IOSR Journal of Nursing and Health Science (IOSR-JNHS)
e-ISSN: 2320–1959.p- ISSN: 2320–1940 Volume 6, Issue 3 Ver. V (May - June 2017), PP 59-66
www.iosrjournals.org

Impact of Performing Bowel Educational Guidelines on Preventing Constipation among Bed Ridden Patients

Dr. Sanaa Ibrahim Abd El Gafar, Dr. Samah M.Abd Elgaphar
Adult Health Nursing Department, Faculty of Nursing, Menoufia University, Egypt.

Abstract: *Nurses are best placed to assess, plan, implement and evaluate care for patients presenting with constipation. Initial management of constipation is recommended through a combination of fluid intake, diet, physical activity and toileting regimen after identifying an individual at risk for constipation.*
Aim of the current study was to *evaluate the impact of performing bowel educational guidelines on preventing constipation among bed ridden patients.*
Design *A quasi-experimental research design was utilized in the current study to achieve the aim of the study.*
Subjects: *Fifty bed ridden patients divided alternatively and randomly into two equal groups, 25 patients for each group.*
Tools of the study: *Three tools were used based on extensive review of literature; structure interview questionnaire, Physical examination of abdomen, and Constipation Scoring System.*
Results: *The study finding illustrated that, the mean age 33.72 ± 11.46 years for the control group and 36.82 ± 13.5 years for the study group. There was a significant improvement in the patient's knowledge about constipation after intervention among study group as compared to control group. Moreover there was a statistical significant difference between control and study groups regarding to total score of constipation after intervention.*
Conclusion: *Providing bowel educational guidelines to the patients has been shown to be effective for preventing constipation.*
Recommendation*: Applying an educational program for any bed ridden patients and their caregivers to help them to prevent and manage constipation that is associated with immobility.*
Key Words: *Bowel Educational Guidelines, Preventing Constipation, Bed Ridden Patients*

I. Introduction

Mobility is generally defined as the ability to move freely. For a person to stay fit and healthy and homeostasis to be maintained movement is vital. During a life span, there are a number of diseases and conditions that can affected the musculoskeletal system and therefore mobility. Alteration in mobility may be a temporary or more permanent problem. Most diseases and rehabilitative states involve some degree of immobility e.g., strokes, leg fracture, trauma, morbid obesity and multiple sclerosis [(1)].

Immobility increased transit times which slow the movement of faces through the colon and rectum increasing water reabsorption. As a result, progressively harden stool causing constipation, a common problem in patients confined to bed. In an upright person, gravity causes stools within the rectum to exert pressure on the anal sphincter, but this effect of gravity is negated in supine patients, reducing the urge to defecate [(2)].

Constipation is a chronic problem in many patients all over the world. In some groups of patients such as the elderly, constipation is a significant health-care problem, but in the majority of cases chronic constipation is an aggravating, but not life-threatening or debilitating, complaint that can be managed in primary care with cost-effective control of symptoms. The word "constipation" has several meanings and the way it is used may differ not only between patients but also between different cultures and regions [(3)].

Constipation is a condition in which a person has fewer than three bowel movements a week or has bowel movements with stools that are hard, dry and small, making them painful or difficult to pass. People may feel bloated or have pain in their abdomen. Some people think they are constipated if they do not have a bowel movement every day. Bowel movements may occur three times a day or three times a week depending on the person. Most people get constipated at some point in their lives [(4)].

Constipation is one of the most common GI problems in the United States, affecting an estimated 42 million people, or 15 percent of the population. In Egypt, the incidence of constipation in critically ill patients is 80% in Intensive Care Units of Alexandria Main University Hospital [(5, 6)]. Functional constipation can have many different causes, ranging from changes in diet, physical activity, or lifestyle to primary motor dysfunctions due to colonic myopathy or neuropathy. Constipation can also be secondary to evacuation disorder [(7)].

