

Scientific Evidence-based Effects of Abdominal Massage in People with Constipation: A Narrative Review

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Constipation is globally a predominant problem leading to physical, mental, and emotional disturbances. Recently, many non-pharmacological therapies have been reviewed for the management of constipation. In this review, we intended to understand the effect of abdominal massage in alleviating and improving various symptoms of constipation among different populations with regard to simplicity, efficacy, and cost-effectiveness. We performed a PubMed and PubMed Central search to review relevant articles; 246 were screened, and 33 potentially eligible articles were recognized and incorporated in this review. Available literature suggests that abdominal massage effectively reduces the severity of constipation in the adult and elderly population and disorders of the gastrointestinal system, musculoskeletal system, nervous system, and palliative care. Based on the available literature, this review suggests that the abdominal massage has a scientific evidence-based effect in reducing constipation.

KEYWORDS: CAM; constipation; massage; naturopathy

INTRODUCTION

Constipation can be both a symptom and a disease.⁽¹⁾ Functional constipation is described as the difficult, incomplete, and prolonged passage of dry, hardened stools that can cause pain, discomfort, and straining during defecation. Although its incidence may vary according to age, gender,

and region, globally it is more predominant in women than men and the elderly than younger people.⁽²⁾ Prolonged suffering due to constipation is associated with aging, inactivity, excessive use of medicines, hypotension, and inattention to the disease and can result in hemorrhoids, hernias, anal fissures, colonic muscle fiber laxity, colonic wall thickening and prolapse, headaches, and fatigue, abdominal pain and bloating, loss of appetite, nausea and vomiting, and worsening of other symptoms such as limb spasticity and bladder dysfunction.^(1,2) All of these effects act to reduce the quality of life (QOL) of an individual suffering from constipation. Constipation is treated using both pharmacological and non-pharmacological interventions. Prolonged pharmaceutical usage may aggravate constipation and cause side effects like fecal impaction, bowel perforation, and increased colorectal cancer risks.⁽²⁾ Of the non-pharmacological interventions, the most predominant ones include increasing fiber intake, physical activity, and fluid intake. In addition to this, reflex therapy, biofeedback, and massage therapy are often used. In this narrative review, the effect of abdominal massage (AM) in alleviating and improving various symptoms of constipation among different populations is outlined. All of this reflects the simplicity, efficacy, and cost-effectiveness of AM in the management of constipation.⁽³⁾

METHODS

To find the relevant articles in English, we carried out a literature search in

Cochrane Library and Medline/PubMed electronic databases up to July 4, 2023, using the keyword “abdominal massage and constipation.” Experimental studies including randomized controlled trials (RCTs), randomized placebo-controlled trials, single-blind clinical trials, pilot studies, prospective RCTs, and comparative studies dealing with AM and constipation (with or without comparing with standard medical care and published in English were eligible.) are necessary. Review papers (literature and systemic), meta-analyses, case reports, case studies and series, and studies in other languages were not eligible. Articles available from the literature search ($n = 246$) were screened, and potentially eligible articles were recognized and incorporated ($n = 33$) in this review. References of the eligible articles were cross-checked to find the other potentially eligible articles.

LITERATURE REVIEW FINDINGS

The findings of the effect of AM on constipation in people with various conditions are provided as follows.

Abdominal Massage and College Students

Emerging adults normally regarded as a physically healthy cohort, are often overlooked in gastrointestinal health-related research. However, recent emerging studies suggest that more than 65% of young adults are experiencing gastrointestinal tract symptoms, of which one-third are seeking medical care. A survey of 957 young adults reported the eight most common gastrointestinal symptoms, of which constipation is also very common.⁽⁴⁾ In an RCT, 54 (male = 16, female = 38) college students were divided into three groups. Group 1 received manual lymph drainage (MLD), group 2 received AM, and group 3 received electrical stimulation (ES). All the groups received intervention for 15 min a day, 4 days a week for 4 weeks. Their results showed a significant improvement in all components of heart rate variability (HRV) in group 1, while a significant improvement was reported in low frequency (LF), high frequency (HF), and ratio of LF to HF (LF/HF) in group 2, and a significant improvement in LF in group 3. In addition, results showed improvement in State-Trait Anxiety Inventory, Stress Response Inventory, and bowel movement duration in all

groups and a significant improvement in bowel movement frequency in groups 1 and 2 but not in group 3. Thus, those who received MLD and AM had better improvement in HRV and functional constipation symptoms than those who received ES.⁽²⁾ This goes on to show that AM can be a useful adjunct in treating gastrointestinal symptoms, including constipation in young adults.

