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Effect of Acupressure in The Management of Postmenopausal Constipation

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ABSTRACT

Background: Constipation is a common condition among postmenopausal women, significantly impacting their psychological well-being, physical health, and social functioning. Acupressure has been shown to alleviate some symptoms of constipation by promoting intestinal peristalsis and enhancing bowel motility.

Objectives: This study aimed to investigate the effect of acupressure in the management of constipation in postmenopausal women.

Subjects and Methods: Sixty participants with functional constipation diagnosis, ages 50-60 years and BMI 25-30 kg/m², were selected from the Obstetrics and Gynecology outpatient clinic at El-Salam Hospital, Cairo, Egypt. Random assignment created two equal groups: study group (A) (n=30) underwent acupressure on the san jio 6/ stomach 25/ spleen 15/ joining vally " large intestine 4 ") acupoints, 1 minute for each point with 3 repetitions on both sides about 30 minutes/ session, 3 weekly sessions, alongside diaphragmatic breathing exercises for 15 minutes and general bowel care advices, for 6 weeks, control group (B) (n=30) performed diaphragmatic breathing exercises for 15 minutes, 3 session / week in addition to general bowel care advices only as in group (A) for 6 weeks. Evaluation of constipation symptoms and quality of life (QOL) in both groups (A&B) were performed pre-study and post-study utilizing (PAC – SYM) and (PAC–QOL) questionnaires respectively.

Results: The findings demonstrated a statistically significant reduction in the mean constipation symptom severity scores in both groups (A and B) following the intervention, with Group A showing significantly greater improvement (**P = 0.001**). Additionally, analysis revealed a statistically significant improvement in median quality of life scores post-intervention compared to baseline in both groups (**P = 0.001**), with Group A again exhibiting superior outcomes.

Conclusion: Acupressure application is beneficial in alleviating severity of constipation symptoms, and improving QOL for postmenopausal women, suffering from functional constipation.

Keywords: Constipation, Postmenopausal period, Acupressure.

INTRODUCTION

Menopause marks the complete cessation of ovarian function. It can occur spontaneously (natural menopause) or be induced (iatrogenic menopause). When menopause occurs before the age of 45, it is termed "early," and if it occurs before age 40, it is classified as "premature" [(1)].

Constipation is a common global health issue, with increasing prevalence among older individuals, particularly those over the age of 65. Women are two to three times more likely than men of similar age to experience constipation[(2)].

Functional Intestinal Constipation (FIC) constitutes a multifaceted disorder described as an intestinal constipation with no detectable structural abnormalities. Also, it is known as chronic idiopathic constipation [(3)].

Functional constipation is common in postmenopausal women. It may be the result of decline in hormonal levels such as estrogen and progesterone. Reduced estrogen can impair digestive function, prolonging the time necessary for food processing. Such alteration can result in difficult bowel movements, with stools becoming more dehydrated during low estrogen and progesterone states [(4)].

Joint and back pain experienced by postmenopausal women as well, can cause women to limit or reduce physical activity, and with this lack of mobility gastrointestinal disturbances may occur [(5)].

Management of constipation includes both pharmacological and non-pharmacological interventions. Pharmacological intervention includes laxatives which serve as primary therapeutic choices for addressing constipation symptoms and are available in various forms including liquids, tablets, or powders; however, its prolonged administration correlates with various clinical complications [(6)].

Non pharmacological interventions such as lifestyle modification, includes low calorie diet which is rich in fibers and fluid intake, defecation training, biofeedback, breathing exercises, abdominal massage and physical activity [(7)].

Diaphragmatic breathing offers specific benefits for functional constipation as it promotes parasympathetic nervous system stimulation, creating gentle massage-like effects experienced by internal organs including the stomach and intestines. This can minimize abdominal discomfort, urgency, distension, and constipation [(8)].

Acupressure can help in relieving some symptoms of constipation through promotion of peristalsis which helps moving stool via the digestive system. The technique additionally stimulates the vagus nerve, which has a crucial role in optimal digestive functioning. Also, acupressure increases endorphins which relaxes muscles and reduces stress, which is helpful if the constipation symptoms are due to stress [(9)].

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Constipation is common in menopause with prevalence ranging from 4% to 29% in various countries of the world [10]. Postmenopausal constipation needs to be treated as it can cause serious problems such as hemorrhoids, anal fissures, pelvic organ prolapse as rectocele, severe pain during defecation or colorectal cancer [11].

Deep breathing techniques, particularly diaphragmatic breathing, have been shown to increase relaxation by activating the parasympathetic nervous system, often known as the body's relaxation response or the "rest and digest" state. As a result, it is utilized to alleviate constipation and provide relaxation [12].