It's always best to prevent health problems before they start, so consider using that same frame of mind when dealing with constipation preventing this digestive ailment rather than focusing on ways to treat it. Initiating constipation management for those at risk for constipation can alleviate suffering and promote the

ability to lead a fuller life**.** There are some pretty simple ways to prevent constipation such as eating fiber diet, increase fluid intake, exercise and having regular time for defecation [8, 9, 10].

Nurses have a unique role in helping patients to manage bowel function. The nurse is often the first person to be aware of the problem and in many cases the sensitive handling of the situation by the nurse can lead to a rapid improvement for patients. Successful management depends upon good assessment of the patient. Good assessment depends upon a good understanding of bowel function and the identification of contributing factors. Prevention is obviously better than cure and nurses can play a major role through health education [11]. So **the aim of the current study was to** evaluate the impact of performing bowel educational guidelines on preventing constipation among bed ridden patients.

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

- Patients who will receive bowel educational intervention (study group) will have a higher score of knowledge than patients who will not receive (control group).
- The constipation will be prevented among bed ridden patients who will receive bowel educational intervention (study group) than patients who will not receive (control group).

Subjects and Method:-

I-Subjects

Research Design: - Quasi-experimental research design was utilized in the current study to achieve the aim of the study.

Research Setting: - The study was carried out at orthopedic and Neurologic Departments of Menoufia University Hospital.

Subjects: - Subjects of this study compromised of 50 bed ridden patients divided alternatively and randomly into two equal groups, 25 patients for each group:

- **Group I (study group):** received a bowel educational intervention along with the routine hospital care.
- **Group II (control group):** received the routine hospital care only.

The study subjects were selected according to the following criteria:

1. Adult patients of both sexes.
2. Conscious and willing to participate in the study.
3. Patient free from any cardiovascular and renal problems and constipation.

Tools for data collection: - Three tools were used based on extensive review of literature. These tools are:-

Tool I: structure interview questionnaire*:* It was developed by the researcher based on review of relevant literature to assess patient's socio-demographic, medical data and knowledge about constipation. It comprised of three parts as following:-

- **Part one: Socio-demographic Data:** It included patient's age, sex, marital status, level of education and occupation.
- **Part two: Medical history and clinical data:** It composed of seven questions. It recorded data related to patient's past and present medical history, any prescribed medication and frequency of bowel movement.
- **Part three: Assessment of patient's knowledge about constipation:** It was composed of eight questions related to: (definition, possible causes, signs and symptoms, complications, importance of fiber diet and fluid intake, measure used to prevent and treat constipation). Each question have three response categories as the following:-

1. Complete answer was given a score of two.
2. Incomplete answer was given a score of one.
3. Don't know or incorrect answer was given a score of zero.

The patient's responses were calculated and recorded for each part separately, then the total score of patient's knowledge about the constipation was ranged from 0 as a minimum score to 16 as a maximum score and was categorized into: A score of 0-5 denoted poor or unsatisfactory results while a score of 6-10 indicated fair results and a score 11-16 illustrated good results.

Tool II: **Physical examination of abdomen*:*** It was developed by the researcher based on the review of related literature **(Mcquaid, 2011; and Squire and Postier, 2012)** [12, 13]. It included two parts as the following:-

- **Part one: Bowel Sound:** It was assessed by listening to bowel sound with stethoscope and included the following:

1. Normal bowel sound (hollow noises that may be similar to the sound of water moving through pipes from 5-30 sound per minute).
2. Hypoactive bowel sound (reduction in the loudness, tone, or regularity of the sounds from 3-5 per minute).

3. Hyperactive bowel sound (Increased bowel sounds can sometimes be heard even without a stethoscope greater than 34 sound per minute).

- **Part two: Abdominal distension:** The researcher determined the presence of abdominal distension through measurement of the abdominal girth that was helpful in diagnosing abdominal distension.

Tool III: Constipation Scoring System:-

This scale was developed by **Agachan et al., (1996)** [(14)] for evaluation of constipation. The Constipation Scoring System (CSS) is an eight-item self-report measure designed to assess the prevalence and severity of constipation. The CSS consists of seven items that are scored using a five-point Likert scale that ranges from 0 (none of the time) to 4 (all of the time) and one item that is rated on a 0–2 scale.

