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The Effect of Abdominal Massage in Managing Opioid-Induced Constipation

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Conflict of Interest Disclosure

Dilek YILDIRIM Dr., Gülbeyaz CAN Prof. Dr.

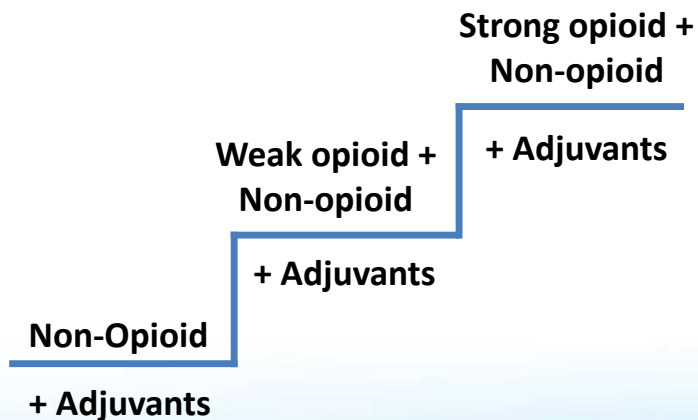Has no real or apparent

conflicts of interest to report.

Cancer Pain

- Pain is one of the most common symptoms, compromising QoL.

Pain Management

WHO's analgesic ladder

**Strong opioid +
Non-opioid**

+ Adjuvants

**Weak opioid +
Non-opioid**

+ Adjuvants

Non-Opioid

+ Adjuvants

Opioid Effect on Bowel

- Water absorption from bowel contents

- Anal sphincter tone

- Gastric motility

- Inhibits propulsion in the small and large intestines

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Opioid-induced constipation

Opioid receptors, namely **delta kappa and mü** are widely throughout the GI tract.
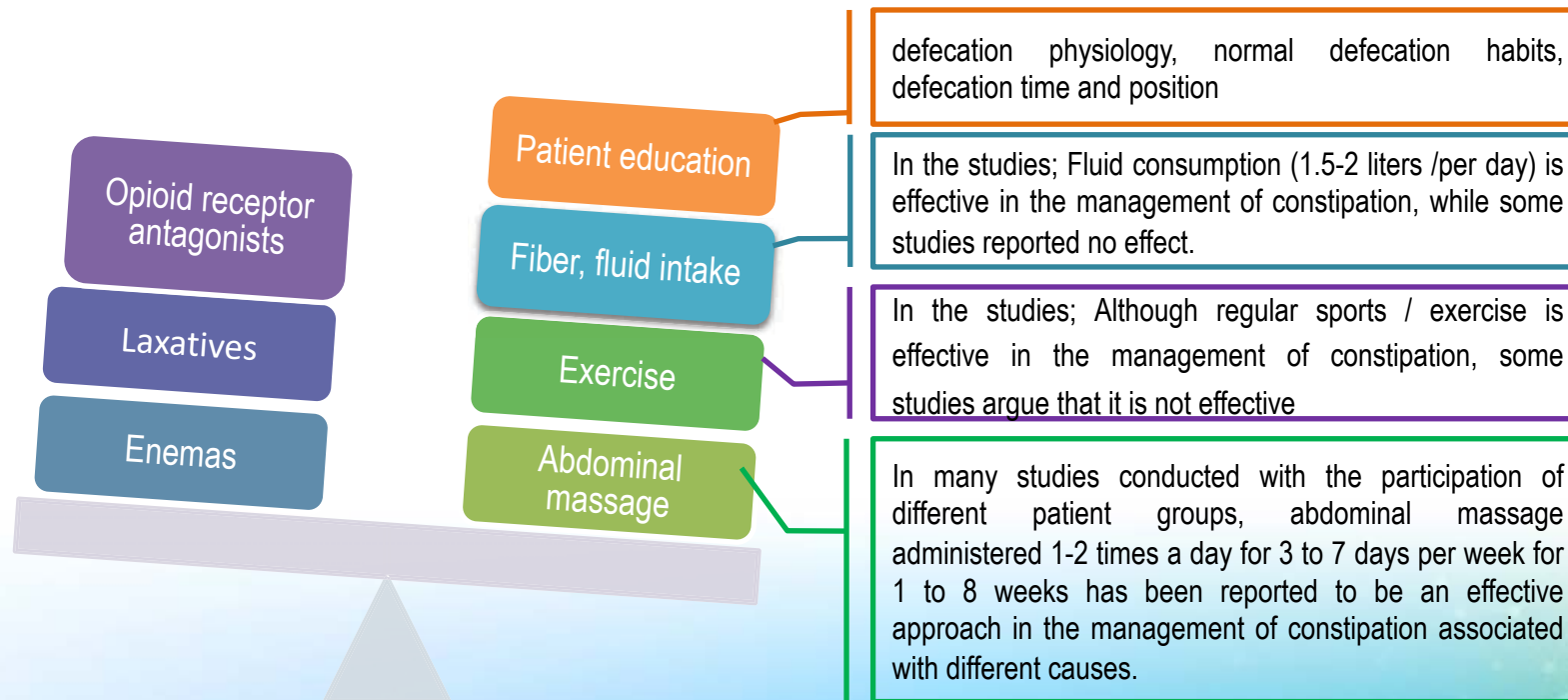
Opioid receptor antagonists block opioid actions at peripheral opioid receptors that mediate decreased intestinal secretion and propulsive colonic motility.

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Management opioid-induced constipation

Pharmacological

Non-Pharmacological

Opioid receptor antagonists

Laxatives

Enemas

Patient education

Fiber, fluid intake

Exercise

Abdominal massage

defecation physiology, normal defecation habits, defecation time and position

In the studies; Fluid consumption (1.5-2 liters /per day) is effective in the management of constipation, while some studies reported no effect.

In the studies; Although regular sports / exercise is effective in the management of constipation, some studies argue that it is not effective

In many studies conducted with the participation of different patient groups, abdominal massage administered 1-2 times a day for 3 to 7 days per week for 1 to 8 weeks has been reported to be an effective approach in the management of constipation associated with different causes.

