

“EFFECTIVENESS OF PELVIC FLOOR EXERCISE ON POSTNATAL CONSTIPATION AND BOWEL HEALTH IN POSTNATAL WOMEN.”

Ms. Harshada Satish Nalawade¹, Dr. G.Varadharajulu²

¹Krishna college of Physiotherapy,

²Krishna Vishwa Vidyapeeth, Karad.

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ABSTRACT

Background: There are a number of physiologic and musculoskeletal factors that have been identified as causing bowel dysfunction in the postnatal period. Constipation is one of the common complaints experienced by postnatal women. There are a number of factors that contribute to bowel dysfunction in the postpartum period following delivery. Some of the factors include hormonal changes, lack of physical activity, perineal trauma, fear of experiencing pain during defecation, inadequate fluid intake, pain resulting from labor and certain types of drugs used during and after the process of labor. Pregnancy and childbirth cause a lot of stress on the pelvic floor muscles. Pelvic floor muscles are involved in maintaining the continence of the bowel as well as defecation process. These muscles offer support to the pelvic organs and are very important in maintaining continence of urine and bowels. The factors that may cause weakness in pelvic floor muscles include vaginal birth, long labor and increased intra-abdominal pressure during pregnancy. Weakness of pelvic floor muscles causes bowel dysfunction and other pelvic floor problems.

The pelvic floor exercises are a simple, safe, and economical intervention which can improve the strength of pelvic floor muscles and improve the bowel functions. The pelvic floor exercises are usually recommended in order to increase the strength and function of the pelvic floor muscles. Strengthening of the pelvic floor muscles could improve the coordination in defecation process, improve the bowel function and decrease the symptoms of constipation. Moreover, there are some additional benefits of the pelvic floor exercises such as improvement of the pelvic stability, prevention of the pelvic organ prolapse and improvement of overall pelvic floor and bowel function.

Even though the pelvic floor exercises are an important part of the postpartum recovery process, postnatal women have a lack of knowledge regarding these exercises and do not practice them frequently. Thus, lack of information and adequate instruction could prevent women from taking the benefits of these exercises.

Objective: Objectives of this study were to assess the prevalence and severity of constipation among postnatal women and to implement a structured pelvic floor exercise program aimed at improving bowel health, pelvic floor strength by promoting awareness of role of physiotherapy in managing postnatal constipation and supporting overall pelvic floor health.

Materials and Methods: The study was based on an experimental-one-group pre- and post-assessment among 40 postnatal women within postnatal period of 12 months living in villages of Karad who were experienced constipation and bowel health after delivery. Participants were selected using convenient sampling method. Inclusion criteria were such that the postnatal women were: Within the age group 21 to 40 years; postnatal period of 6 to 12 months clinically diagnosed with constipation and bowel issues after delivery and informed consent were given. The exclusion criteria in postnatal women were: women with pre-existing gastrointestinal disorders, neurological disorders affecting bowel health and recent major pelvic floor surgeries. For assessment Constipation Severity Scale (CSS), Bristol Stool

Form Scale (BSFS), and Oxford Scale were used for before and after the pelvic floor exercise intervention. All participants underwent a structured pelvic floor exercise program for the prescribed study duration. Data were analyzed using descriptive statistics of pre and post scale analysis and paired t-test with a significance level of $p < 0.001$

Results: A total of 40 postnatal women completed the 9-week pelvic floor exercise program. Analysis of the Constipation Severity Scale (CSS) demonstrated a statistically significant reduction in constipation symptoms following the intervention. The mean CSS score decreased from 3.83 ± 1.62 before intervention to 1.55 ± 0.78 after intervention ($t = 11.60$, $p < 0.001$), indicating a marked improvement in bowel function and reduction in constipation severity.

The Bristol Stool Form Scale (BSFS) showed a slight improvement from 3.00 ± 1.89 to 3.15 ± 0.83 following the intervention. However, the change was not statistically significant ($t = 0.41$, $p = 0.681$). This suggests that while stool consistency demonstrated some positive change, the improvement was not sufficient to reach statistical significance.

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The Modified Oxford Scale used to assess pelvic floor muscle strength demonstrated a highly significant improvement. The mean score increased from 2.03 ± 0.73 pre-intervention to 3.70 ± 0.69 post-intervention ($t = 14.51$, $p < 0.001$). These findings indicate that pelvic floor muscle training effectively enhanced muscle strength and functional performance of the pelvic floor muscles among postnatal women.

