

Effect of Sham Feeding on Postoperative Clinical Outcomes among Patients Undergoing Elective Abdominal and Gynecological Surgeries

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Abstract Sham feeding has been demonstrated to be one of the methods to increase bowel motility. Gum chewing, as an alternative to sham feeding, provides the benefits of gastrointestinal stimulation without the complications associated with feeding. **Aim:** to evaluate the effect of sham feeding on postoperative clinical outcomes among patients undergoing elective abdominal and gynecological surgeries. **Subjects:** A purposive sample including 150 patients who were admitted to the general surgical and gynecological unit for undergoing elective open abdominal surgeries such as cholecystectomy, appendectomy, hysterectomy, myomectomy. Were divided randomly into two equal groups 75 patients in each **Study group (I):** practice post-operative sham feeding in addition to the usual routine hospital care such as early mobilization and **Control group (II):** Follow the usual routine hospital care such as early mobilization only. **Setting:** The study was conducted at the general surgical and gynecological unit of Menoufia University Hospital. **Instruments:** Three instruments were utilized, **I:** A structured Interviewing Questionnaire, **II:** Postoperative Patient's Outcomes Questionnaire and **III:** Visual Analogue Scale (VAS). **Results:** Significant statistical differences existed between both groups regarding the time of resumption of gastrointestinal functions, postoperative ileus symptoms, and incidence of nausea, vomiting, pain and length of hospital stay. **Conclusion:** Patients who practiced chewing gum as alternative for sham feeding experience earlier return of bowel motility in terms of bowel sounds, first flatus and feeling of hunger than those patients who did not practice chewing gum. Furthermore, there was a significant reduction in pain and length of hospital stay among patients who were practice chewing gum than those who were not. **Recommendations:** the study recommended that: Sham feeding in a form of gum chewing should be added in the protocol of postoperative nursing care and conducting further studies for evaluating the effect of sham feeding on postoperative ileus among patients undergoing abdominal and gynecological surgeries using a larger sample and different geographical areas.

Keywords: sham feeding, postoperative clinical outcomes

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1. Introduction

Despite of numerous advances in surgical techniques and perioperative care of patient undergoing abdominal surgery, the postoperative clinical recovery outcome of interest was not established as well. Patients' gastrointestinal dysfunction continues to be one of the most common expected complications of abdominal surgery. So, recovery of gastrointestinal function is an important aspect and demands in postoperative period [1]. The expected postoperative clinical recovery outcomes have been increasingly investigated targeting enhanced recovery of surgery and establishing a significant concern in identifying measures to stimulate gut function and motility

early rather than simply waiting for it to return spontaneously which contribute to patients rehabilitation promotion [2].

Many patients undergoing abdominal surgery develop postoperative complications. The most common gastrointestinal related complication is due to postoperative ileus (POI) which is defined as the cessation of coordinated bowel motility preventing the tolerance of oral feeding. It is considered the main source of post-operative morbidity. In general, a delay of bowel motility lasting greater than 3 days after laparoscopic surgery or greater than 5 days after an open surgery is considered delayed [3].

Postoperative ileus becomes the main etiology of numerous postoperative surgery gastrointestinal related complications including patients' discomfort or pain, delay in postoperative mobilization, prolonged patients'

hospital stay associated with increased rates of systemic or surgical site infection with poor wound healing. Also POI is considered major contributing factor which causes accumulation of gastrointestinal secretions and gas, resulting in nausea, vomiting, and abdominal distension associated with colic and pain, intolerance and delay in resuming oral feeding. Sometimes the condition becomes worse leading to increased readmission rates after patient discharge from the hospital as a result of the previously mentioned issue. POI reflectively represents a major source of economic burden with high cost on patient and financial burden on health care facilities [4,5].

The reason of postoperative ileus is thought to be multifactorial. Causative factors include stress response to surgery and the use of perioperative interventions. The severity of gastrointestinal dysfunction depends on the extent of surgical trauma and bowel manipulation. Surgical trauma causes a decrease in bowel motility through activation of sympathetic activity. Associated with the stress response is release of inflammatory mediators such as vasoactive intestinal peptide, substance P and nitric oxide which contributes to postoperative gastrointestinal dysfunction and ileus [6].