Study Purpose

Determine the effects of abdominal massage in managing opioid-induced constipation.
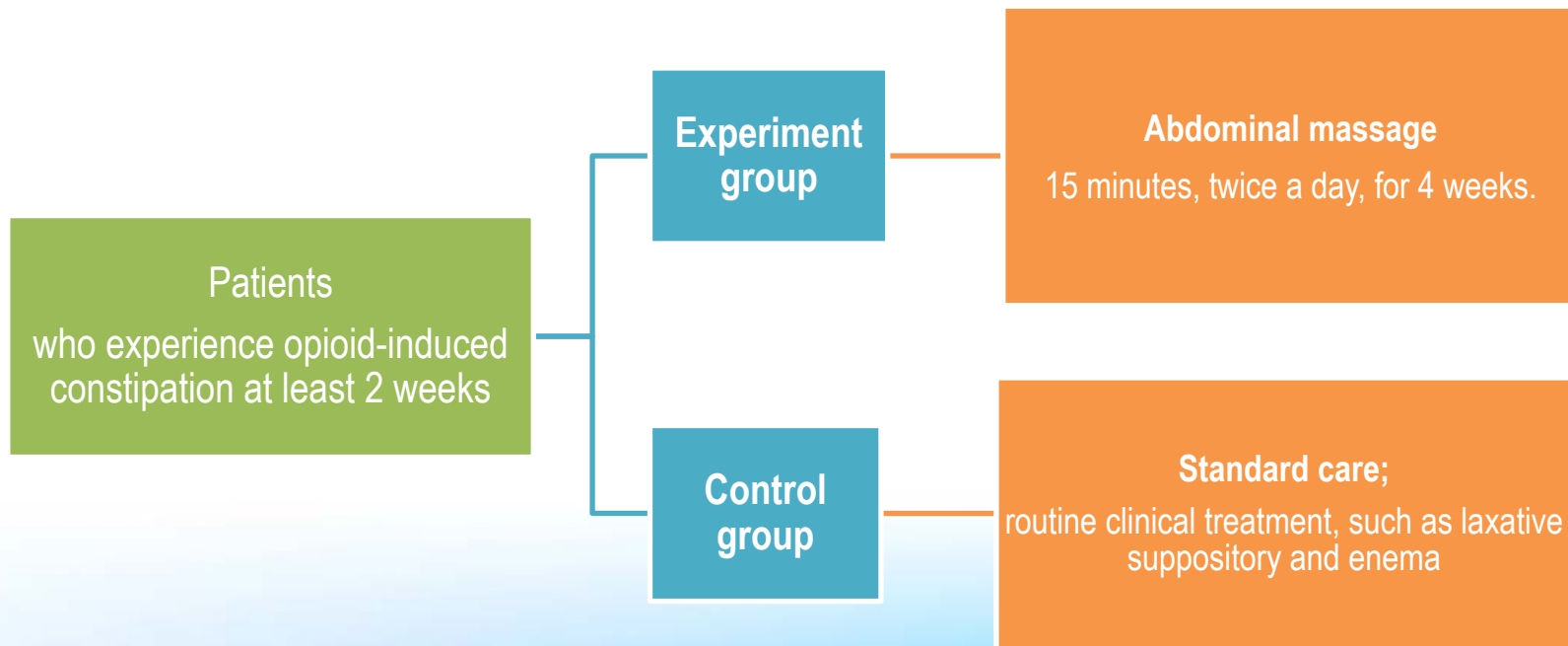
Study design & setting