A total score of constipation scoring system as following:-

1. Normal bowel from 0-14.
2. Constipation from 15-<30.
3. Severe constipation 30.

II- Methods

- A written approval: prior to data collection, an official permission to carry out the study was obtained from the director of the hospital and head nurses of units after explaining of the significance of study and its purpose.
- Tools development: the first and second tool was developed by the researcher after extensive review of the relevant literature and tool three was developed by **Agachan et al., (1996) [(14)]**. The three tools were tested for content validity by five experts in the field of nursing and medical specialists to ascertain relevance and completeness, and modifications were done accordingly.
- Verbal Consent: consent was obtained from patients to participate in the study after explanation of the purpose of the study. The researcher initially introduced herself to all patients and they were assured that the collected data would be absolutely confidential and only would be used for the study purpose.
- Reliability of the tools: the researcher used a test – retest methods to test the internal consistency of the tools, by administration of the same tools to the same subjects under similar condition on two different occasions The reliability of tool one was 0.84,tool two was 0.86 and tool three 0.84.
- Pilot study: pilot study was conducted on 10% of the study sample (5) patients to test feasibility, clarity and applicability of the tools then necessary modifications were carried out. The data obtained from the pilot study were excluded from the study sample.
- Available sample who meet inclusion criteria was divided alternatively and randomly into two equal groups, 25 patients for each group:

- Group I (study group): received a bowel educational intervention along with the routine hospital care.

- Group II (control group): received the routine hospital care only.

- The researcher collects the data from control group (II) firstly to avoid contamination of data then study group.
- Data were collected over a period of 7 months from August 2016 to February 2017.
- The study was conducted on three phases: Assessment phase, Interventional phase and Evaluation phase as following:

1) Phase one: Assessment phase: (for both study and control group)

- During this phase the researcher was interviewed each patient individually after his/her admission to the hospital to collect baseline data on socio-demographic data, medical data and knowledge assessment sheet using tool one for both study and control group .
- Both groups were examined for abdominal distension and bowel sound using tool II.
- Both groups were assessed for constipation using tool III (constipation scoring system) on admission.

2) Phase two: Interventional phase: (for study group only)

During this phase each patient was interviewed individually by the researcher for giving the bowel educational intervention and care according to patient's need, three sessions were held , the first session for providing knowledge about constipation(definition, causes, risk factors, signs and symptoms and complications) , the second session for giving teaching about preventive measures of constipation as (maintain regular time for defecation, maintain environmental factors for privacy and importance of fiber diet, sources of fiber) and the third session for giving teaching about importance of fluid intake, exercises that prevent constipation and importance of abdominal massage and its technique . Each session was taken about 30-45 minutes. These knowledge was repeated and patients were evaluated for understanding and obtaining feedback.

3) Phase three: Evaluation phase: (for both study and control group)

After two weeks the researcher evaluated both groups for presence of constipation and assessed the patient's knowledge using tool I part three Knowledge assessment, tool II Physical examination of abdomen and tool III constipation scoring system.

- Comparison was done between the two groups at the end of the study to evaluate the impact of performing bowel educational guidelines on preventing constipation among bed ridden patients.

II. Statistical Analysis

Results were collected, statistically analyzed by personal computer using statistical software package (SPSS) version 11 (program on computer) and tabulated. Two types of statistics were done. ***Descriptive statistics*** were presented using descriptive statistics in the form frequencies and percentage (%). And ***Analytic statistics:*** Chi-square test (χ^2): was used to study association between two qualitative variables. Quantitative variables were presented in the form of mean (x) and standard deviation (SD),Mann-Whitney test (nonparametric test) which is a test of significance used for comparison between two groups not normally distributed having quantitative variables and Fisher exact test which is a test of significance used for comparison between two groups having quantitative variables. Student t-test: is a test of significance that was used for comparison between two groups having quantitative variables. P-value of < 0.05 was considered for statistically significant (**Petrie and Sabin, 2009)** [15]**.**