Many interventions and strategies, such as prokinetic agents and epidural anesthesia, have been used to manage postoperative ileus. However, these methods have a limited effect, and there is still a relatively high incidence of postoperative ileus. As an alternative, sham feeding in form of gum chewing promotes the recovery of gastrointestinal peristalsis for postoperative patients without generating the side-effects associated with early feeding [7,8].

A number of theories have been proposed for chewing as a type of sham feeding that enhances the plasma concentration of gastrin, neurotensin, pancreatic polypeptide, and duodenal alkaline secretion. The mechanism of improved resumption from postoperative gastrointestinal dysfunction with the assistance of chewing gum is thought to be the cephalic-vagal stimulation of digestion which enhances the capability of neural and humoral factors that operate on different portions of the gastrointestinal tract. Chewing gum proceeds by stimulating intestinal motility coupled with bowel motility that causes early return of bowel sounds, passage of flatus, and onset of appetite [9,10,11]. Moreover Su'a and Hill (2015) and Alfonsi, Slim and Chauvin (2014) added that gum chewing is a kind of sham feeding alternative to early feeding, which is expected to stimulate the cephalic vagal reflex to increase hormone secretion and then enhance intestinal motility and may produce a positive effect on postoperative ileus by reducing postoperative inflammation [12,13].

Chewing gum also increases the production of gastric juice and other digestive juices without the bowel having to digest any food. It can help prevent the problems many people have when they start eating or drinking early after surgery [14]. Gum chewing provides an inexpensive, convenient, and physiological method to stimulate these pathways, while avoiding complications of food intolerance associated with food intake. Chewing gum preoperatively and directly in the postoperative phase may ameliorate POI and enhance postoperative recovery [15,16].

It is accentuated that nurses should also utilize consistent, cheap, accessible, and valuable practices in order to condense the negative property of problems that patients face. Practices such as early postoperative mobility, gum chewing, and early feeding, which are accessible, inexpensive, and steadfast after abdominal and gynecological surgeries are utilized traditionally in recent times. These approaches are considered to reduce the recovery period and length of hospital stay [17].

There are many randomized controlled trials that have evaluated the effectiveness of chewing gum as an alternative for sham feeding in the postoperative setting for many types of surgeries including colorectal, gastric, ileal and liver resections as well as appendectomy, cholecystectomy, caesarian section and gynecological surgery comparing chewing gum versus standard care all reports decreased time needed recovery for gastrointestinal peristalsis [15,18,19].

1.1. Significance of Study

However, many studies have been investigating chewing gum for postoperative recovery of gastrointestinal function after surgery as a method for sham feeding and the underlying mechanisms behind the effects of gum chewing works remain subtle and the results of clinical studies are inadequate and need further supportive evidence thus sham feeding has not yet been incorporated into the related standard pathways for postoperative nursing.

1.2. Operational Definition

Postoperative clinical outcomes: are represented as presence or absence of POI all related indicators such as patients discomfort or pain, nausea, vomiting, time of first flatus (TFF), time of first bowel motion (TBM), abdominal distension, related colic or pain and length of hospital stay.

1.3. Aim of the Study

Aim of the study to evaluate the effect of sham feeding on postoperative clinical outcomes among patients undergoing elective abdominal and gynecological surgeries.

1.4. Research Hypotheses

The following research hypotheses were formulated in an attempt to achieve the aim of the study:

1. The study group subjects who practice postoperative sham feeding will experience earlier return of bowel motility compared to the control group subjects.
2. The study group subjects who practice postoperative sham feeding will show a significant reduction in postoperative symptoms as nausea, vomiting, and abdominal distension compared to the control group subjects
3. The study group subjects who practice postoperative sham feeding will show a significant reduction in pain score compared to the control group subjects
4. The study group subjects who practice postoperative sham feeding will show a significant reduction in

patients hospital stay compared to the control group subjects.

2. Subjects

Design: A quasi experimental research design was utilized to achieve the aim of the current study.

Setting: The current study was conducted at the general surgical and gynecological unit of Menoufia University Hospital, Menoufia Governorate, Egypt.