Conclusion: The findings of the present study indicate that pelvic floor exercises are an effective intervention for improving postnatal constipation and pelvic floor muscle strength among postnatal women. Significant improvements were observed in constipation severity and pelvic floor muscle function following the 9-week exercise program. Although improvements in stool consistency were observed, they were not statistically significant.

Pelvic floor exercises are safe, cost-effective, non-invasive, and easy to perform, making them a valuable component of postpartum rehabilitation. The incorporation of pelvic floor muscle training into routine postnatal care may contribute to better bowel health, improved quality of life, and enhanced pelvic floor function among postnatal women.

Keywords: Postnatal Women, Pelvic Floor Exercise, Constipation, Bowel Health, Constipation Scoring System Scale, Bristol Stool Form Scale, Pelvic Floor Muscle Assessment Scale(Modified Oxford Scale),

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INTRODUCTION

Postnatal period is characterized by several physiological and hormonal changes which influence a woman's bowel function and health. Among common health issues encountered by women at this time of their lives, constipation and bowel disorders have been frequently noted. Constipation is one of the most common complaints of postnatal women owing to such factors as pelvic floor muscle weakness, defecation pain, decreased activity, hormonal changes, and fear of straining after giving birth. Chronic constipation is considered to be a source of discomfort, abdominal pain, and low well-being. Such physiological issues can result in poor bowel health of postnatal women.

Postpartum constipation is known as having few bowel movements, trouble in passing of feces, straining while passing of stools, and feeling of not complete evacuation of feces. The incidence of constipation in postpartum mothers differs greatly and is likely to be affected by a number of factors, which include hormonal changes, lack of physical exercise, inadequate diet, dehydration, use of painkillers, perineal injury, episiotomy, cesarean delivery, and fear of pain in defecating. Conventional methods of managing postnatal constipation include dietary changes, fluid consumption, exercises, training of bowel habits, stool softeners, and laxatives. Even though the above methods are helpful in giving immediate relief, they do not tackle any pelvic floor dysfunction issues directly. In addition, continued use of medication may not always be preferred for a postpartum woman. Pelvic floor exercises present an affordable and viable option which is easy to implement in a postnatal rehabilitation program.

The pelvic floor is made up of a group of muscles and ligaments that provide support for the organs within the pelvis, including the bladder, uterus, and rectum. The muscles are important because they help in retaining the ability of continence, proper functioning of pelvic organs, and defecation of feces normally. During pregnancy and child delivery, there is much stretching and strain on the muscles, causing them to be weak and poorly coordinated, leading to difficulties with defecation.

Pelvic floor muscles have a significant effect on pelvic organs support and bowel function. Dysfunction of pelvic floor muscles after pregnancy and child birth could lead to some complications in bowels such as constipation and loss of control over bowels. Pelvic floor exercises are suggested for pelvic floor muscles improvement. Performing pelvic floor exercises on a regular basis can positively affect bowel emptying, bowel habits, and bowel health in general. Nevertheless, the importance of these exercises is not properly known in many communities.

Pelvic floor muscle exercise are popularly referred to as Kegel exercises, are considered safe, non-invasive, and inexpensive techniques to improve the strength and functioning of the pelvic floor muscles. The pelvic floor exercise are comprise a series of voluntary contractions and relaxation of the pelvic floor muscles to increase muscle endurance and strength and neuromuscular control. In the past, the use of pelvic floor exercises has been suggested for the prevention and treatment of urinary incontinence and prolapse of the pelvic organs. However, increasing research findings suggest that these exercises have an additional benefit on bowel

functioning.

Apart from improving the strength of pelvic floor muscles, pelvic floor exercises could help with increased blood flow in the pelvic area, improved neuromuscular control, reduced pelvic floor disorders, and proper anorectal function. This is because better strength and muscle coordination could ensure there is no straining when passing stool, making evacuation of the rectum easier. As such, pelvic floor exercises have proven to be a good conservative management technique in the treatment of constipation.

Normal bowel function is an integral part of general good health status both physically and psychologically. Poor bowel function can lead to pain, discomfort, abdominal pain, bloating, low quality of life, and health care utilization. Interventions that facilitate normal bowel function in the postnatal period have a great clinical relevance. That is why the aim of the study is to prove the efficiency of pelvic floor exercises for postnatal constipation and bowel health.

In spite of the known benefits of pelvic floor training, there is still a lack of knowledge about these exercises and their use among the postnatal patients. There is also no appropriate advice for these women to exercise their pelvic floor, resulting in their poor state. It seems quite reasonable to assess the efficiency of pelvic floor exercises for the treatment of postnatal constipation problems.