III. Results

Table (1) Showed distribution of the studied groups regarding their socio- demographic characteristics. The study finding illustrated that, the mean age 33.72 ± 11.46 years for the control group and 36.82 ± 13.5 years for the study group. About two thirds of the control group and around three quarters of study group were male. More than half of control group and about two thirds of study group were married. Regarding level of education around quarter of both control and study group were illiterate. The findings revealed that no statistical significant differences were existed between study and control groups in relation to all socio- demographic characteristics.

Table (2) Showed distribution of the studied groups regarding their total knowledge score (pre and post intervention). It was clear from this table that there was a significant improvement in the patient's knowledge about constipation after intervention among study group as compared to control group.

Figure (1) illustrated the total knowledge score of control group pre and post intervention. It showed that there was no improvement in total knowledge score for control group pre and post intervention.

Figure (2) showed the total knowledge score of study group pre and post intervention. This figure illustrated that, there was an improvement in total knowledge score for study group pre and post intervention with a statistical significance difference at P < 0.001.

Table (3) Showed constipation history (on admission and after two weeks). This table clarified that, all patients had 1-2 time per 1-2 days of bowel movement for both study and control group on admission, while after two weeks 90% of study and 8.0% of control group had 1-2 time per 1-2 day of bowel movement ($\chi2 = 73$; P < 0.01). Regarding to total score, all patients of both groups have normal bowel (100%) on admission, while 10.0% of study group and 88.0% of control group had constipation after two weeks. The results showed that; there was a statistical significant difference between control and study groups regarding to total score of constipation after intervention ($\chi2 = 54.78$; P < 0.001).

Table (1): distribution of the studied groups regarding their socio- demographic characteristics

Socio – demographic characteristics	Groups				χ^2	P-value
	Controls (n = 25)		Study (n = 25)			
	No	%	No	%		
- Age Mean ± SD	33.72 ± 11.46		36.82 ± 13.5		Mann-Whitney 1.08	> **0.05**
- Gender						
• Male	17	68.0	18	72.0	0.44	> **0.05**
• Female	8	32.0	7	28.0		
- Marital status						
• Single	8	32.0	8	32.0		
• Married	13	52.0	16	64.0	4.32	> **0.05**
• Widow	4	16.0	1	4.0		
- Education						
• Illiterate	7	28.0	7	28.0		
• Primary	5	20.0	6	24.0	5.71	> **0.05**
• Secondary	9	36.0	5	20.0		
• High	4	16.0	7	28.0		
- Occupation						

• working • Not working	7 18	28.0 72.0	16 9	64.0 36.0	1.02	> **0.05**

Table (2): distribution of the studied groups regarding their total knowledge score (pre and post intervention).

Total knowledge score	Group (n=50)				χ^2	P value
	Controls (n=25)		Study (n=25)			
	No	%	No	%		
Pre intervention						
• Poor	11	44.0	8	32.0	2.75	**0.252**
• Fair	12	48.0	16	64.0		**(>0.05)**
• Good	2	8.0	1	4.0		
Post intervention						
• Poor	11	44.0	0	0.0	85.18	**<0.001**
• Fair	12	48.0	0	0.0		**(HS)**
• Good	2	8.0	25	100.0		
Test	-		**92.31**			
P value	-		**<0.001(HS)**			

Figure (1) illustrated the total knowledge score of control group pre and post intervention