Abdominal Massage and Elderly Individuals

The elderly are more vulnerable to constipation than any other age group. The cumulative incidence of constipation is approximately 20% higher in the elderly population in comparison with their younger counterparts. The reason for this can be multi-fold, including a decrease in peristalsis, weakening of intestinal muscles, lowered fiber intake, and physical activity.⁽⁵⁾ The severity of the condition is more common in females, and the rates of constipation are higher in males.⁽⁶⁾ A clinical trial included 60 elderly women and divided them into two groups. One group underwent AM, 15–20 min per day for 5 days, and the other group underwent acupressure, 3 min per day for 5 days. Both groups were followed for a month. The results were recorded immediately following the intervention and after a month. In the initial measurement following the intervention, there was no significant difference between the two groups. However, in the first month following the individual intervention, there was a significant difference between the two groups. The study stated that AM can be a simple and effective intervention to treat constipation in elderly women.⁽⁷⁾

In another RCT of 35 elderly individuals, the study group underwent AM for 30 min per session, 5 days a week for 8 weeks. Their results showed a significant difference ($p < 0.001$) in post-test scores in the constipation QOL scale and were statistically significant in subscales such as physical disability, psychological discomfort, anxiety, and satisfaction in both groups. Thus, AM is effective in constipation management.⁽⁸⁾ Satisfaction during defecation is also studied in another RCT, which included 49 elderly individuals, with a control group ($n = 24$) and a study group ($n = 25$). The study group received aromatic AM, 15 min per day for 3 weeks. In

the intervention group, during and after aroma massage, a significant increase in mean score related to defecation number, amount, and consistency of feces, and a decrease in the mean score for straining during defecation and feeling of incomplete discharge of feces were observed.⁽⁹⁾ In yet another RCT including 40 elderly individuals, AM was performed along with aromatic oils for 15 min per session, 5 weekdays per week for 4 weeks. Their results showed a significant increase in Bristol Stool Chart (indicating increased softening and reduced hardness of the stool) and a significant reduction in Constipation Severity Scale (i.e., reduced constipation severity and the symptoms associated with constipation) in the intervention group compared to the control group in the second and fourth weeks after the application.⁽¹⁰⁾

AM can be made more effective when it is done with the help of specific oils. In an RCT, 54 elderly individuals were divided into three groups: an AM with olive oil group (n = 18), an AM with water (n = 18), who both underwent AM for 15 min per session a day for 5 days, and a control group (n = 18). Their results showed no significant difference among the three groups before intervention. The mean score of constipation decreased in the olive oil group than the massage with water and the control groups.⁽¹¹⁾ The effectiveness of AM was also tested against the oral administration of oils. In a single-blind clinical trial, 90 constipated elderly individuals were divided into three groups: group 1: oral administration of sweet almond oil (18 mL every other day) (n = 30); group 2: who underwent AM (15 min) and oral administration of sweet almond oil (18 mL every other day) (n = 30) for 2 weeks, and group 3: control group (no intervention) (n = 30). The results of the study showed significant reduction in the Constipation Assessment Scale (CAS; the scale designed to assess the presence and severity of constipation using eight items with a total scoring of 0–16, where 0 indicates no constipation and 16 indicates severe constipation), increase in Bristol Stool Form Scale scores (the scale classifies stool consistency into seven types with type 1 = separate hard lumps, like nuts (hard to pass) and type 7 = watery, no solid pieces, entirely liquid. Among all types, types 1 and 2 are identified as being constipated, 3 and 4 as ideal stools, and 5–7 denoting diarrhea and urgency, and QOL

in the AM with oral consumption group.⁽¹⁾ This shows that AM can be used in addition to other interventions in the management of constipation in the elderly.