Previous studies have indicated that acupressure activation of the large intestine, rectum, spleen, lung, sympathetic, and subcortex is effective in the treatment of constipation by modulating digestive function, circulation, and Qi flow, which most likely leads to increased intestinal peristalsis, the distribution of body fluids to the intestine, and, as a result, the desire to defecate [9]. Acupressure's impact on constipation was examined in several research [9, 13]. However, up to this point, no prior research has examined its specific impact on postmenopausal women.

This study aimed to investigate the effect of acupressure in the management of constipation in postmenopausal women.

SUBJECTS AND METHODS

This study included a total of sixty postmenopausal women (at least one year after the stoppage of the last menstrual cycle) diagnosed with functional constipation, recruited from the Obstetrics and Gynecology Outpatient Clinic at El-Salam Hospital, Cairo, Egypt. This study was conducted between December 2024 to March 2025.

Inclusion criteria: included postmenopausal women aged 50-60 years and body mass index (BMI) values of 25-30 kg/m². They were clinically diagnosed with functional constipation. Each individual fulfilled a minimum of two Rome III diagnostic criteria for constipation.

Exclusion criteria: Women had irritable bowel syndrome or anal fissures, genital organ prolapse as rectocele and digestive tract disorders.

Participants were randomly assigned into two equal groups (n=30 each).

Group (A) (study group); received acupressure on (SJ6)/ (ST25)/ (SP15) and (LI4) acupoints in addition to diaphragmatic breathing exercises and general bowel care advice for 6 weeks, and **Group (B) (control group);** received diaphragmatic breathing exercises and general bowel care advice.

METHODS

A. Evaluative instrumentations:

1- ***Recording date sheet:*** was utilized to log each participant's personal, medical, and menstrual information in both groups A and B**.**

2- ***Standard weight –height scale:*** was utilized to record weight and height values for each subject in both groups (A&B) to establish their BMI measurements before study onset.

3- ***Weight and height measurements:*** Prior to initiating the study, weight and height were measured for all participants in groups A and B after calibration of the weight _height scale. Then BMI was calculated by applying the equation: weight (kg) divided by height (m^2) [14].

4- **Rome III diagnostic criteria of constipation:** It was utilized to check that all participants in both groups (A and B) had constipation and satisfied the qualifying criteria [15].

5- ***Patient assessment of Constipation (PAC–SYM):*** It was created to measure the frequency and severity of constipation symptoms for all participants in both groups (A&B) before and after the study's completion: It consists of 12 items self report measure that is divided into 3 symptoms subscales. Items assessed through a four-level grading system with 4 categories, where higher ratings demonstrate worse symptom presentation. It is a 12– items that is categorized into three symptom areas: abdominal (four questions); rectal (three questions); and stool (five questions). Questions utilize 5-point Likert-type scales with ratings from 0 to 4 (0 = 'no symptom', 1 = 'slight', 2 = 'moderate', 3 = 'intense', and 4 = 'extremely intense'). An overall mean score within 0-4 range is determined by dividing total points by completed responses; reduced overall scores indicate less symptom burden. Each participant in two groups (A and B) was asked to describe her symptoms before and after treatment. Observational data revealed that the PAC- SYM questionnaire had internal consistency, test-retest reliability, and concurrent validity [16].

6- ***Patient assessment of constipation quality of life (PAC – QOL):*** which was used to evaluate life quality for all subjects in both groups (A&B) before and following study completion. The validated PAC – QOL composes of 28 items, which are categorized into 4 questions concerning physical discomfort, 8 questions related to psychosocial distress, 5 questions regarding treatment satisfaction, and 11 questions about discomfort and worries. Response options utilize a Likert scale ranging from 0 to 4. Higher ratings signify increased negative impacts on QOL. Questions 25, 26, 27, and 28 need reversed scoring since they are positively worded. Each participant in both groups (A&B) was requested to report her experienced symptoms before and after treatment. Validation studies have confirmed that

PAC–QOL is internally consistent, reproducible, valid, and responsive to improvements over time [17].

All participants should exhibit at least two of the criteria outlined below:

- Less than 3 spontaneous bowel evacuations weekly.
- Experiencing straining in no less than a quarter of bowel movements.
- Hard or lumpy stools are present in a minimum of one out of every four bowel movements.
- Experiencing a sense of obstruction in the anorectal region in no less than a quarter of bowel movements.
- A sense of not fully emptying the bowels occurs in at least one out of every four attempts to defecate.
- Manual assistance needed for defecation during a minimum of 25% of episodes (e.g. digital removal, pelvic floor support).
- Soft stools occur infrequently without laxative use.