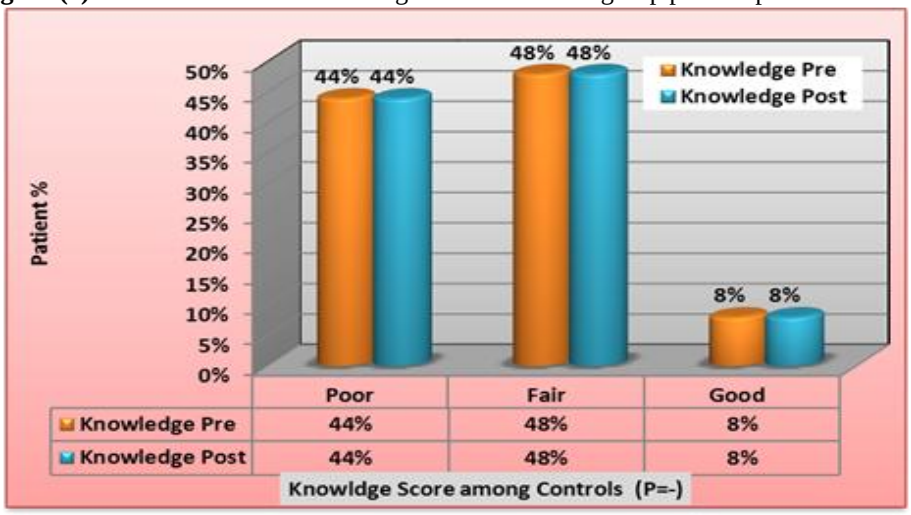

Figure (2) showed the total knowledge score of study group pre and post intervention

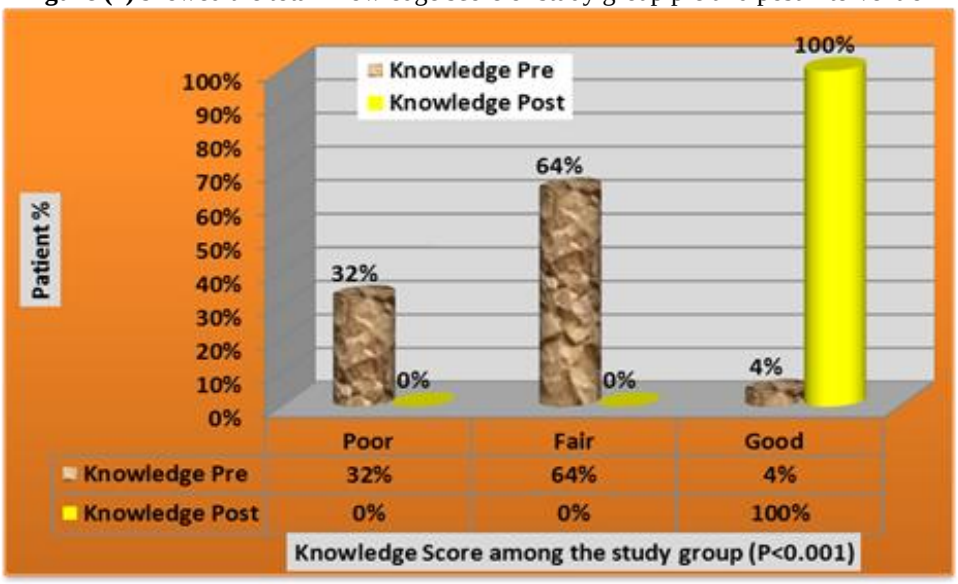

Table (3) Showed constipation history (on admission and after two weeks).

Items	On admission (pre)				After two weeks (post)				Test P-Value
	Control group (n = 25)		Study group (n = 25)		Control group (n = 25)		Study group (n = 25)		
	No	%	No	%	No	%	No	%	
- Bowel movement									
• 1-2 / 1-2 days	50	100.0	50	100.0	4	8.0	45	90.0	χ^2=73
• 2 / week	0	0.0	0	0.0	8	16.0	5	10.0	P = 0.01(HS)
• 1 / week	0	0.0	0	0.0	36	72.0	0	0.0	
• <1/ week	0	0.0	0	0.0	2	4.0	0	0.0	
- Abdominal pain									FE=0.001
• Never	24	96.0	25	100	2	8.0	21	84.0	P > 0.05
• Rarely	1	4.0	0	0.0	1	4.0	0	0.0	χ^2=64.580
• Some times	0	0.0	0	0.0	3	12.0	0	0.0	P <0.05(S)
• Usually	0	0.0	0	0.0	14	56.0	1	4.0	
• Always	0	0.0	0	0.0	5	20.0	3	12.0	
- Duration of constipation	25	100.0	25	100.0	3	12	22	88	χ^2= -P-
• 0	0	0.0	0	0.0	5	20	2	8	χ^2=60.114
• 1-4 day	0	0.0	0	0.0	17	68	1	4	P <0.05 (S)
• 5-10 day									
- Total score									χ^2= -P-
• Normal bowel	25	100.0	25	100.0	3	12	22	88	χ^2=54.782
• Constipation	0	0.0	0	0.0	22	88	3	12	P<0.001(HS)