- **Type**   : Randomized controlled trial

- **Timeline**   : February 2017 and January 2018

- **Setting**   : Pain Clinic at the Istanbul University

                     Istanbul Medicine Faculty Hospital

                     Istanbul, Turkey

Study design

```
Patients
who experience opioid-induced
constipation at least 2 weeks
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Experiment group

Abdominal massage
15 minutes, twice a day, for 4 weeks.

Control group

Standard care;
routine clinical treatment, such as laxative suppository and enema

The inclusion criteria for participation

✓ Be older than 18 years,

✓ Do not have any barriers (communicative, cognitive, affective, verbal, bowel problems, etc)

✓ Have been treated with opioids for at least 2 weeks

✓ Have had bowel excretion less than 3 times a week following the beginning of opioid treatment

✓ Have had at least one of the opioid related congestion problems:

   ✓ feeling of incomplete bowel emptying

   ✓ gas /bloating

   ✓ the feeling of defecation /pressure in anus

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Sample Size

Patients assessed for eligibility (n=428)

Excluded (n=114)
- Not meeting inclusion criteria n=87
- Declined to participate   n=19
- Other reasons   n=8

Randomized (n=314)

Allocation

Experiment group (n=156)   Control group (n=158)

Weekly Follow up

Number of patients evaluated by phone call
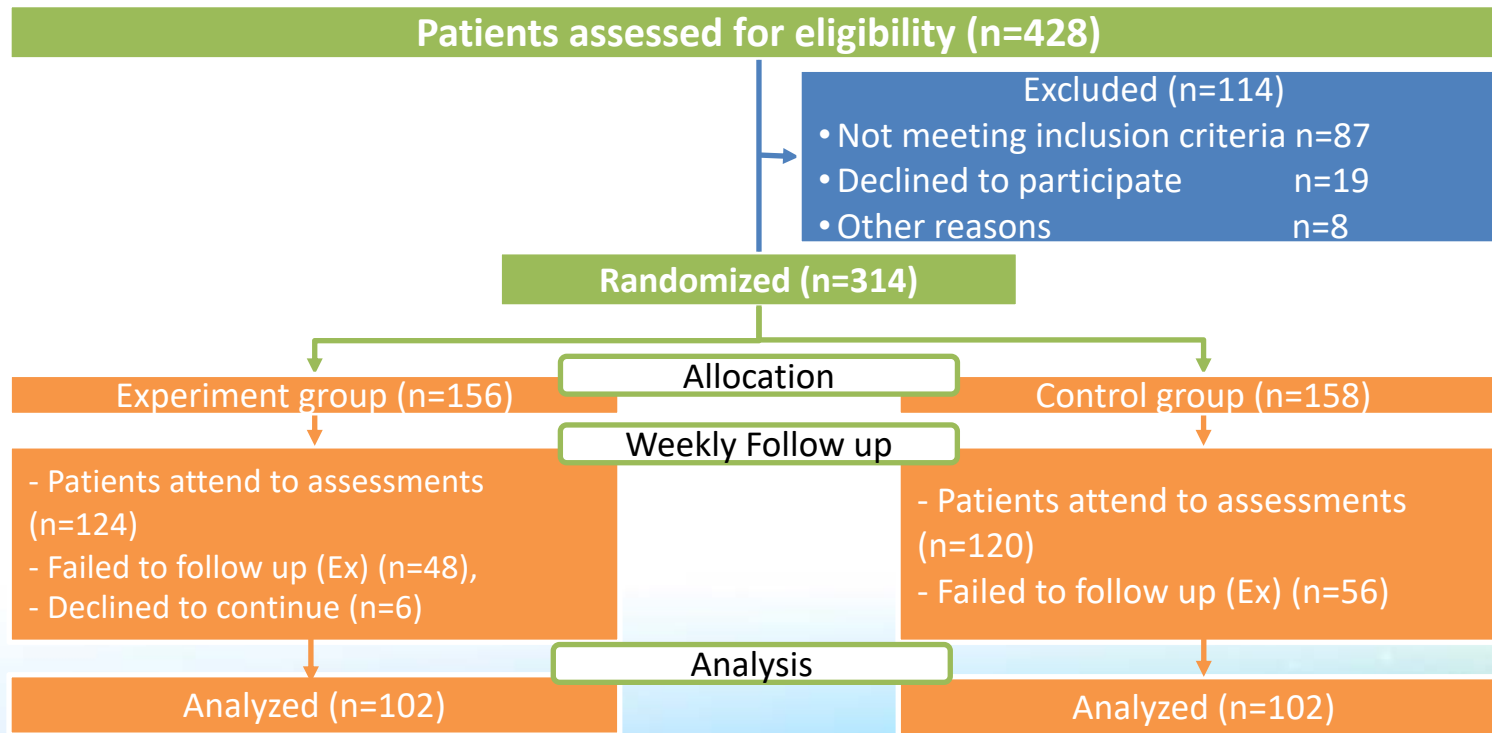
- Patients attend to assessments (n=124)
- Failed to follow up (Ex) (n=48),