B. Treatment instrumentations:

Diaphragmatic breathing exercise: All participants in both groups (A&B) performed diaphragmatic breathing exercises for 15 minutes, 3 times weekly for 6 weeks [18].

Breathing technique: A modified exercise was used to achieve normal diaphragmatic breathing while participants maintained a supine position. Hand positioning required placing one hand on the belly and the other on the chest area. After that she was asked to breathe deeply, slowly and gradually for 4 sec, hold the air for 2 sec, then exhale slowly through pursed lips for 6 sec. Three sets of ten repetitions were performed with rest intervals between sets. The participant ensured that the exercise was performed successfully, If the hand put on the abdomen had more mobility than the hand placed on the thorax, three repeats were performed [19].

General bowel care advice:

Each participant in both groups (A&B) received general bowel care advice as follows [20]***:*** Each participant was asked to encourage adequate fiber intake (20 to 35 grams each day). Limit excess meat and dairy products. Avoid caffeine. Drink at least 1.5-2.0 L of water. Get more exercise, like walking, every day for 20–30 minutes in the morning.

Sit properly on the toilet:

Optimal positioning can enhance rectal angle alignment, facilitate efficient muscle function, and avoid unnecessary straining. Each participant received instruction on appropriate toileting posture including seated position with knees above hip height (utilizing a footstool or similar stable block when needed), leaning forward and placing elbows on knees, relaxing while expanding the belly and keeping the spine straight. Additionally, sitting with feet separated and supported on a stool or blocks [21].

Acupressure:

It was specifically applied to group A. Prior to the initial treatment session, participants received a concise explanation of the procedure to get their confidence and cooperation. Each participant in this group was asked to lie in supine position and the acupressure was applied by using the therapist's fingers on the following acupoints (SJ6)/ (SP15)/ (ST25)/ and (LI4) 1 minute for each point with 3 repetitions on both sides (about 30 minutes as total time), 3 times per week for 6 weeks [22].

Application of acupressure:

Moderate pressure was gradually applied on four acupoints with the thumb placed perpendicular to the skin, exerting pressure for 1 minute followed by a 5-second release, repeated 3 times (daily) per each acupressure point each session,3 times per week, total duration session was 30 minutes on these points.

San jio 6 (SJ6): The location is on the outer side of the arm, approximately three finger-widths from the wrist crease. It has a stimulating effect on the lower jiao, including the bladder, kidneys, and both the large and small intestines [22].

Stomach 25 (ST25): The location is two finger–widths away from the navel on the right side. It is used to balance the digestive system. It can help both constipation and diarrhea [9].

Spleen 15 (SP15): It is located 4cun lateral to the center of the umbilicus lateral to rectus abdominus muscle. It stimulates peristalsis and enhance the effects of ST25. Spleen 15 regulate the Qi of the Intestines – constipation, diarrhea, abdominal pain and distention [22].

Large intestine 4 (LI4): The location is in the webbed area between the thumb and forefinger on the dorsal side of the hand. It helps in treatment of constipation due to emotional stress [22].

Diaphragmatic Breathing Exercise for participant in both groups (A&B): It was applied for all participants in both groups (A&B) for 15 minutes, 3 times / week for 6 weeks.

Methods of treatment:

- Throughout the course of 4 months, each participant in group (A) received acupressure in (SJ6/Sp15/ST25/LI4) acupoints, 1 minute for each point with 3 repetitions on both sides about 30 minutes/ session, 3 times weekly along with diaphragmatic breathing exercises for 15 minutes and general bowel care advices, for 6 weeks, control group (B) performed diaphragmatic breathing exercises for 15 minutes, 3 session / week in addition to general bowel care advices only as in group (A) for 6 weeks.
- All participants received a short explanation of the treatment's purpose before the first session began in an effort to gain their confidence and cooperation.

- Each participant in this group had their chosen acupoint's skin surface cleansed with an alcohol.

Sample size estimation:

Sample size computation was performed utilizing the PAC-SYM questionnaire, derived from pilot study data, with 80% power at α = 0.05 significance threshold, 2 measurement occasions, for 2 groups and effect size = 0.4, utilizing F–test MANOVA within and between interaction effects. The sample size calculation, performed with G*Power (v3.0.10), indicated a minimum of 52 subjects. To accommodate a 15% dropout rate, 8 more participants were added, resulting in a total of 60, divided equally between the two groups.

***Ethical Consideration*:**

This study was ethically approved by the Faculty of Physical Therapy, Cairo University Research Ethics Committee (No: P.T.REC/ 012/004870). Written informed consent of all the participants was obtained. The study protocol conformed to the Helsinki Declaration, the ethical norm of the World Medical Association for human testing.