AM has also been known to improve the consistency of stools and help reduce accompanying symptoms of constipation in the elderly. In an RCT, 60 elderly individuals with chronic constipation were included, where the study group received AM for 10 min per session, 5 days a week for 4 weeks. Their results showed that the constipation symptoms (stool consistency, abdominal bloating, stool volume, and number of defecations) were significantly lowered between the first and fifth weeks. The constipation QOL scores decreased significantly in the fifth week in the intervention group.⁽⁵⁾ In another RCT, 60 elderly individuals were divided equally into a study group and a control group. The study group received AM lasting 15 min per session, daily for 4 weeks. As a result of applying AM for 4 weeks, both groups had a significant increase in the diagnostic criteria of Rome III. According to the Bristol Stool Scale (BSS), the constipation problems were improved in the treatment group.⁽¹²⁾

Thus, in the elderly population, constipation can be managed effectively, either on its own or in conjunction with other interventions like acupressure and aromatherapy, all of which have been proven to significantly improve the symptoms of constipation.

Abdominal Massage and Gastrointestinal System

AM has an effect on the entire gastrointestinal system rather than a single symptom of the gastrointestinal system, such as constipation. This effect has been proven in various studies. In an RCT, 60 constipated individuals were divided into two groups. One group received AM, and the other group received laxatives as an intervention. Results showed that the AM group had a decrease in the severity of gastrointestinal symptoms, especially constipation syndrome and abdominal pain syndrome, which were assessed with the Gastrointestinal Symptom Rating Scale, and a significant increase in bowel movements compared to the control group. There was no significant difference in the change in the amount of laxative intake after 8 weeks. Thus, AM could be a complement

to laxatives, which can curb the side effects of the laxatives.⁽¹³⁾ The effect of AM as an adjunct to lifestyle advice to manage constipation has also been studied. In an RCT, 32 constipated individuals were divided into two groups. Lifestyle advice was given to both groups. The study group underwent AM for 15 min per session, daily for 6 weeks, in addition to lifestyle advice. Eight of those undertaking the massage were continuing it at the 10-week follow-up appointment. Although improvement was reported in both groups, there was no significant difference. Age, gender, or severity of disability did not impact the amount of improvement in either group. This shows that AM may prove to be a viable option for those with intractable constipation.⁽¹⁴⁾

The comparative effect of AM with other methods of massage on alleviating symptoms of constipation has also been studied. In a comparative study, 29 constipated individuals were divided into two groups of tensegrity massage (n = 15) and classical AM (n = 14). Both groups underwent two sessions of massage per week for 3 weeks. Their results showed that the biggest changes occurred in the first and third weeks of therapy in the number of defecations. Tension during defecation dropped from 60% to 20% in the tensegrity massage group, and from 42.8% to 35.7% in the classical AM group. The tensegrity principle, which balances the tension (the state where muscles, ligaments, or fascias remain in a semi-contracted state for an extended period of time) between muscles, fascias, and ligaments that are structurally linked, may have a greater positive influence on the quality and quantity of bowel movements than classical AM.⁽¹⁵⁾ In an RCT, 60 chronically constipated individuals were divided into three groups. They were the connective tissue manipulation (CTM) group (n = 20), the AM group (n = 20), and the control group (n = 20). The duration of intervention for the CTM and AM groups was 15–20 min per session, 5 sessions a week for 4 weeks. Results show a significant difference in the changes in constipation severity, symptoms of constipation, and QOL among the three groups. Hence, a combination of usual care and CTM or AM may be more beneficial for chronic constipation.⁽¹⁶⁾ In addition to these massage techniques, the effect of device-assisted AM has also been studied. It was a prospective study with 37 chronically constipated individuals who underwent device-assisted

automatic AM for 15 min twice a day, once in the morning before breakfast and once at night, for 14 days. Data were collected both pre- and post-intervention. The automatic massage was provided by a newly invented device named Bamk-001, which massages a patient's abdomen by applying pressure and warmth through its five thermoelectric massage module pairs and five dual air cells, thereby providing intestinal movements in the clockwise direction. Their results show a significantly improved colon transit time (CTT) in patients with chronic constipation. In subgroup analysis, CTT improved significantly from 54.0 (33.6–75.6) to 28.8 (18.0–52.8) h (p = 0.003) and from 88.2 (74.4–124.8) to 45.6 (27.3–74.1) h (p = 0.005) in the slow-transit constipation (a condition mainly affecting women, characterized by an often intractable constipation, a heavily delayed colonic transit even up to true colonic inertia, caused by abnormal colonic motor functions)⁽¹⁷⁾ and very-slow-transit constipation groups, respectively (p = 0.001). The Bamk-001 automatic AM device showed significant care efficacy, including the improvement in CTT and symptom profiles in patients with slow-transit constipation. The use of an automatic AM device as an adjunct in the management of constipation is a potentially beneficial intervention for patients with slow-transit constipation.⁽¹⁸⁾

