the results showed that first time of hearing intestinal sound, passage flatus, hunger feeling, defecation, eating and time of discharge were statistically significant shorter in gum chewing group than control group. This finding powers the physiological

action of gum chewing to enhance intestinal function as it may be occurred due to the stimulation of gastric secretion that leads to softness and stimulate eating. These findings were consistent with **Abd-El-Maeboud et al., (2009)** who reported in their study about Gum chewing effect on early recurrence of bowel movement after caesarean section and stated that gum-chewing women had shorter mean time interval to normal intestinal sounds 10.9 ± 2.7 vs. 15.6 ± 3.7 hrs. first motion 21.1 ± 4.7 vs. 30 ± 8.2 hrs., passage of flatus 17.9 ± 4.6 vs. 24.4 ± 7.1 hrs.

In addition, **Rashad & AL Yousef, (2013)** approved these results in their study conducted in Kingdom of Saudi Arabia about the effect of chewing gum on bowel movement post-operative caesarean section. It reported that women who chewed sugarless gum had shorter mean intestinal movement indicators compared to women in the control group. Nevertheless, there was highly statistical significant relationship regarding previously mentioned items in both groups.

Moreover, **Safdari et al., (2011)** conducted a study on primiparus women about effect of sugarless gum chewing on return of bowel function after elective caesarean delivery. It stated that the intestinal parameters were significantly shorter in the study group than the control group; whereas the time of the first intestinal sound 6.5 ± 1.5 versus 12.5 ± 2.5 hours respectively. The first passage of flatus was 12.2 ± 2.0 versus 22.4 ± 4.1 hours, first sensation of bowel movement (7.4 ± 1.7 versus 15.7 ± 3.4 hours) and defecation (15.5 ± 2.5 versus 23.4 ± 4.8 hours). Likewise, **Ledari et al., (2012)** stated in their study concerned with the effect of chewing gum on caesarean section surgery that bowel function was statistically significantly shorter in the intervention group than the control group.

Such agreement is established between the present study findings and **Zhu et al., (2014)** findings, which examined the gum-chewing effect on bowel motility after postoperative caesarean section. In addition, it stated that women who chewed gum had significant shorter interval for bowel function than non-gum chewed concerning the time of first flatus, time of first bowel sound, and time of first defecation as well as for the hospital stay period.

These findings are supported by **Huang & He, (2015)** who conducted a met-analysis study in china about the effect of chewing-gum on restoration of intestinal function after CS, and reported that gum chewing after caesarean section was significantly shorten the time of first flatus and the time of first hearing of intestinal sounds. However, there was no statistically significant difference regarding time of first defecation and length of hospital stay in the studied groups. Similarly, **Dehcheshmeh et al., (2011)** implemented a study on one hundred and twenty primiparous women in Iran to evaluate the effect of gum chewing on the recovery of gastrointestinal function after elective caesarean section and stated that women chewed gum had earlier bowel movement than women in control group by 7.4 ± 1.71 hr. vs. 15.7 ± 3.44 respectively.

However, the present study results are inconsistent with **Jakkaew & Charoenkwan, (2013)** in their study conducted in Thailand about the effect of gum chewing on early return of bowel function. It was reported that gum-chewing group had shorter median time regard to the first flatus, nevertheless, there was no statistically significant difference founded in other intestinal parameters. Also, **Harma et al., (2009)** reported in their study conducted on sixty seven women who had CS, and were exposed to general anesthesia and separated into three groups, that women in chewing gum group had earliest bowel sound than those in other groups, there was similarity between three groups regarding time of passing intestinal gas and time of defecation, meanwhile the difference found to be statistically significant.

Moreover, another study conducted in Iran by **Akhlaghi et al., (2008)** on 120 women after caesarean section to measure the effect of chewing gum on the return of bowel function and reported that there was no statistically significant difference between gum chewing group and control group. However, there was statistically different in relations to first time of feeling of bowel movement as there was a significant difference in both groups by 14.7 ± 6.5 h. vs. 16.6 ± 8.4 h. respectively. In addition, **Lim et al., (2013)** who studied the effect of gum chewing on the recovery of gastrointestinal function for patients underwent colorectal resection surgery; reported that gum chewing was safe but did not improve the gastrointestinal function. Likewise, **Zaghiyan et al., (2013)** found no effect of sugared chewing gum for patient underwent colorectal surgery compared to non- gum chewing in their study that conducted about the effect of sugared chewing gum on the return of gastrointestinal function after major surgery **Forrester et al., (2014)**. This difference in results may be found due to the differences existed between sample, type, and time of surgery.

Concerning the correlation between the time of first eating and time of discharge in gum chewing group after CS, the present study finding showed that there was a significant moderate correlation between time of first eating and time of discharge. These finding were consistent with **Mohsenzadeh et al., (2013)** who reported that gum chewing stimulates early intestinal function and therefore shortens the period of hospital stay.

Likewise, **Charoenkwan & Palapinyo, (2005)** stated that early start of gum chewing by two hours post

cesarean section was associated with early return of bowel function and early hospital discharge than those who start after 6-8 hours postoperatively. Similarly, *Abd-el-Maebud et al., (2009)* stated that the postoperative hospital stay was significantly longer in the control group in which discharged from the hospital within 24 hours after surgery compared to the study group. *Safdari et al., (2011)* found the length of hospital stay was significantly shorter in the gum chewing group than the control group.

Another study conducted in Turkey about the effect of chewing gum on bowel movement post gynecological operations by *Terzioğlu et al., (2013)* found that chewing gum group had early intestinal parameters and shorter length of hospital stay than other groups.

Correspondingly, *Sahin & Terzioğlu, (2015)* were dissenting with these findings in their study conducted in Turkey about the effect of gum chewing, early hydration and early mobilization on the recovery of intestinal motility after cesarean delivery. It was reported that the hospital discharge times was not influenced by the interventions as the women chewed gum were discharged in 56.22 ± 2.70 hr. and the women in other groups discharged in 54.99 ± 2.59 on average.

V. Conclusion

The overall findings of the current study highlighted that, chewing gum is considered effective, safe and an inexpensive method that can be used to hasten regaining of intestinal function for women underwent cesarean section.

VI. Recommendations

Based on the current study findings, the following is recommended:

- Implementing health education sessions for pregnant women regarding the advantages of gum chewing after cesarean section delivery.
- Integrating chewing gum in nursing care protocol for caring women after cesarean section.
- Exploring the effect of gum chewing on different type of lower abdominal gynecological surgery using a larger sample.

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VIII. Conflict of Interest Disclosure

Researchers declare that there is no conflict of interest in research.

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