IV. Discussion

Immobility is thought to be a contributory risk factor to constipation. Bed rest or a period of immobility results in a weakening of the abdominal wall muscles, leading to difficulty in raising the intra-abdominal pressure sufficiently for defecation. During immobility, peristalsis movement is decreased, intake of fluids is decreased and unnatural positioning for having a bowel movement using a bedpan promotes and contributes to constipation. Reduced transit times slow the movement of faces through the colon and rectum and increasing water reabsorption. As a result, stools progressively harden causing constipation **(2, 16)**.

The nurse can play a major role in preventing constipation by initiating constipation management for those at risk for constipation can alleviate suffering and promote the ability to lead an ideal life .Initial prevention of constipation is recommended through a combination of fluid intake, diet, physical activity, exercises, abdominal massage, maintain privacy and toileting regimen after identifying an individual at risk for constipation **(10, 17)**.

Regarding to the age; the results of the present study illustrated that the mean age of study group was 36.82± 13.5 years and the mean age of control group was 33.72 ± 11.46 years. This result was in line with **Diane et al., (2013)** (18) mentioned that the medium age of the studied population was 37.5±14.4 years in the intervention group and 40.8±12.8 years in the control group. The finding also was consistent with the study done by **Abd El-Kader, (2008) (6)** who reported that about 36% of the sample was between 18- < 40. Also **Kaboli et al., (2010)** (19) added that the mean age of participants in his study was 38.7 ± 11.4 years. On the contrary, **Chang et al., (2006)** (20) mentioned that the age of the patients in their study ranged from 50 to 70 years.

Regarding to the sex; the results of the present study revealed that 74% and 68% of both study and control groups were male. This result was agreement with **Abd El-Salam, (2009) (21)** who found that more than two third of the sample were males. Also, **Alkhalouf, (2012)** (22) who found that more than a half of the sample was males than females; in contradiction with the current study results done by **Kaboli et al., (2010)** (19) and **Abd El-Kader, (2008)** (6) who reported that women are more than men in their study. This may be related to available subjects at time of data collection.

Concerning to educational level; the results of the present study revealed that majority of both studied groups were educated. The results were consistent with **Abd El-Salam, (2009)** (21) who reported that the majority of the samples were educated.

Regarding Patient's knowledge it is noticed from the current study that, the study samples had incomplete knowledge about meaning of constipation, causes, clinical manifestation, complication, prevention, management and treatment, importance of fiber diet and fluid intake. However, post implementation of the bowel educational intervention, there was a significant increase in study group knowledge regarding the disease, its different treatment modalities and importance of fiber and fluid. These findings confirmed those of previous studies by **Lorig and Konkol (2000) (23) and Mullen, Laville and Biddle (2001) (24)** which revealed that at four months

after participation in an arthritis self- care education program, they found that patients knowledge about arthritis and its management was significantly increased.

Also **Sherry et al., (2012)** [25] who found that giving the patients knowledge regarding constipation is important in increasing knowledge and preventing constipation, these results were also supported by **Gallager et al., (2013)** [26] they stated that brief educational session using a signal standardized tool and adapted to patient assessment is effective in improving patient's knowledge about all disease process.