Sample: A purposive sample including 150 patients who admitted to the general surgical and gynecological unit for undergoing elective open abdominal elective and gynecological surgeries such as cholecystectomy, appendectomy, hysterectomy, and myomectomy who agreed to participate in the study and fulfilled the inclusion criteria. The study subjects were divided randomly and alternatively into two equal groups 75 patients in each as following:

- **Study group (I):** Practice postoperative sham feeding in addition to the usual routine hospital care such as early mobilization.
- **Control group (II):** Follow the usual routine hospital care such as early mobilization only.

Sample size was statistically calculated by using the following equation at 95% confidence power of the study. The sample size was calculated to be 144 patients, that was increased to be 150 to increase the power of the study.

$$Ss(\text{sample size}) = \frac{Z^2 * (p) * (1 - p)}{c^2}$$

Where:

Z = Z value (e.g. 1.96 for 95% confidence level)

p = percentage picking a choice, expressed as decimal (0.5 used for sample size needed)

c = confidence interval.

2.1. Inclusion Criteria

1. Adult patients
2. Both genders.
3. Patients planned for any elective abdominal surgeries such as cholecystectomy, appendectomy, open inguinal hernia, hysterectomy, and myomectomy.
4. Patients who are undergoing surgery under general anesthesia.
5. Patients who are fully conscious, able to communicate well, oriented and able to follow the instructions.
6. Patients with normal natural dentition.

2.2. Exclusion Criteria

1. Patients with past history of analgesia or any drug abuse
2. Patients who take any drug affect bowel motility
3. Patients with any previous history of related intra-abdominal surgery complications

2.3. Instruments

Three instruments were utilized by the researchers to achieve the aim of the study and to collect the necessary data. These instruments were as following:

Instrument I: Structured Interviewing Questionnaire:

It was developed by the researchers to collect sociodemographic data of the subjects. It was comprised of two parts related to patient's sociodemographic characteristics such as age and sex etc. and past medical history of all patients such as previous surgeries.

Instrument II: Postoperative Patient's Outcomes Questionnaire:

It was constructed by researchers based on the relevant review of literature which provides a description of postoperative symptoms and patient's condition. It included postoperative indicators such as patients discomfort or pain, nausea, vomiting, time of first flatus (TFF), time of first bowel motion (TBM), abdominal distension and length of hospital stay.

Instrument III: Visual Analogue Scale (VAS):

It is adopted scale by **Bain et al., (2005)** [20]. It provide a simple way to record subjective estimates of pain intensity. The measurement are from zero to ten to rate the patient's level of pain. The measurement parameters include five items. A score of 0 means no pain while a score of 1-3 denoted mild pain, a score of 4-6 indicated moderate pain, a score of 7-9 illustrated severe pain, while 10 means worst pain.

Reliability: Boonstra et al., (2008) [21] tested the reliability of the scale and found that the retest reliability was $r = 0.84$ and reported that the visual analogue scale had an excellent test-retest reliability. However, the VAS was the most reliable, with the smallest errors in the measurement acute pain.

3. Methods

- **Formal approval:** An official permission was obtained from hospital director and the head nurses of the general surgical and gynecological unit after an explanation of the aim of the study.
- **Instruments development:** After reviewing the literature extensively, the study instrument I and instrument II were developed by the researchers while the third one was adopted by Bain et al. (2005) [20].
- **Validity:** Instruments were tested for their contents validity by a panel of five experts specialized in Medical Surgical Nursing, and Maternal and New Born Health Nursing, Faculty of Nursing to ascertain relevance and completeness.
- **The reliability** of the interviewing questionnaire and postoperative patient's outcome questionnaire were measured using a test and retest method and Pearson correlation coefficient formula to ascertain relevance and consistency of the instruments to measure their items. The values were $r = 0.84$ and 0.82 respectively.
- **Pilot study:** A pilot study was conducted prior to data collection on 15 patients (10%) to test all instruments for clarity, objectivity, feasibility and the applicability of the instruments. Also, it was conducted to identify any problems associated with administering the instruments and measure the time needed for data collection then the necessary modifications were carried out accordingly. Data

included in pilot study was excluded from the current study.