Therefore, evaluating the effectiveness of pelvic floor exercises in improving postnatal constipation and bowel health is important to establish evidence-based rehabilitation strategies and promote maternal health outcomes.

A positive change in pelvic muscle function can affect the functioning of the bowels in a good way as it will provide a stronger mechanical support of the pelvic organs and good anorectal function. Well-coordinated pelvic muscles will help in good bowel movement and help alleviate the symptoms of constipation. Exercising regularly can improve blood flow, awareness of the muscles, and overall health of the pelvis region. Effective defecation is a process that is dependent on the cooperation between the relaxation and contraction of pelvic floor muscles together with the creation of sufficient intra-abdominal pressure. The weakness and/or poor performance of pelvic floor muscles can be barriers for proper bowel evacuation and cause constipation symptoms. The role of the pelvic floor muscles dysfunction in chronic constipation, obstruction during defecation, and bowel health impairment has been recognized. Thus, treatment techniques that could increase their strength and effectiveness could be considered in the treatment of postpartum constipation.

For these reasons, the current research has been conducted to examine the effectiveness of pelvic floor exercises for postpartum constipation and bowel health in postpartum women. The results obtained from the current research can contribute to the existing literature on postpartum physiotherapy approaches. This study will assist health professionals in formulating an efficient rehabilitation program for postnatal women.

Participants

The study was conducted with permission of 40 postnatal women who fulfilled the inclusion and exclusion criteria. Participants were selected using a convenient sampling method. Postnatal Women living in villages of karad city who aged between 21 and 40 years within postnatal period of 6 to 12 months who were experiencing symptoms of constipation during the postnatal period and were willing to participate were included in the study.

Women with neurological disorders affecting bowel health, previous pelvic floor surgery, severe medical complications, or any condition preventing participation in the exercise program were excluded from the study. postnatal women were also required to have signed the consent forms authorizing their participation.

Procedure

Participants meeting the inclusion criteria were informed about the study and provided written consent. Baseline assessment was performed using CSS, BSFS, and Oxford Grading Scale. The study procedure, benefits, and possible risks were explained to the participants, and written informed consent was obtained. Baseline assessment was performed before starting the intervention using CSS, BSFS, and Oxford

Grading Scale

All participants underwent a 9 week structured pelvic floor exercise program for the prescribed intervention period. The exercise protocol included repeated pelvic floor muscle contractions with progressive progression in repetitions and hold duration.

Post-intervention assessment was conducted using the same outcome measures and findings were compared with baseline values.

All participants received a supervised 9-week pelvic floor exercise program, 5-6 sessions per week. The exercise protocol included deep breathing exercises, pelvic floor activation, pelvic floor contraction, cat camel exercise, progression of kegel exercise, pelvic bridging, reverse pelvic floor contractions, malasana yoga poses. After completion of 9 weeks, post-intervention assessment was recorded using the same outcome measures, and pre-scale and post-scale values were compared to evaluate the effectiveness of the intervention.

INTERVENTIONAL PROTOCOL :

Week	Frequency	Session Type	Duration	Exercises / Focus
Weeks 1–2	3 sessions per week (supervised+ home practice)	Education on pelvic floor anatomy and bowel physiology	30–40 min	- Diaphragmatic breathing Posture correction for defecation-squat position, footstool use Gentle pelvic floor activation
Weeks 3–4	3-4 sessions per week+ daily home exercises supervised	Pelvic floor training core strengthening	40-45 min	- pelvic floor contraction-slow contraction with hold and relax of 5 sec 3 sets/day Cat camel exercise
Weeks 5–6	5-6sessions per week (supervised+ home-based)	Progressive pelvic floor training strengthening and functional training	45-50 min	Progression of kegel exercise: hold contractions 5–10 sec, rest 6–8 sec, 5 sets/day pelvic bridging, pelvic tilts-10 repetitions, 3 sets/Day cat and camel positioning-hold 5 sec each, 3 sets/day
Week 9-12	3sessions per week +home exercise	Maintaining pelvic floor strength and bowel strength	30 min	pelvic floor contractions, reverse pelvic floor contractions Malasana yoga pose practice at early morning

Ethical approval and participation consent

The ethical approval for undertaking the suggested studies has been obtained from the Institutional Committee of Ethics of Krishna Vishwa Vidyapeeth (Deemed to be University), Karad, Maharashtra, India, vide their letter no.

KVV/ IEC/02/2026 dated January 21, 2026.