The effect of AM in conjunction with other conventional methods was also assessed in an RCT, where 156 individuals with functional constipation were divided into three groups: group A: AM group (n = 52), who received intervention in the morning, 15 min per session for 2 weeks; group B: polyethylene glycol (PEG) group (n = 52), who received 20 g PEG (two packs of COLOLAX powder) in the morning for 2 weeks; and group C: PEG AM (n = 52). Patient Assessment of Constipation Quality of Life (PAC-QOL), Bristol, and constipation-associated symptom scores showed a significant improvement in all study groups 2 weeks after the treatment compared to the baseline. At the end of treatment, the rate of straining, incomplete evacuation sensation, finger evacuation, and the number of defecations were significantly lower in group C. The Bristol score was significantly improved in group B compared to the other groups. The total QOL score was also significantly improved in group C. A combination of AM and PEG is safe, tolerable, and more effective than each of

the treatments administered alone.⁽¹⁹⁾ This shows the efficacy of AM when used in conjunction with other treatment modalities.

In a randomized placebo-controlled trial, 74 individuals with functional chronic constipation were included. Interventions given were AM for 10 min per session, three sessions for a week for the study group, a placebo ultrasound 15 min per session, two sessions per week, for 4 weeks, and lifestyle advice for the control group. Constipation severity, bowel function indicators (defecation frequency and duration and stool consistency), and QOL were assessed before and after intervention for both groups. The scores were significant in both groups; however, it was more significant in the AM group than in the placebo group. There were approximately 70% and 28% reductions in constipation severity, 56% and 38% improvement rates in QOL, and 70% and 43% increases in defecation frequency in the intervention and placebo groups, respectively.⁽²⁰⁾ Hence, the abovementioned literature suggests that constipation is a common functional gastrointestinal disorder. Though not taken seriously, it can reduce the QOL of individuals from all walks of life. AM is shown to have an effect on the various features of constipation like straining during defecation, reduced frequency of bowel movements, and even the consistency of stools. Thus, it can be deemed that AM in any form can be used as an adjunct in the management of constipation.

Abdominal Massage and Musculoskeletal System

Constipation in orthopedic patients is a common occurrence, and it often poses as an inconvenience. This is especially true for patients who have undergone major orthopedic surgery and are immobile for a longer duration of time. Studies have accredited AM along with other non-pharmacological interventions as an effective way to deal with constipation in orthopedic patients. In a single-blind clinical trial, 93 male patients undergoing skeletal traction of lower limbs were divided into three groups: sugar-free chewing gum group ($n = 31$), AM group ($n = 31$), and control group ($n = 31$). The intervention given was 25 g of chewing gum containing xylitol, three times a day (for 30 min each time), 1 h after the meal. AM for 15 min per session, twice a day for 1 week was administered. The findings indicated that

the incidence of constipation in the sugar-free chewing gum group as well as the AM group was much less than that of the control group, and this statistical difference was significant. No significant difference was observed between the intervention group and the control group in the severity of constipation. This goes on to show that both chewing sugar-free gum and AM would be effective as a complementary and non-pharmacological method in reducing the incidence of constipation.⁽²¹⁾

A similar RCT was done among elderly patients hospitalized for fractures. Sixty elderly participants were included, and the study group underwent AM for 15 min twice a day for 3 days, while the control group did not undergo any intervention. A statistically significant difference was observed between the two groups in BSS scores and the mean CAS scores. There was a statistically significant difference in CAS scores between the two groups. The study showed the positive effect of AM on stool consistency and the reduction of severity of constipation.⁽²²⁾

A study has also assessed the efficacy of AM in comparison with acupressure in patients who had undergone total knee arthroplasty. This RCT had 91 participants, who were divided into three groups. The first group received acupressure for 15 min (stomach (ST) 25, conception vessel (CV) 12, and triple warmer (TW) 6, 3 min on each point), the second group ($n = 30$) received AM for 15 min per session for 5 days, and the third group did not receive any intervention. The severity of constipation, straining, stool consistency, and first defecation times (earlier) in groups 1 and 2 were significantly better than the control group. Thus, it proves to be a safe, non-invasive treatment that is effective in patients with total knee arthroplasty for the prevention of constipation.⁽²³⁾ A similar RCT clinical trial with 80 participants tried to study the effect of this intervention on patients who had undergone total hip arthroplasty. The 80 patients were divided into two groups. The study group received preoperative education, 20 g PEG 4000 once a day for 3 days starting from the first postoperative day, and AM for 20 min, twice a day starting on the first postoperative day and lasting until discharge, while the control group only received preoperative education. Patients who received combination treatment showed a significantly lower rate of postoperative constipation