- **Ethical considerations and human rights:** A written consent to participate in the study was obtained from all participants after explaining the aim of the study, and they were assured that all collected data would be absolutely confidential and only will be used for the study's aim. The researchers emphasized that participation in the study is entirely voluntary and anonymity of the patients were assured through coding data. Subjects were also informed that refusal to participate in the study would not affect their care and subsequently their health.

Data collection Procedure: -

- Data was collected over a period of seven months from the beginning of April 2019 to the end of October 2019.
- Data were collected at every day each week from 9 AM to 2 PM over a period of 6 month nearly
- The participants of the study were selected and divided randomly and alternatively into two equal groups, **the study group (I):** practice postoperative sham feeding in addition to the usual routine hospital care such as early mobilization, ...etc.. While, **the control group (II):** Follow the usual routine hospital care such as early mobilization only.
- Each participant who agrees to participate in the study and who fulfills the inclusions criteria was interviewed individually by the researchers at the general surgical and gynecological department, Menoufia University Hospital, Egypt.
- An interview was carried out by the researchers for all participants of both study and control groups for collecting the baseline socio-demographic data by using the instrument I.
- The researchers conducted one teaching session for each participant of the study group I at one or two days before surgery in general surgical and gynecological department. Information about the disease, surgery, instruction for using chewing gum for 10-15 minute 3 to 5 times/day as method to practice the theory of sham feeding. It took about 20 to 30 minutes.
- All participants were interviewed post operatively for three times (early post-operative, after one day, after two days) to assess the postoperative outcomes data and pain by using the instruments II, and III respectively for both study and control groups.
- A comparison between both study and control groups was carried out to evaluate the effect of sham feeding on postoperative clinical outcomes among patients undergoing elective abdominal and gynecological surgeries.

4. Statistical Analysis

The collected data were organized, tabulated and statistically analyzed using SPSS software (Statistical Package for the Social Sciences, version 22, SPSS Inc. Chicago, IL, USA). For quantitative data, the range, mean and standard deviation were calculated. For qualitative

data, which describe a categorical set of data by frequency, percentage or proportion of each category, comparison between two groups was done using Chi-square test (χ^2). For comparison between means of two groups of parametric data of independent samples, student t-test was used. Correlation between variables was evaluated using Pearson's correlation coefficient (r). Significance was adopted at $p < 0.05$ for interpretation of results of tests of significance [22].

5. Results

Table 1 showed that the mean age of both study and control groups were 49.35 ± 7.77 and 49.55 ± 8.45 respectively and there was no difference between the study subjects in both groups regarding gender. Moreover, all study subjects of both study and control groups were married. More than two-thirds didn't have history of previous surgery.

Table 1. Distribution of subjects of both groups regarding socio-demographic characteristics

Socio-demographic data	Study group n= 75		Control group n= 75	
	No.	%	No.	%
Age X \pm SD	49.35 \pm 7.77		49.55 \pm 8.45	
Gender				
Male	31	41.3	30	40
Female	44	58.7	45	60
Education				
Illiterate	7	9.3	14	18.7
Primary	26	34.7	27	36
Secondary	34	45.3	29	38.6
High education	8	10.7	5	6.7
Marital state				
Married	75		100	
Residences				
Rural	63	84	61	81.3
Urban	12	16	14	18.7
Occupation				
Work	52	69.3	55	73.3
don't work	23	30.7	20	26.7
Other health problems				
None	43	57.3	47	62.7
DM	20	26.7	19	25.3
HTN	12	16	9	12
Previous surgery				
None	64	85.3	57	76
Appendectomy	2	2.7	3	4
Cholecystectomy	9	12	10	13.3
Tonsillectomy	0	0	5	6.7
Present surgery				
Cholecystectomy	23	30.7	22	29.3
Appendectomy	22	29.3	19	25.3
Hernia	15	20	24	32.1
Hysterectomy	15	20	10	13.3

Table 2 revealed that no statistically significant difference existed between both study and control groups in relation to preparation aspects for present surgery such as fasting hours, using enemas or time spend in operation room.