Every participant provided their informed permission in writing after being given the assurances of confidentiality and the freedom to discontinue participation at any moment.

Outcome measures

Outcome Measure	Type of Outcome	Validity and Reliability	Reason for Selection
Constipation scoring system (CSS)	Secondary outcome - Symptom severity of constipation	Excellent inter-rater reliability ($r = 0.84$); validated against colonic transit tests.	Quantifies constipation severity and monitors improvement post pelvic floor therapy.
Bristol Stool Form Scale (BSFS)	Patient reported outcome measure	Reliability coefficients reported from 0.78 to 0.91	Simple, non-invasive and easy to administer assessment tool

Pelvic Floor Muscle Assessment Scale (PERFECT Scheme or Modified Oxford Scale)	Secondary outcome -asses pelvic floor muscle strength	High intra-rater reliability (ICC = 0.79–0.93); strong concurrent validity with manometry and EMG.	Measures PFM contraction quality (Power, Endurance, Repetitions, Fast contractions)
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Pre and post 9-week intervention measures have been recorded in order to assess the pelvic floor exercise effectiveness on postnatal constipation and bowel health

Statistical analysis

The collected data were entered into Microsoft Excel and analyzed using appropriate statistical software. Descriptive statistics including mean and standard deviation were calculated for all outcome measures. Pre-intervention and post-intervention scores were compared using the paired t-test to determine the effectiveness of the pelvic floor exercise program. A p-value less than

0.001 was considered statistically significant. The results were presented in the form of tables, graphs, and interpretations.

Results

The present study included 40 postnatal women diagnosed with postnatal constipation and bowel health. All participants fulfilled the inclusion criteria and completed the 9-week pelvic floor exercise program without dropout. Pre-test and post-test assessments were recorded for all participants and included in the final statistical analysis.

Table 1: Age Distribution of Participants (n = 40)

Age Group (Years)	Frequency (n)	Percentage (%)
20-25	17	42.5%
26-30	20	50.0%
31-35	3	7.5%
36-40	0	0.0%
Total	40	100%

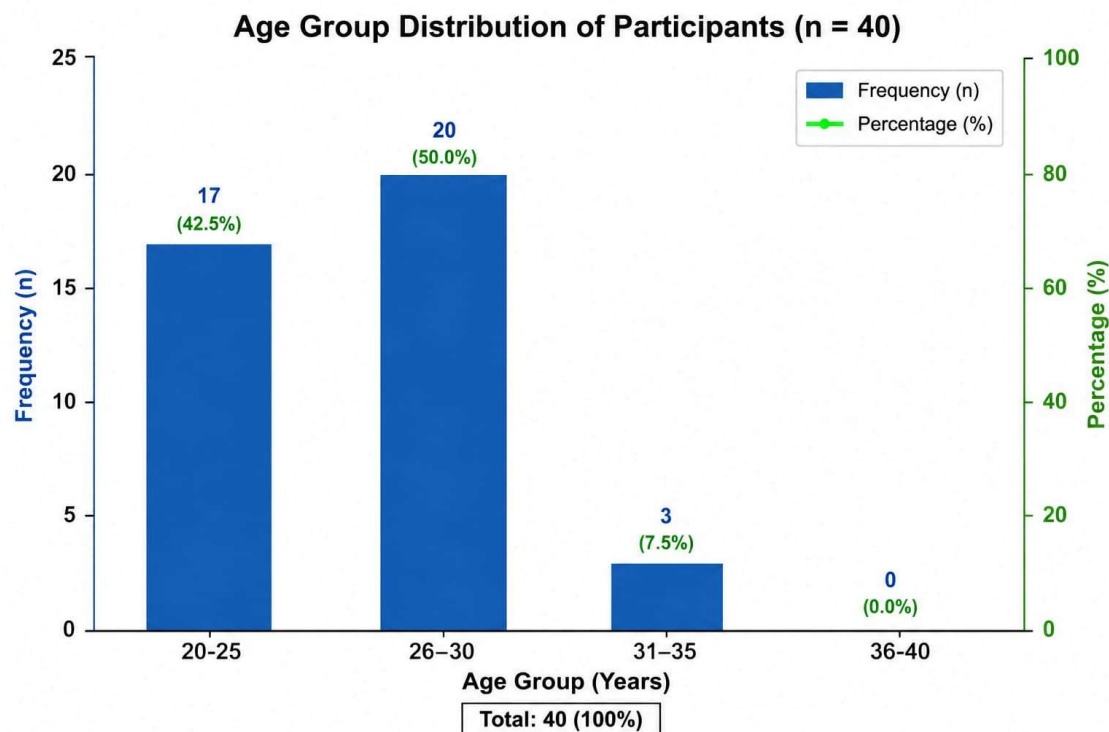


Figure 1: Age Distribution of Participants

Interpretation:

The majority of participants (50.0%) belonged to the 26–30 years age group, followed by 42.5% in the 20–25 years age group. Only 7.5% of participants were between 31–35 years of age, and no participants were in the 36–40 years age group.