Statistical analysis

The statistical analysis was carried out using the SPSS software, version 20.0 for Windows. Statistical information was presented as mean ± standard deviation. Unpaired t-test was applied to compare subject characteristics across both groups.

Shapiro-Wilk test was utilized for evaluating data distribution normality. MANOVA was implemented to examine intra-group and inter-group effects for PAC – SYM questionnaire scores. Wilcoxon and Mann–Whitney tests were utilized to analyze intra-group and inter-group effects PAC–QOL questionnaire scores. $P \leq 0.05$ was regarded as statistically significant.

RESULTS

Table (1): represents the descriptive statistics for the patients' demographic data for both groups (A&B). There were statistically insignificant differences between the mean values of age, weight, height and BMI of both groups (P>0.05).

Table (1): Mean values of physical characteristics of both groups (A&B)

Demographic data	Group A	Group B	t–value	p–value
Age (years)	55.3±3	55.7±3.1	–0.46	0.646
Wight (kg)	77±7.6	76.7±7.3	0.12	0.904
Height (cm)	164±7.1	162.8±6.5	0.72	0.474
BMI (kg/m^2)	28.5±1.4	28.9±1.2	–1	0.300

Table 2 shows the impact of acupressure on severity of constipation symptoms: (PAC–SYM) within group comparison and between groups comparison.

Within group comparison

Group A: A statistically significant decline in mean constipation symptom severity measurements was recorded post-therapy compared to pre-therapy values (p = 0.001), indicating a 46% improvement percentage, with a mean difference of 1.3 between before and after treatment. **Group B:** A statistically significant decline in mean constipation symptom severity measurements was recorded post-therapy compared to pre-therapy values (p = 0.001), indicating a 7% improvement percentage, with a mean difference of 0.2 between before and after treatment.

Between groups comparison

No statistically significant difference was observed in mean constipation symptom severity scores between groups (A) and (B) at baseline (P = 0.097). Nevertheless, a statistically significant reduction in mean constipation symptom severity scores was documented post-intervention between groups (A) and (B) (p = 0.017), with group A demonstrating superior outcomes.

Table (1): Mean values of severity of constipation symptoms pre and post treatment for both groups (A&B)

PAC–SYM	Pre-treatment Mean ±SD	Post treatment Mean ±SD	Mean difference	% of change	P–value	Sig
Group A	2.8 ± 0.4	1.5 ± 0.4	1.3	46%	0.001	S
Group B	3 ± 0.4	2.8 ± 0.4	0.2	7%	0.001	S
Mean difference	0.2	-1.3				
P–value	0.097	0.017				
Sig	NS	S				

S: significant, NS: non-significant.

Table 3 shows the impact of PAC–QOL:
Within group comparison

Group A: A statistically significant decline in median patient QOL measurements was recorded post-therapy compared to pre-therapy values (P = 0.001), indicating a 26% improvement percentage, with a mean difference of 0.7 between before and after treatment**.**

Group B: A statistically significant decline in median patient QOL measurements was recorded post-therapy compared to pre-therapy values (p = 0.020), indicating a 4% improvement percentage, with a mean difference of 0.1 between before and after treatment**.**

Between groups comparison

No statistically significant difference was found in median patient QOL values between groups (A) and (B) at baseline (P value = 0.673). However, a statistically significant difference in median patient QOL values was observed post-intervention between groups (A) and (B) (p = 0.001), with group A demonstrating superior outcomes.

Table (2): Median values for patient's QOL pre and post treatment for both groups (A&B)

PAC–QOL	**Pretreatment** Median (IR)	**Post treatment** Median (IR)	**Mean difference**	**% of change**	**P–value**	**Sig**
Group A	2.3 (0.5)	1.6 (0.3)	0.7	26%	0.001	S
Group B	2.4 (0.7)	2.3 (0.7)	0.1	4%	0.020	S
Mean difference	0.1	0.7–				
P–value	0.673	0.001				
Sig	NS	S				

(IR): interquartile range, S: significant, NS: non-significant

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DISCUSSION

Constipation is the second–most prevalent gastrointestinal symptom affecting women during postmenopausal period. During this period, females demonstrate a greater tendency toward constipation than older male subjects. It negatively affects their QOL and disrupts their psychological state and social relationships **(23).**

Acupressure therapy can diminish sympathetic arousal, enhance relaxation, and alleviate perceived symptoms of dyspnea, anxiety and reduce physiological indicators of heart rates and respiratory rates in patients with chronic obstructive pulmonary disease **(24).**

Acupressure interventions activate sacral neural pathways responsible for bowel function regulation through enhancement of interstitial cell populations and modulation of rhythmic muscular contractions that facilitate intestinal motility. Consequently, this technique aids in lessening constipation and the adverse consequences brought about by this issue **(25)**. Additionally, it improves visceral organ function by triggering somatovisceral reflexes and adjusting various biomechanical responses **(26)**.