Regarding to total score of knowledge; the result of the present study showed that there was a significant difference between study and control groups as regards to total knowledge score after intervention. On the same line this result was in agreement with **El-Shikh, (2003) and Fareed, (2004)** [27, 28] who reported that, there was a significant difference between study and control groups related to total knowledge score after education. Also these was in line with the results obtained by **El-Hefnawy, (2003)** [29] **and Abd El-Salam, (2009)** [21] who found that teaching sessions provided to study group subjects increased their score of knowledge and decrease occurrence of disease**. From the researchers point of view** this may be related to disease's counseling and educational intervention in the teaching program which supported by illustrative colored booklet.

Concerning Constipation Scoring system of the studied sample, regarding to occurrence of constipation, this study found that there was no significant difference between study and control group on admission, all studied groups hadn't constipation. While there were statistical significant differences between both groups after two weeks, the majority of control group had constipation but minority of study group had constipation. These results suggest that bowel educational intervention would beneficially prevent constipation when appropriately performed. This was in line with the results obtained by **Abd El-Kader, (2008)** [6] who found that the incidence of constipation in the control group was increased. Also **Diane et al., (2013)** [18] reported that the incidence of constipation was decreased post intervention among study group compared to control group. **Doreen, (2013)** [30] who added that the study group improved significantly more than the control groups (mean difference between groups in score change -5.0 (SD 1.5), 95% CI -8.1, -1.8; t = -3.28, df = 28, p = 0.003). From the researcher point of view this may be related implementation of bowel educational interventional which supported by illustrative colored booklet.

V. Conclusions

Based on the findings of the current study, it can be concluded that:

1. No statistically significant differences concerning patients' knowledge were existed between study and control group before intervention but statistically significant differences were found between both study and control group after intervention regarding overall patient's knowledge about disease as well as preventive measures of constipation.
2. No statistically significant differences were existed between study and control group regarding physical examination of abdomen on admission; while statistically significant differences were found between both study and control group regarding physical examination of abdomen after two weeks.
3. No statistically significant differences found between study and control group regarding score of constipation scoring system on admission, while there were significantly differences in the study group than control group regarding score of constipation scoring system after two weeks.
4. Providing bowel educational guidelines to the patients has been shown to be effective for preventing constipation.

VI. Recommendations

Based on the findings obtained from the current study the following recommendations can be suggested:

- Applying an educational program for any bed ridden patients and their caregivers to help them to prevent and manage constipation that is associated with immobility.
- Replication of the study using a larger probability sample from different geographical areas to attain more generalizable results.

References

[1] David L. and Heiserman. (2008). Fundamentals of Nursing; the Effects of Immobility. 6th ed., Elsevier Mosby, p 605-09.
[2] Thomas D.C., (2002). Rehabilitation of the patient with chronic critical illness. Critical Care Clinics; 18: 3, 695–15.
[3] World Gastroenterology Organization Global Guidelines, (2010). Constipation: A global perspective. Available at: http://www.worldgastroenterology.org/global-guidelines.html.
[4] National Digestive Diseases, (2007). Constipation treatment. Available at http://digestive.niddk.nih.gov/ddiseases/pubs/constipation/.
[5] Everhart J.E., (2008). The Burden of Digestive Diseases in the United States. Bethesda, MD: National Institute of Diabetes and Digestive and Kidney Diseases, U.S. Dept. of Health and Human Services. NIH Publication 429–33.
[6] Abd-Elkader F., (2008). Effect of implementing Nursing practice guidelines for bowel care on occurrence of constipation for critically ill patients. Unpublished Master Thesis. Faculty of Nursing, Mansoura University.
[7] Chatoor D., and Emmnauel A., (2009). "Constipation and evacuation disorders". Best Pract Res Clin Gastroenterol 23 (4): 517–30.