- Declined to continue (n=6)

- Patients attend to assessments (n=120)
- Failed to follow up (Ex) (n=56)

Analysis

Analyzed (n=102)   Analyzed (n=102)

Study Protocol

First Interview
- Patient Information Form
- Constipation Related Quality of Life (PACQLQ)

Last Interview
Constipation Related Quality of Life

Control: Standard care

Intervention:
15 min. abdominal massage 2 times a day for 4 week, 30 min. after breakfast and dinner

Days 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35

Daily bowel monitorization:
Defecation Diary + Bristol Stool Scale + Visual Analog Scale

Daily bowel monitorization: Defecation Diary + Bristol Stool Scale + Visual Analog Scale

5 Follow-up interviews at the clinic or by the phone (15-20 min)

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Abdominal massage application

Ethical considerations

Approved by

the Istanbul University Istanbul Medicine Faculty Clinical Research Ethics Committee

Written and verbal consent for study attendance was obtained from each patient.

Data analysis

Descriptive statistics

Univariate Analyses

- Chi-Square Test
- t test or Mann Whitney U test

Multiple regression analysis

- backward method

IBM SPSS Statistics 23
(IBM SPSS, Turkey)

Significance level was accepted as p < 0.05.

Demographic Characteristics

Sociodemographic characteristics		Intervention Group (n=102)		Control Group (n=102)		t	p
		$\overline{x}$	± sd	$\overline{x}$	± sd		
Age		60.50	14.57	61.16	13.21	0.33	0.73
		n	%	n	%	χ^2	p
Gender	Female	35	34.3	45	44.1	2.05	0.15