The current study aimed to investigate the effect of acupressure in the management of constipation in postmenopausal women.

The findings of this study demonstrated statistically significant reductions in mean constipation symptom scores following treatment in both groups, with Group A showing superior outcomes (P = 0.001).

Significant improvements in quality of life (QOL) scores were also observed in both groups, with Group A demonstrating superior outcomes (P = 0.001).

The improvement in both groups (A&B) was due to the effect of diaphragmatic breathing exercises which stimulate parasympathetic activity and increase blood flow to the muscles and therefore increase colonic motility, defecations frequency and result in sphincter relaxation **(27).**

Also, the improvement in both groups (A&B) was due to general bowel care advice. General bowel care advice together with lifestyle modification which include following diet rich in adequate fibers (such as fruits, vegetables, and soup), and excess water and fluids intake can help to relieve symptoms and avoid constipation recurrence. Soluble fiber, which softens the stools, and insoluble fiber, which adds weight to the stools, both encourage regular bowel motions **(28)**.

The improvement in the results of group (A) concerning PAC– SYM and PAC –QOL questionnaires could be attributed to the influence of acupressure on constipation, as it offers more than just relief from constipation but it was considered as a step to wards holistic well–being, relaxation, and balanced energy flow. It was proven to be effective in relieving constipation as it increases the frequency of spontaneous defecation via the increase of vagal activity and concurrent reduction in sympathetic activity **(29).**

In addition, it influenced the parasympathetic nervous system resulting in improved intestinal peristalsis and hence reduce constipation symptoms **(30)**

The findings of this study concurred with those of **Wang *et al.*** **(13)** who examined the impact of acupressure on constipation in patient with advanced cancer. The study group maintained standard dietary and fluid protocols alongside regular stool softener usage throughout the study period, while also receiving

daily 8-minute acupressure sessions for three consecutive days. Three therapeutic points were targeted: Zhongwan (CV12), Guanyuan (CV4), and Tianshu (ST25), while control subjects received standard care only. This study's findings suggest that short-term acupressure effectively reduced constipation symptoms and improved bowel movement frequency among advanced cancer patients in the study group [13].

The results of this study were also confirmed by that of **Nieh *et al.*** [31] who studied the impact of acupressure on alleviating constipation symptoms among patients with stroke. The study group received acupressure on Hegu (LI4), Zusanli (ST36), and Tianshu (ST25) acupoints alongside abdominal massage, while the control group underwent sham acupressure for 6 weeks of treatment. The study results revealed that the study group experienced reduced constipation incidence compared to the control group. Also, significant enhancements were noted in defecation frequency and constipation symptom severity.

Additionally, the findings of this study concurred with those of **Abbassi *et al.*** [9] who investigated at how acupressure affected the symptoms of constipation in hemodialysis patients. The study group received acupressure on (large intestine (Li4) /spleen 15 (Sp15) / stomach 36 (St36) / liver 3 (Liv3) acupoints three times weekly for four weeks while the control group received acupressure on sham acupoints. Constipation frequency was assessed using a demographic questionnaire. The results showed that acupressure can effectively improve constipation symptoms in patients as decreased pain, improved bowel movement and decrease straining.

The current study's findings were supported by **Silva and Motta** [18], who used breathing exercises, isometric training and abdominal massage for 6 weeks of treatment to treat chronic functional constipation in pediatrics. They found a significant improvement in the results of the study group concerning bowel movement frequency rather than the control group.

Additionally, these study outcomes aligned with **Banares** [32] who reported that following diet rich in insoluble fiber for 4 weeks effectively improved stool consistency and treated functional constipation.

STRENGTHS AND LIMITATIONS

From the author's perspective, this study constitutes the initial investigation conducted to determine acupressure's effectiveness as a non-invasive and safe method for alleviating constipation symptoms and enhancing QOL in affected postmenopausal women. The randomized methodology and statistically calculated sample size constitute additional strengths of this research. Thus, further investigations are needed to assess how acupressure affects postmenopausal constipation on the long-term with patients' follow–up.

CONCLUSION

It could be concluded that acupressure application is successful in minimizing constipation symptoms and enhancing QOL among postmenopausal women suffering from functional constipation.

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