Table 2: BMI Distribution of Participants (n = 40)

BMI Category	Frequency (n)	Percentage (%)
Normal (18.5–24.9 kg/m ²)	67	67%
Overweight (25.0–29.9 kg/m ²)	30	30%
Obese (≥30 kg/m ²)	3	3%

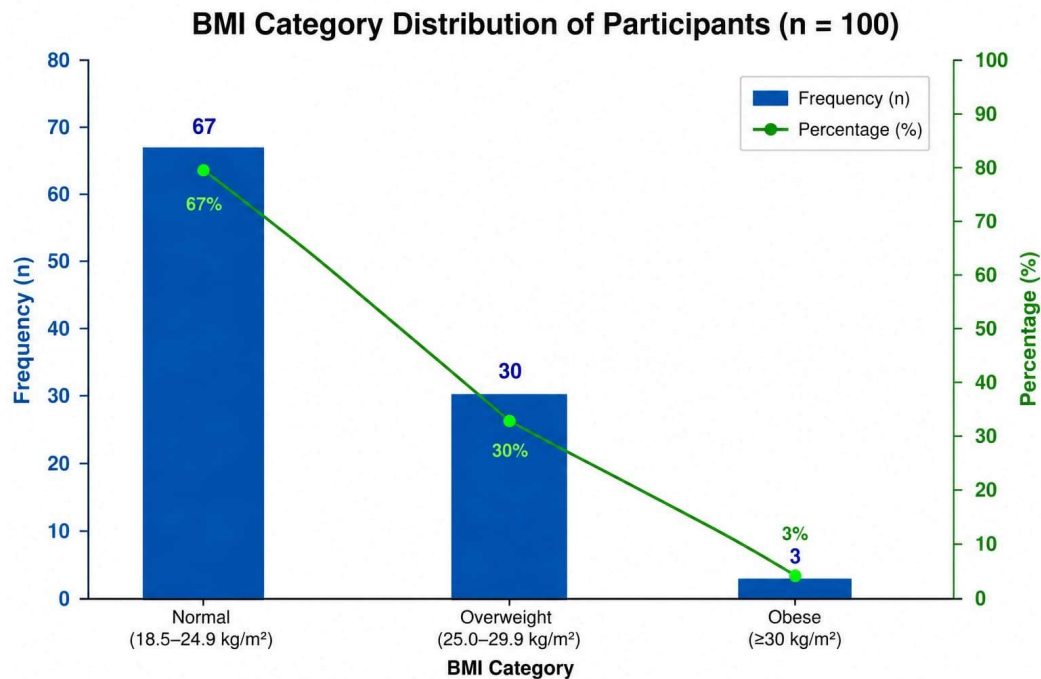


Figure 2: BMI Distribution of Participants

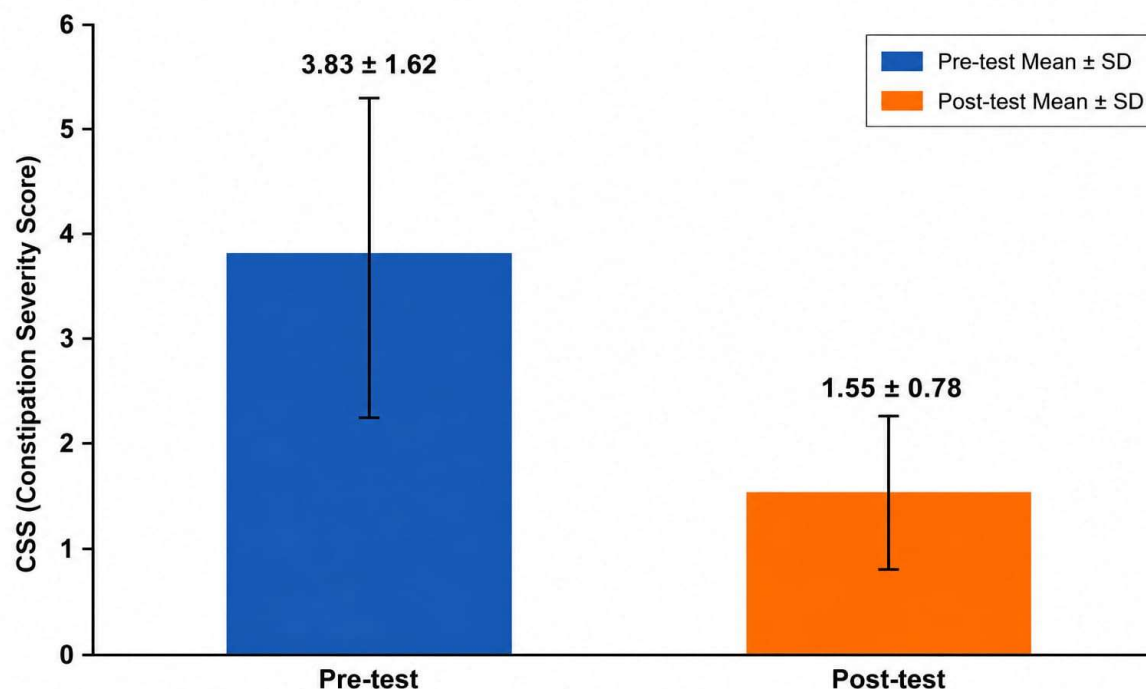
Interpretation:

The BMI distribution of the participants indicates that the majority had a normal body mass index. Out of 100 participants, 67 (67%) were