	Male	67	65.7	57	55.9		
Martial Status	Single	21	20.6	17	16.7	0.51	0.47
	Married	81	79.4	85	83.3		
Education	Primary School	50	49.0	48	47.1	6.15	0.29
	Secondary school	17	16.7	13	12.7		
Working Status	Employed	10	9.8	12	11.8	0.20	0.65
	Unemployed	92	90.2	90	88.2		
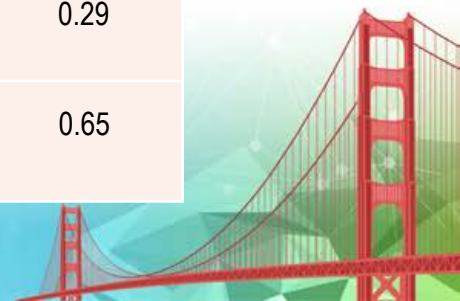
Clinical characteristics

Last day of defecation	Intervention Group (n=102)		Control Group (n=102)		χ^2	p
	n	%	n	%		
Day 0 (Same day)	18	17.6	24	23.5		
1 day ago	29	28.4	22	21.6	4.70	.31
2 days ago	35	34.3	42	41.2		
3 days ago	9	8.8	9	8.8		
8-10 days ago	11	10.9	5	4.9		

Disease Related Characteristics

Medical Diagnosis	Experimental Group (n=102)		Control Group (n=102)	
Cancer	n	%	n	%
Lung cancer	34	33.3	28	27.4
Genitourinary System Cancers	13	12.7	14	13.7
Breast Cancer	4	3.9	6	5.9
Bone Cancer	5	4.9	1	0.9
Hematological Cancers	3	2.9	7	6.9
The sarcoma of soft tissue	6	5.9	1	0.9
Head and Neck Cancers	2	1.9	4	3.9
Brain Tumor	-	-	4	3.9
Non-Cancer	35	34.3	37	36.2

Daily opioid use

Opioids		Experimental	Control	z$_{MWU}$	p
		$\bar{x}\pm Sd$	$\bar{x}\pm Sd$		
Codeine (mg /day)	1st week	143.7 ± 42.48	157.46 ± 43.81	-1.689	0.091
	2nd week	145.47 ± 41.14	156.36 ± 44.91	-1.167	0.243
	3rd week	145.42 ± 41.82	159.54 ± 42.81	-1.735	0.083
	4th week	146.34 ± 41.93	157.04 ± 42.77	-1.181	0.238
	5th week	145.07 ± 41.54	158.51 ± 43.00	-1.652	0.099
Tramadol (mg /day)	1st week	224.44 ± 110.05	214.78 ± 89.53	-0.223	0.823
	2nd week	228.19 ± 107.31	212.72 ± 89.8	-0.587	0.557
	3rd week	231.19 ± 113.12	216.16 ± 88.56	-0.478	0.633