Table 2. Distribution of both groups regarding to clinical data (n=150)

Clinical data	Study group n= 75		Control group n= 75		Test	P value
	No.	%	No.	%		
Usual bowel pattern before surgery						
1-3 times/ week	14	18.7	16	21.3	0.16	0.68
4-7 times/ week	61	81.3	59	78.7		
Preparation of GIT						
Without enema	75	100	75	100	-----	-----
Fasting time						
6-8 hrs.	41	54.7	39	52	0.10	0.74
8-12 hrs.	34	45.3	36	48		
Time for regaining consciousness						
1hrs.	60	80	61	81.3	0.04	0.83
More than 2 hrs.	15	20	14	18.7		
Mobility after surgery						
2 hrs.	24	32	19	25.3	1.38	0.50
1 day	38	50.7	38	50.7		
More than 1 day	13	17.3	18	24		
Time in operation room / minute						
X ±SD	60.4 ±20.2		61.0 ±18.0		t=0.12	0.89

(*) Statistically significant at $P < 0.05$.

Table 3. Distribution of both groups regarding onset of GIT recovery symptoms (n=150)

Recovery symptoms	Study group n= 75		Control group n= 75		Test	P value
	No.	%	No.	%		
Initial onset of postoperative bowel motility						
Within 6 hrs.	49	65.3	4	5.3	75.5	0.0001*
Within 12 hrs.	26	34.7	35	46.7		
Within 24 hrs.	0	0	36	48		
Onset of defecation after surgery						
None	75	100	75	100	-----	-----
Initial onset of postoperative pass flatus						
Within 12 hrs.	60	80	14	18.7	60.4	0.0001*
Within 24 hrs.	7	9.3	40	53.3		
After 24 hrs.	8	10.7	21	28		
Onset of postoperative abdominal distension						
Yes	10	13.3	27	36	10.3	0.001*
No	65	86.7	48	64		
Feeling of hunger postoperative						
Within 6 hrs.	59	78.7	26	34.7	29.5	0.0001*
Within 12 hrs.	16	21.3	49	65.3		

(*) Statistically significant at $P < 0.05$.

Table 3 revealed that there was early onset of postoperative bowel motility in terms of bowel sound and feeling of hunger in the study group subjects when compared to the control group subjects. Moreover, there was a highly statistically significant difference existed concerning the other postoperative symptoms as initial onset of postoperative pass gases and feeling of abdominal distension at P value < 0.0001 .

Figure 1 illustrated that there was a significant improvement in nausea experienced by subjects in the study group compared to the control group subjects after practicing chewing gum.

Figure 2 illustrated that there was a significant decrease in vomiting in the study group subjects compared to the control group subjects after practicing chewing gum.

Table 4 obviously noted that there was a statistically significant difference between study and control groups' subjects concerning the duration of hospital stay at P value > 0.003 .

Table 5 concerning the pain scale, a statistically significant difference was found between the both study and control groups subjects in relation to pain.

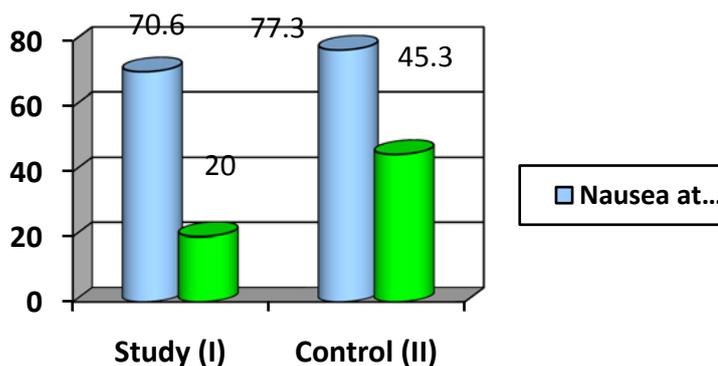


Figure 1. Comparison of nausea among both study groups at 1st 24 hrs and after 24 hrs postoperative