[8] Ian, (2003). Nursing role in the management of constipation. British Journal of Nursing, 12 (19), 23 Oct 2003, PP 1130–36.
[9] Hsieh C., (2005). Treatment of constipation in older adults. American Family Physician, 72, 2277–84.
[10] Spinzi G.C., (2007). Bowel care in the elderly. Digestive Diseases, 25, 160–5.
[11] Ruth C., Liz R., and Clare B., (2003). Constipation: causes and cures available at; http://www.nursin gtimes.net/nursing-practice/ clinical-zones/continence/constipation-causes-and-cures/205373 article.
[12] Mcquaid K., (2011). Approach to the patient with gastrointestinal disease. In: Goldman L, Schafer AI, eds. Cecil Medicine. 24th ed. Philadelphia, Pa: Saunders Elsevier; chap 134.
[13] Squires RA., and Postier RG., (2012). Acute abdomen. In: Townsend CM Jr, Beauchamp RD, Evers BM, and Mattox KL, eds. Sabiston Textbookof Surgery. 19th ed. Philadelphia, Pa: Saunders Elsevier; chap 47.
[14] Agachan F., Chen T., Pfeifer J., Reissman P.,and Wexner SD.,(1996). A constipation scoring system to simplify evaluation and management of constipated patients. Dis colon rectum; 39: 681-5.
[15] Petrie A. and Sabin C., (2009). Medical Statistics at a Glance. 3rd ed., London. Blackwell science Inc company, 8-15.
[16] Blanc S., (2000). Fuel homeostasis during physical inactivity induced by bed rest. The Journal of Clinical Endocrinology and Metabolism; 85: 6, 2223–33.
[17] Tariq S.H., (2007). Constipation in long-term care. Journal of the American Medical Directors Association, 8, 209–18.
[18] Diane C.; Bruna P.; and Thais R. (2013). Effect of the consumption of a cheese enriched with probiotic organisms in improving systems of constipation. Arq, Gastroenterol; Vol. 50(3):44-6.
[19] Kaboli E., (2010). Factor associated with functional constipation in Iranian adults: A population based study. Taleghani Hospital, Shahid Behesti University, Iran.p13-22.
[20] Chang L., Toner B., and Fukudo S., et al. (2006). Gender, age, society, culture, and the patient's perspective in the functional gastrointestinal disorders. Gastroenterology. 130:1435–46.
[21] Abd El-salam W., (2009). Impact of proper exercises and diet on the occurrence of deep venous thrombosis among bed ridden orthopeadic patients. Unpublished Master Thesis. Faculty of Nursing, Menoufia University.
[22] Alkhalouf A., (2012). The Mediating Effect of Distress Caused by Constipation on Predictors of Quality of Life of Hospice Patients with Cancer. Doctorate Thesis. College of Nursing, University of South Florida.
[23] Lorig K., and Konkol L., (2000). Arthritis patient education: A review of the literature. Patient education counseling;10:207-52.
[24] Mullen PD., laville E A., and Biddle A K., (2001). Efficacy of psychoeducational intervention on pain, depression and disability in people with arthritis. Journal of Rheumatology; (14) : 33-9.
[25] Sherry L., Fravel., Pharm D., and Cathy B., (2012). Management of constipation. Journal of Gerontological Nursing; 38 (7): 9-15.
[26] Gallager R., Roach K., and Balshaw Y., (2013). A pre –posttest study in cardiac rehabilitation patient . Aust Crit Care; 26(2):49-54.
[27] El-Shikh A., (2003). The impact of a protocol of care on physical responses and compliances among patients with congestive heart failure. Unpublished Doctorate Thesis. Faculty of Nursing, Menoufia University.
[28] Fareed M., (2004). Dietary management of chronic renal failure :its effect on nutritional status, renal function tests and serum electrolytes. Unpublished Doctorate Thesis. Faculty of Nursing, Menoufia University.
[29] El- Hefnawy K., (2003). Impact of performing breathing and coughing exercise on prevention /reduction of bronchial asthma complication among adult asthmatics in Shebien El-Kome Hospitals. Unpublished Master Thesis .Faculty of Nursing, Menofia University.
[30] Doreen M., (2013). Abdominal massage for the alleviation of constipation symptoms in people with multiple sclerosis: A randomized controlled feasibility study; 1: 204-10.