	4th week	222.24 ± 110.07	225.64 ± 95.96	-0.359	0.720
	5th week	227.88 ± 111.68	218.48 ± 92.41	-0.237	0.813
Morphine (mg /day)	1st week	44.62 ± 25.63	47.89 ± 28.44	-0.908	0.364
	2nd week	44.25 ± 25.41	47.05 ± 28.56	-0.742	0.458
	3rd week	43.9 ± 25.19	46.38 ± 28.64	-0.728	0.466
	4th week	45.71 ± 27.51	49.25 ± 30.12	-0.933	0.351
	5th week	51.14 ± 32.72	46.59 ± 27.76	-0.068	0.946
Transdermal Fentanyl (mcg /24 st)	1st week	24.56 ± 15.52	23.92 ± 13.13	-0.095	0.925
	2nd week	25.84 ± 15.85	23.88 ± 13.25	-0.288	0.773
	3rd week	26.49 ± 15.91	24.63 ± 12.94	-0.211	0.833
	4th week	27.83 ± 16.61	25.28 ± 13.1	-0.405	0.685
	5th week	29.25 ± 16.77	26.08 ± 13.53	-0.667	0.504

Sd:Standard deviation, p value is obtained Mann Whitney U test.

Nutrition habits of patients

Characteristics	Experimental (n=102)		Control (n=102)		χ²	p
	n	%	n	%		
Nutrition Status						
3 main / 3 main and snacks (Sufficient)	52	51.0	45	44.1	.963	.326
1-2 main and snacks (Insufficient)	50	49.0	57	55.9		
Diet restriction						
Yes	27	26.5	34	33.3	1.146	.284
No	75	73.5	68	66.7		
Fibrous food intake						
Yes	33	32.4	27	26.5	.850	.357
No	69	67.6	75	73.5		
Daily fluid consumption						
2 liters over	35	34.3	37	36.3		
1.5-2 liters	46	45.1	46	45.1	.156	.925
≤ 1 liters	21	20.6	19	18.6		
Body Mass Index						
Underweight	8	7.8	5	4.9		
Normal (healthy)	48	47.1	46	45.1		
Overweight	25	24.5	31	30.4	2.727	.604
Obese	17	16.7	12	11.8		
Severely obese	4	3.9	2	2.0		

χ^2 : Pearson Chi-Square test; Fisher's Exact Test applied because F: expected number is <1. t : t-test for independent groups, *n=198.