during hospitalization than patients who received only preoperative education, and they showed a significantly lower rate of enema rescue and also experienced first defecation within 2 postoperative days. In contrast, the two groups were similar in terms of constipation rate on postoperative days 15 and 30, rate of readmission within 30 days, and rate of postoperative adverse events. This comprehensive protocol was able to relieve constipation after total hip arthroplasty, reduce the need for enema rescue, and shorten the time to first defecation without sacrificing safety.⁽²⁴⁾ These findings are similar to another RCT done on patients (n = 60) who had undergone surgery and were recovering. The study group underwent AM (15-min session, twice a day for 3 days) starting 4 days after surgery, while the control group did not receive this intervention. Results showed that the study group defecated more often following their surgery than the control group, showing a statistically high level of significant difference between the groups. The study group also displayed higher average PAC-QOL and EuroQoL Five Dimensions scores on discharge, reduced symptoms of constipation, decreased time intervals between defecation, and increased QOL.⁽²⁵⁾

Thus, the method of AM proves to be an effective adjunct to/or an alternative to the existing treatment modalities for postoperative constipation. It has been shown to effectively reduce the duration of first defecation, symptoms and discomforts associated with constipation, and improve the QOL of patients post-surgery.

Abdominal Massage and Nervous System

Constipation is a concern for patients suffering from neurological disorders, where they lose partial or complete control over their autonomic nervous system. AM, however, has proved to be effective in the management of constipation in patients with neurological disorders. In an RCT, 68 elderly stroke patients were divided into two groups. The study group (n = 34) received AM for 15 min per session, twice a day for 10 days. During the 10-day study, results showed a significant decrease in abdominal circumference in the intervention group, a significant difference in frequency of defecation between the two groups, and a significantly decreased CAS score in the intervention group than the control group. The food tolerance

frequencies through gavage and also orally were significantly improved in the intervention group. This shows that AM along with lifestyle training could improve constipation and distension and also increase food intake tolerance in elderly patients with stroke.⁽²⁶⁾ These beneficial effects were consistent in opioid-induced constipation as well which is established in an RCT with 204 participants. The participants of the study group underwent AM for 30 min after breakfast and dinner, twice a day for 4 weeks which decreased the severity of constipation, the feeling of incomplete bowel emptying, the severity of straining, the severity of anal pain, and bloating, provided better stool consistency, and increased the number of defecations (13%) as well as QOL scores.⁽²⁷⁾

In people with multiple sclerosis, constipation has been found to negatively impact their QOL. An RCT-feasibility study found that in 30 individuals with multiple sclerosis and constipation, those who received AM daily for 4 weeks along with bowel management advice showed a decrease in Constipation Scoring System from week 0 to week 4, indicating an improvement in constipation symptoms, compared to those who just received bowel management advice.⁽²⁸⁾ Another RCT with 191 participants with multiple sclerosis showed a significant difference between the study group who received AM daily for 6 weeks along with an advice booklet and the control group who received only the booklet. The changes were observed in the frequency of stool evacuation per week and in the number of times per week that participants felt that they emptied their bowels, all in favor of the intervention group. Results showed that 75% of participants reported benefits, for example, less difficulty passing stool, more complete evacuations, less bloated, and improved appetite, and 85% continued with the massage. This study also conducted a cost-utility analysis from the National Health Service and patient cost perspective, which showed that even if the increment in the primary outcome favored the intervention group, it was small and not statistically significant. However, given the small improvement in the primary outcome, but not in terms of quality-adjusted life years (QALYs), a low-cost version of the intervention might be considered worthwhile by some patients.⁽²⁸⁾

AM also proved to be effective in alleviating constipation in Parkinson's patients along with advice which included monitoring and modifying fluid and dietary intake, being more active, and using a correct defecation position for 6 weeks. This RCT pilot study included 32 participants, and the improvements in symptoms were demonstrated more in the study group than in the control group which had all the advice and monitoring except AM. Fifty percent of the participants from the study group chose to continue the massage for up to 10 weeks. This proves that AM can prove to be a great adjunct therapy in the management of constipation for Parkinson's patients.⁽²⁹⁾