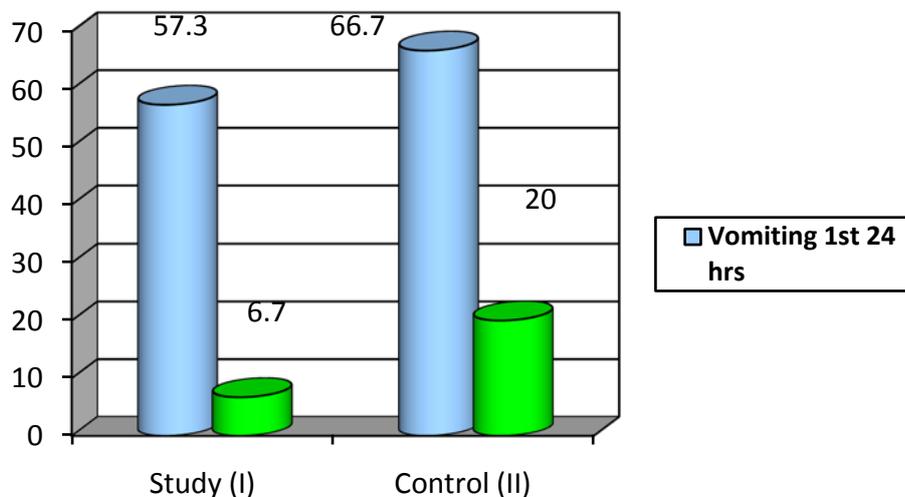


Figure 2. Comparison of vomiting among both study groups at 1st 24 hrs and after 24 hrs postoperative

Table 4. The differences between study and control groups regarding to length of hospital stay

Postoperative outcome parameters	Study (n = 75)	Control (n = 75)	Test	P value
• Length of hospital stay X ±SD	2.9 ±1.4	3.7 ±1.8	t= 3.02	0.003*

(*) Statistically significant at P < 0.05.

Table 5. Distribution of pain scores for both the study and control groups (n=150)

Pain score	Study group n= 75		Control group n= 75		Test	P value
	No.	%	No.	%		
Pain at 1st 24 hrs.						
Moderate pain	36	48	60	80	16.6	0.0001*
Severe pain	39	52	15	20		
Pain after 24 hrs.						
No pain	61	81.3	36	48	27.5	0.0001*
Mild pain	6	8	2	1.7		
Moderate pain	7	9.3	27	36		
Severe pain	1	1.4	10	13.3		

(*) Statistically significant at P < 0.05.

6. Discussion

The potential complications of prolonged POI include increased postoperative pain, increased nausea and vomiting, pulmonary complications, poor wound healing,

delay in resuming oral intake, delay in postoperative mobilization, and prolonged hospitalization [23,24]. All measures that reduce the duration of postoperative ileus will also improve the patient’s comfort and postoperative satisfaction. Gum chewing is a kind of sham feeding

alternative to early feeding, which expected to stimulate the cephalic vagal reflex to increase hormone secretion and then enhance intestinal motility [25], may produce a positive effect on postoperative ileus by reducing postoperative inflammation [12]. The aim of the current study was to examine the effect of sham feeding on postoperative clinical outcomes among patients undergoing elective abdominal and gynecological surgeries.

The findings of the current study showed that the largest numbers of the patients in the both groups their ages were ranged between 41 to 57 years and the majority of study subjects hadn't any chronic diseases. This was supported by Thomas, Rahman, Bansal and Husain (2016) [26] who conducted a study to assess the effectiveness of chewing gum on the bowel motility among the patients after abdominal surgery and reported that the highest frequency of sample in both groups was in the same age group. Furthermore, 86.7% and 73.3% of the study and control group respectively of their study had no history of hypertension and diabetes mellitus.

Regarding the clinical data for preoperative preparation and time spending in operating room, the current study revealed that there are no statistical significant differences existed between the study and control groups. This is in line with Mohsenzadeh, Barat, Delavar, Banihosini and Khafri (2013) [27] in their study "chewing sugar-free gum reduces ileus after cesarean section in nulliparous women" who emphasized on duration of surgery and Marwah, Singla, and Tinna (2012) [28] who found that the duration of surgery is known to affect POI, the mean duration of surgery was 109.30 ± 41.955 min and 112.80 ± 55.71 min in the study and control groups respectively.

Looking to the gastrointestinal recovery symptoms, the current study findings showed that the first onset of bowel motility in terms of bowel sound among the study group return earlier than the subjects' in the control group. These findings fairly similar with Thomas, Rahman, Bansal, and Husain (2016) [26] who reported that the majority of sample of the study group in their study experienced return of bowel sounds at 24 h whereas the bowel sound return within 32 h among the control group subjects. Furthermore, Cavuşoğlu, Azili, Karaman, Aslan, Karaman and Erdoğan (2009) and Noble, Harris, Hosie, Thomas and Lewis (2009) added that the mean time for the appearance of bowel sounds was significantly shorter in the study group [29,30].