Activity habits of experimental and control group

Activity Status		Experimental Group (n=102)		Control Group (n=102)		χ^2	p
		n	%	n	%		
General lifestyle	Active	8	7.8	5	4.9	0.73	0.39
	Sedentary	94	92.2	97	95.1		
Regularly play sports / exercise	Yes	5	4.9	3	2.9		0.72^F
	No	97	95.1	99	97.1		
Performance (ECOG)	Fully active	6	5.9	2	2.0	5.35	0.25
	Restricted in physically strenuous activity	8	7.8	11	10.8		
	Up and about more than 50% of waking hours	17	16.7	27	26.5		
	Confined to bed or chair more than 50% of waking hours	57	55.9	50	49.0		
	Completely disabled	14	13.7	12	11.8		

χ^2 : Pearson Chi-Square test; Fisher's Exact Test applied because F: expected number is <1. t : t-test for independent groups, *n=198.

Defecation diary stool consistency

p = 0.01
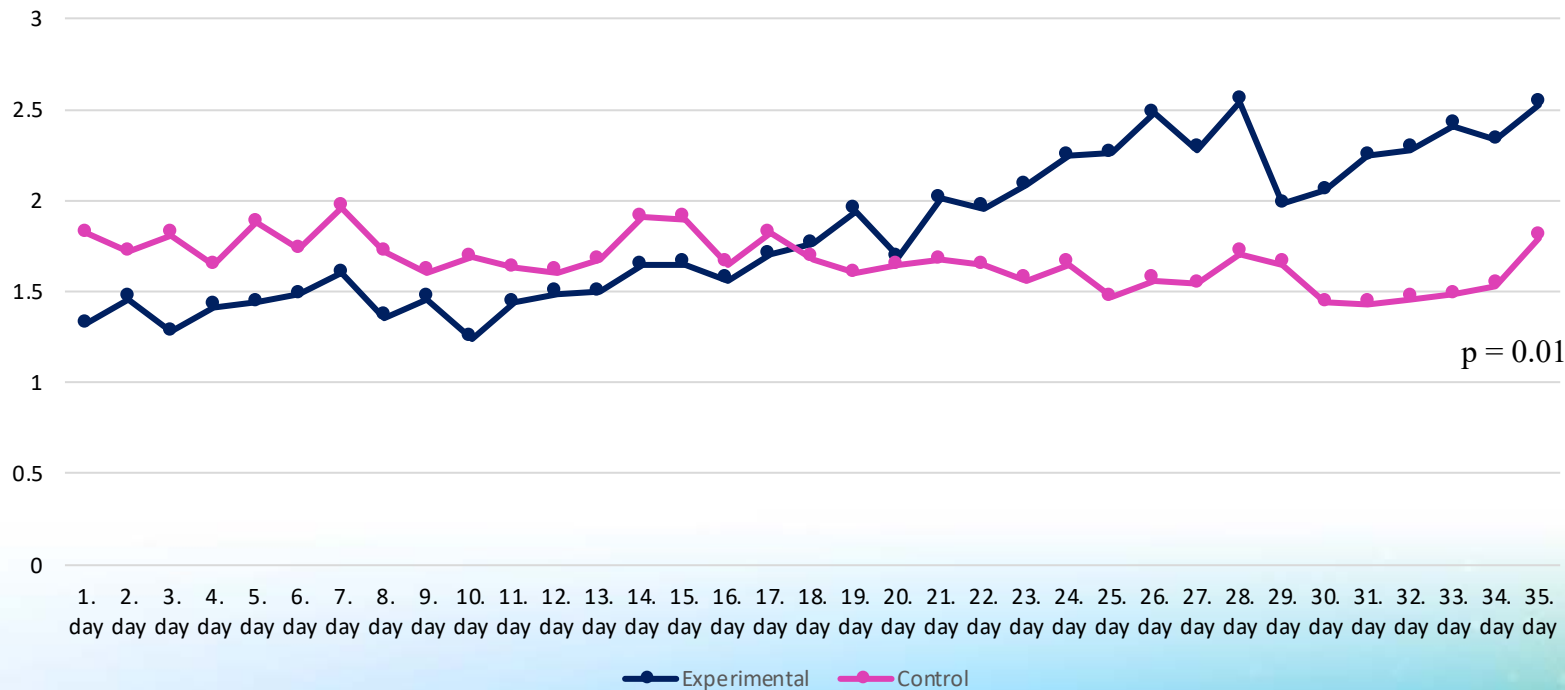
Defecation diary straining

p = 0.01

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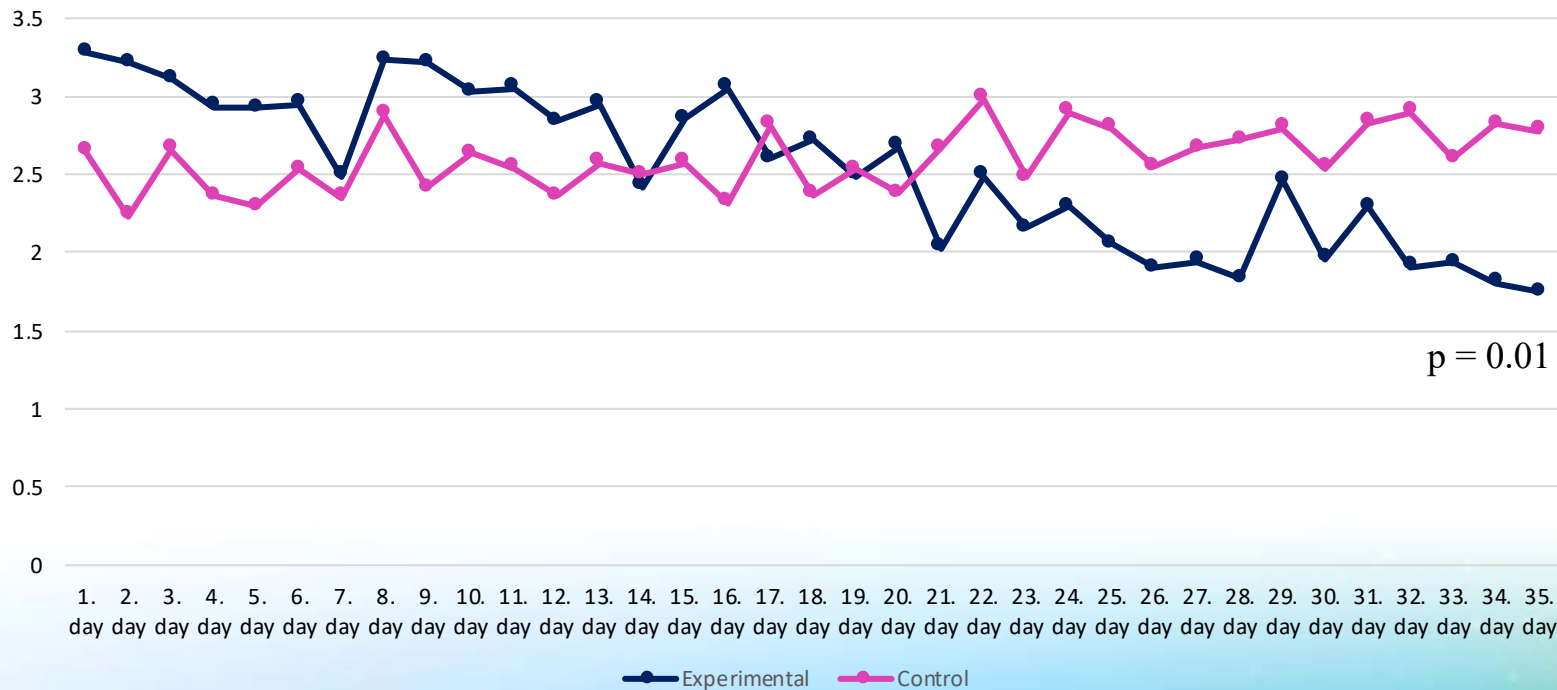
Defecation diary incomplete evacuation

$p = 0.001$

Experimental — Control
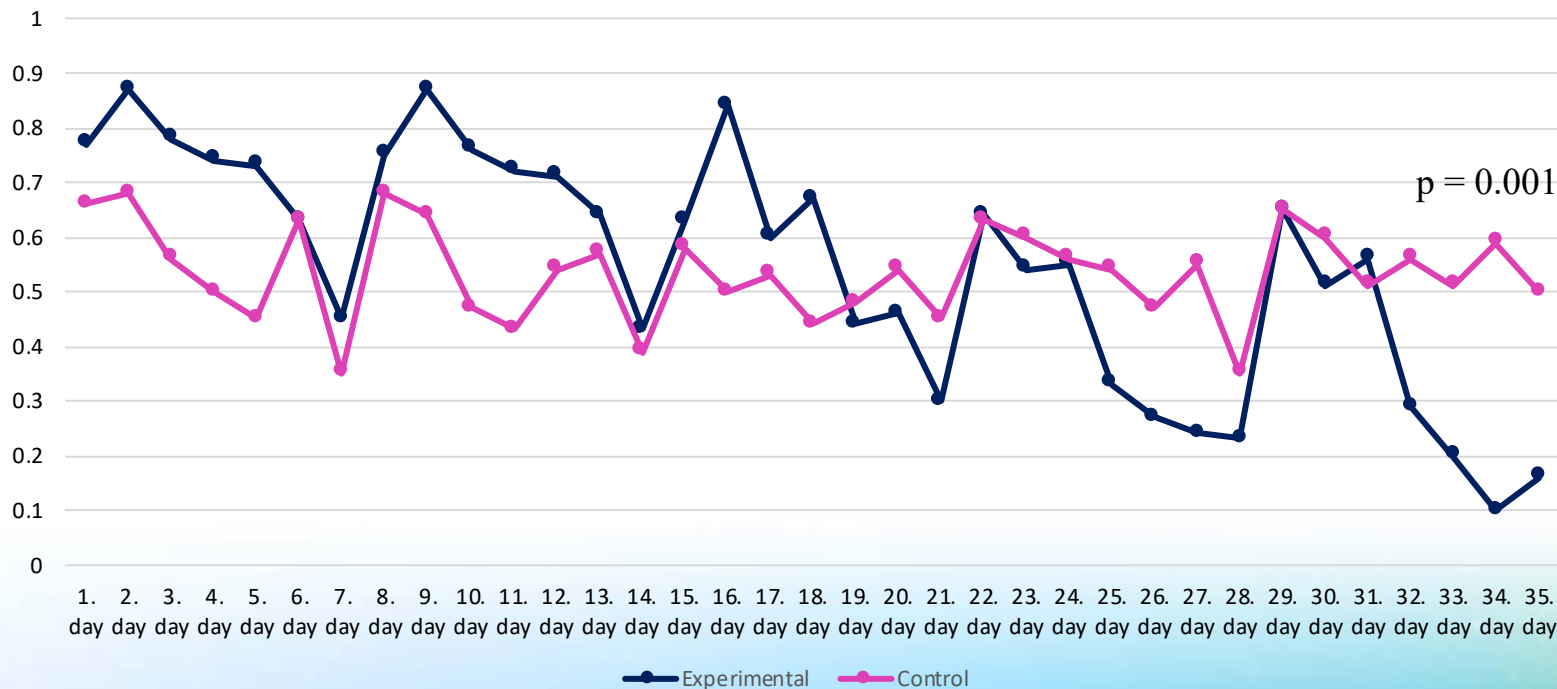
Defecation diary number of defecation
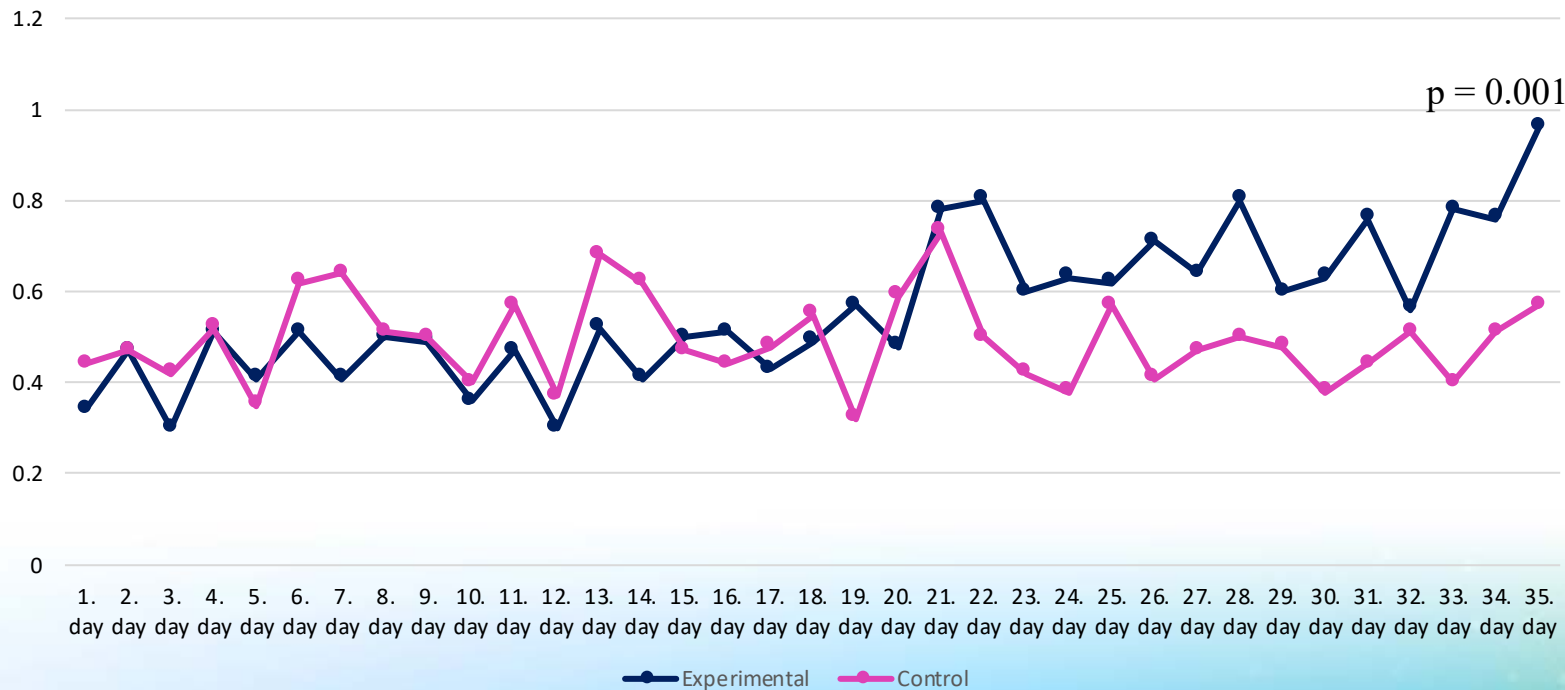
p = 0.001

Defecation diary stool amount

p = 0.23
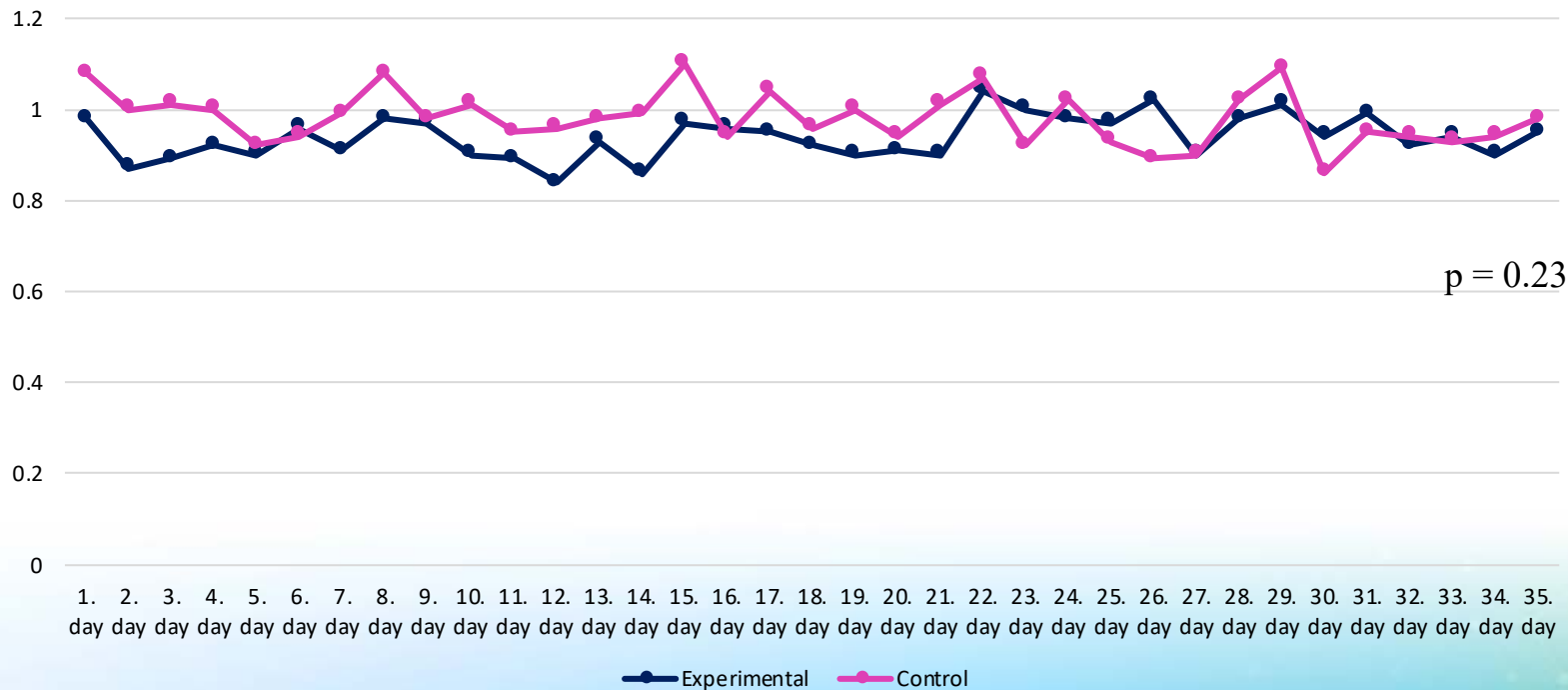
VAS scores

Constipation severity

p < 0.05
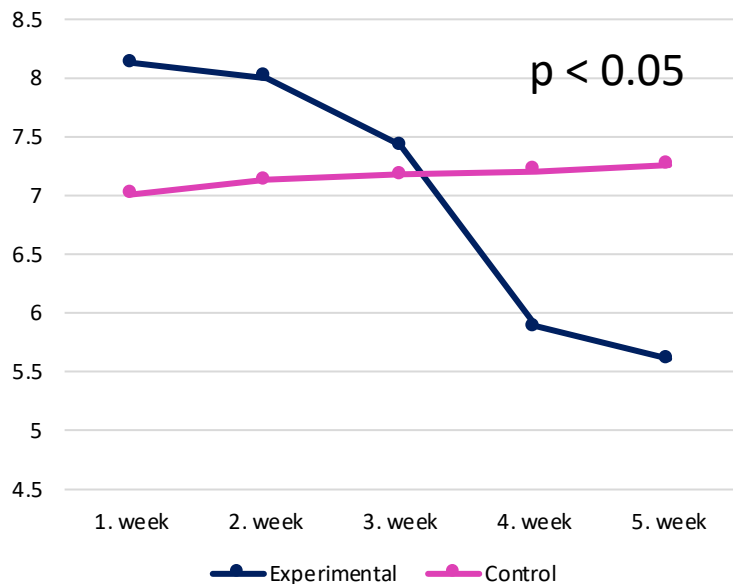
Feeling of fullness in rectum severity
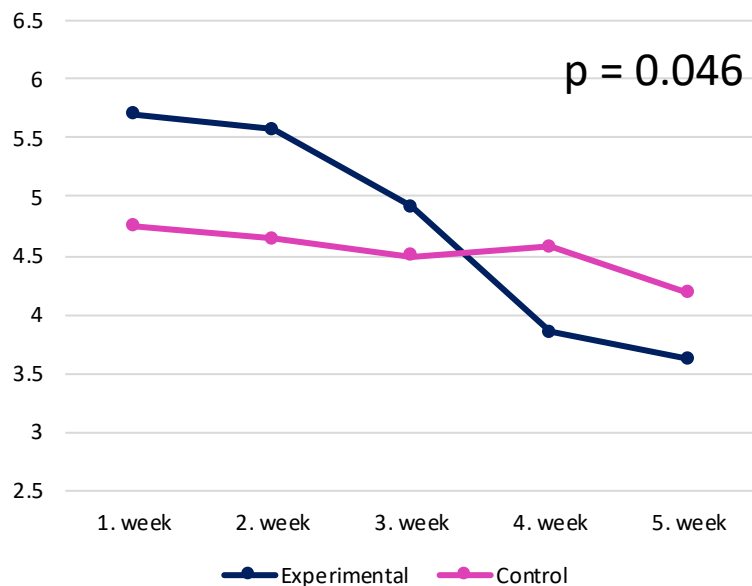
p = 0.046

VAS scores

Pain severity
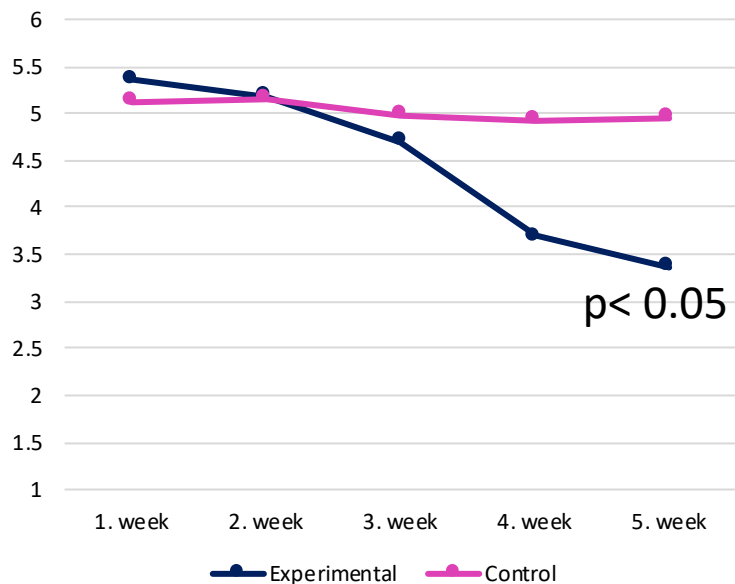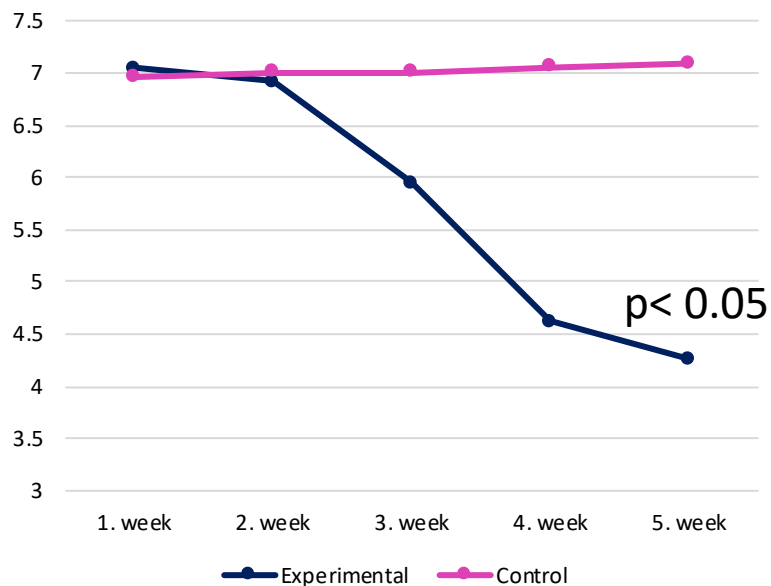
p< 0.05