AM also proves to be effective in alleviating certain symptoms of neurogenic bowel dysfunction in patients with spinal cord injury. An uncontrolled clinical trial was done on 24 patients with spinal cord injury, among whom 11 had abdominal distension and 10 had fecal incontinence. After undergoing AM, the participants experienced an increase in the mean frequencies of defecation and a reduction in the mean total colonic transit time, thus proving the efficacy of the treatment in some clinical aspects of neurogenic bowel dysfunction in patients with spinal cord injury.⁽³⁰⁾ A similar prospective study was done in 21 patients with spinal cord injury and chronic bowel problems, where a massaging apparatus was used to massage the participants for 20 min per session, daily for 10 weeks. Although it provided some positive changes in the characteristics of defecation (time to result, amount, consistency), none felt better or more confident after using the massage device. In addition, some individuals experienced negative side effects (predominantly pain or discomfort). The overall satisfaction with the device is ambiguous, with half of the group judging the device as insufficient and the other half as at least adequate. This shows that AM is most effective when carried out by professionals rather than by an electromechanical massage device.⁽³¹⁾

Patients in the neurosurgical intensive care unit pose a higher risk for constipation, which can be alleviated with the help of AM. This is shown by a prospective randomized controlled clinical trial including 80 neurosurgical intensive care patients of which 40 received AM for 30 min (morning:15 min, evening: 15 min) daily. The time of return of bowel sounds and the time of the first defecation were earlier in the AM

group, compared to the control group. The study group also had a better Constipation Risk Assessment Scale score than the control group.⁽³²⁾

Thus, AM has an amicable effect on managing symptoms of constipation in patients with various neurological conditions such as stroke, multiple sclerosis, as well as patients recovering post-surgery.

Abdominal Massage and Other Conditions

AM has also been shown to improve gastrointestinal symptoms in palliative care patients when compared to kinesio therapeutic exercises. The pilot study involved 11 palliative care patients, among whom 6 received AM (15 min, 7 days) in conjunction with kinesio therapeutic exercises (15 min, 5 days). The remaining five received only kinesio therapeutic exercises. Results showed that those who received AM experienced a decrease in the intensity of constipation, an increase in the frequency of defecation, a reduction in abdominal circumference, and also an improvement in breathing, easier urination, the release of excessive gas, and a reduction in abdominal pain.⁽³³⁾ As previously mentioned, AM also helps in dealing with opioid-induced constipation.⁽²⁷⁾ Hence, it is worth considering the implementation of this form of therapy in the case of patients in an advanced stage of cancer.

Administration of AM has also proven effective in intensive care patients with an endotracheal tube who were enterally fed when done twice a day for 3 days. The study group that underwent the intervention showed a significant reduction in the gastric residual volume and a significant increase in the defecation times, along with a decreased prevalence of constipation and an added reduction in the abdominal circumference. In all these cases, the changes were significant between the study and control groups. These changes, in turn, justify the use of the treatment modality as an adjunct therapy to improve gastrointestinal functions in intensive care patients.⁽³⁴⁾

The effect of AM is almost as similar to laxatives, which is shown in a non-RCT done on 32 disabled and institutionalized adults, where a study group underwent AM for 20 min a session, five times a week for 7 weeks, and a control group was given laxatives for the same duration of time. The results revealed that the effects of laxatives

and massage therapy within this environment were not demonstrably different.⁽³⁵⁾

Additionally, AM has been shown to improve the health-related QOL to a statistically significant level after 8 weeks. About 40% were estimated to receive positive effects. For “self-massage,” the cost per QALY was €75,000 for the first 16 weeks. For every additional week of AM, the average dropped and eventually approached €83,000. For “professional massage,” the cost per QALY was €60,000 and eventually dropped to €28,000.⁽³⁾

CONCLUSION

Based on available literature, this review suggests that AM is effective in alleviating constipation in various populations, such as adults and elderly individuals, and constipation that is associated with disorders of the gastrointestinal system, musculoskeletal system, nervous system, and palliative care. So the AM can be considered as an adjuvant for the management of constipation. But the duration of AM varied in studies, ranging from 10 to 20 min per day for 5 days to 8 weeks. So the crucial aspect for application is to rationally tailor the AM session to the situation and needs of individuals.

CONFLICT OF INTEREST NOTIFICATION

The authors declare there are no conflicts of interest.

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