Regarding the passage of the first flatus, the present study findings revealed that the study group subjects experienced passage of the first flatus earlier than subjects in the control group. These results were consistent with Noble, Harris, Hosie, Thomas and Lewis (2009) who found a significant reduction in time to first flatus as well as bowel movement in the gum chewing group [30]. In the study group, data revealed that the majority of study participants, i.e., 10 (66.7%) experienced the passage of first flatus after abdominal surgery at 24 h. whereas, the majority of subjects in the control group, i.e., 9 (60%) passed the first flatus at 32 hours after abdominal surgery. The majority of study sample in both the groups, i.e., 9 (60.0%) experienced return of appetite at 24 h post operation.

Moreover, Mahmoud and Mohammad (2018) [31] mentioned that the findings of their study indicated that

there were significant statistical differences between the study group and control groups regarding the mean time of the onset of bowel sound, the onset of the gas passage, the first defecation, the first feeling of hunger, and the length of hospital stay was significantly lower in the study group than in the control group.

In contrast to the results of the current study, the results of Tandeter (2009) [32] who reported that there was no significant difference in time to tolerating a low residue diet, time to flatus, time to bowel movement, length of postoperative hospital stay, and postoperative complications in their study which evaluate the effect of chewing sugared gum in combination with early enteral feeding on the recovery of gastrointestinal (GI) function after major colorectal surgery.

Other studies reported that there was no benefit to chewing gum group in comparison with the control group in patients undergoing major colorectal surgery managed with early feeding regarding postoperative pain, nausea, or appetite [32]. The discrepancy may be due to the use of sugared gum in their study, which differs in its effect from sugarless gum. In addition, chewing gum composition; sugar-free gum uses sugar substitutes (e.g., sorbitol and xylitol). These sugar surrogates can improve gut function by causing a non-stimulant laxative effect. This represents another factor, which may influence gut motility in the gum-chewing group of patients [33].

Regarding to the nausea and vomiting, the results of current study cleared that there was a significant improvement in nausea experienced by subjects in the study group compared to the control group subjects after practicing chewing gum. Furthermore, there was a significant decrease in vomiting in the study group subjects compared to the control group subjects after practicing chewing gum. These results were in the same line with Noble, Harris, Hosie, Thomas and Lewis (2009) [30] who reported that the incidence of postoperative nausea and vomiting was significantly more in the control group in comparison to the study group at $P = 0.020$.

As regard pain the results of the present study revealed that a statistically significant difference was found between the both study and control groups subjects in relation to pain. This result was consistent with Ho, Smith, Pockney, Lim and Attia (2014) [2] who did a study on "A Meta-analysis on the Effect of Sham Feeding Following Colectomy: Should Gum Chewing Be Included in Enhanced Recovery after Surgery Protocols?" They concluded that, there was less perception of pain in intervention group on days 2-5, and no differences with respect to all other secondary outcomes. They added that the use of gum chewing in the postoperative period is a safe method to stimulate bowel motility and reduce ileus after colorectal surgery.

7. Conclusion

Based on the results of current study, it was concluded that:

Patients who were practiced chewing gum as an alternative for sham feeding experienced early return of bowel motility in terms of bowel sounds, first flatus and feeling of hunger than those patients who were not practice chewing gum. There was a significant improvement in nausea experienced by subjects in the

study group compared to the control group subjects after practicing chewing gum and there was a significant decrease in vomiting in the study group subjects compared to the control group subjects after practicing chewing gum. Furthermore, there was a significant reduction in pain score and length of hospital stay among patients who were given chewing gum than those who were not.

8. Recommendations

Based on the findings of the present study, the following recommendations can be suggested:

- Sham feeding in a form of gum chewing should be added in the protocol of postoperative nursing care.
- Conducting further studies for evaluating the effect of sham feeding on postoperative ileus among patients undergoing abdominal surgeries using a larger sample and different geographical areas.

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