Experimental — Control

Abdominal gas severity

p< 0.05

Experimental — Control

PACQLQ Scores
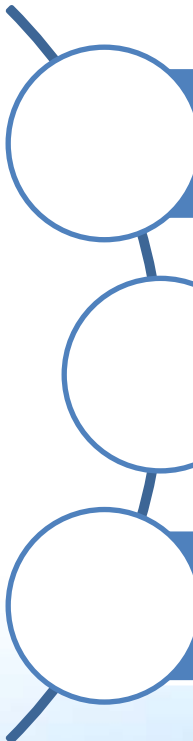
PACQLQ Subscales		Pre-test	Post-test		
	Groups	± Sd	± Sd	t*	p
The Patient Assessment of Constipation Quality of Life (PACQLQ)	Experimental	75.69±11.32	60.75±10.99	21.04	.0001
	Control	71.70±13.55	79.01±12.86	14.63	.0001
	t**	2.29	14.44		
	p	.02	.0001		
Subscales — Physical Discomfort	Experimental	11.93±2.21	8.99±2.28	21.56	.0001
	Control	10.93±2.33	12.34±2.02	10.66	.0001
	t**	3.14	11.12		
	p	.002	.0001		
Psychosocial Discomfort	Experimental	21.27±4.99	16.00±4.72	20.52	.0001
	Control	20.38±4.94	24.27±4.59	17.09	.0001
	t**	1.28	12.69		
	p	.20	.0001		
Anxiety	Experimental	29.69±5.70	21.97±5.32	18.92	.0001
	Control	27.49±6.46	31.28±6.12	16.68	.0001
	t**	2.57	11.60		
	p	.01	.0001		
Satisfaction	Experimental	12.79±3.58	9.87±2.90	4.89	.0001
	Control	12.89±2.98	13.52±2.98	1.31	.19
	t**	.21	8.85		
	p	.83	.0001		

t *: t-test in dependent groups; t **: t -test in independent groups.
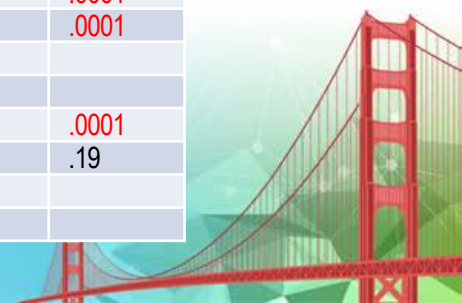
Conclusion

In the post-hoc analysis, it was observed that the number of defecations increased by 13%.

The massage application, was observed to improve stool consistency, decrease straining and ease the feeling of incomplete bowel emptying.

Abdominal massage is an effective approach in the management of constipation and can improve the quality of life of patients receiving opioid medication
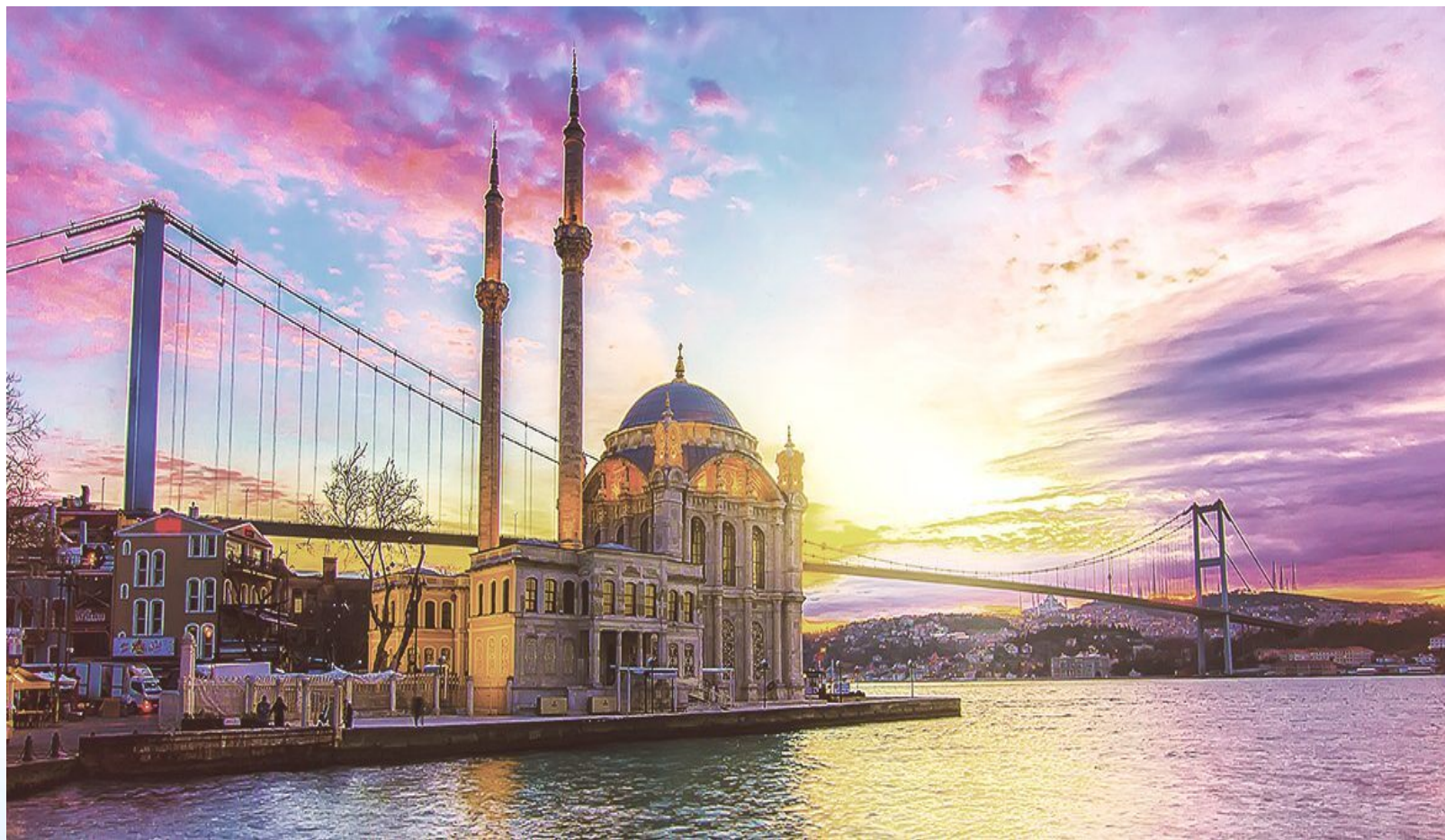
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