classified as having a normal BMI (18.5–24.9 kg/m²), 30 (30%) were overweight (25.0–29.9 kg/m²), and only 3 (3%) were obese (≥30 kg/m²).

Table 3: Constipation Scoring System Scale Analysis

Outcome Measure	Pre (Mean ± SD)	Post (Mean ± SD)	Mean Difference	t-value	p-value
CSS	3.83 ± 1.62	1.55 ± 0.78	2.28	11.60	< 0.001

Comparison of Constipation Severity Before and After Intervention



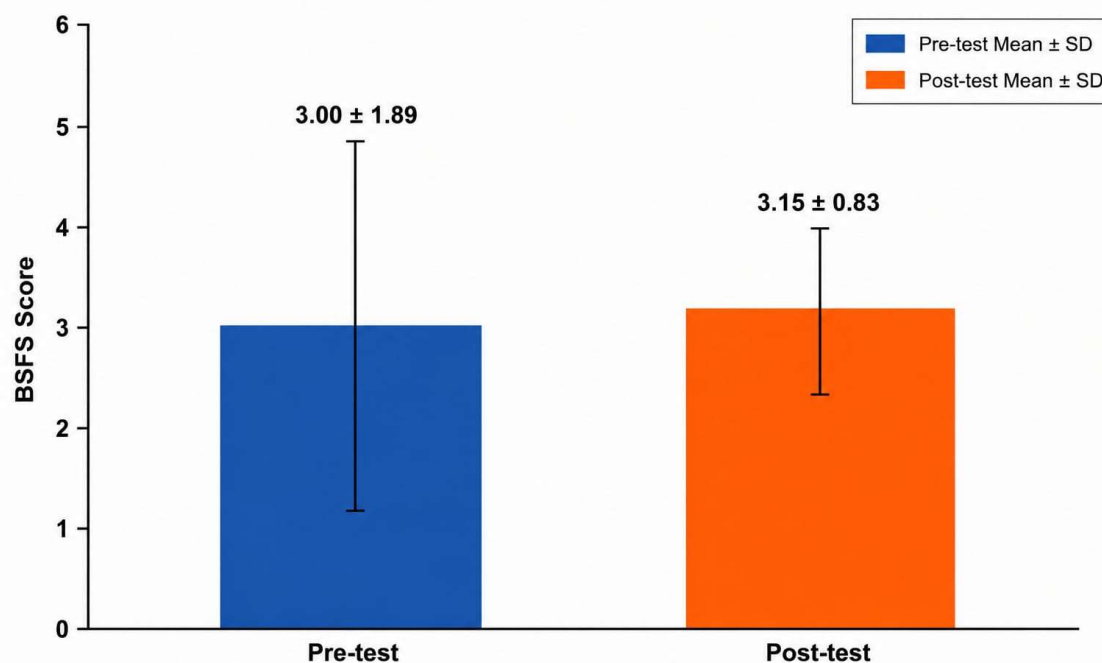
Interpretation:

CSS scores showed a highly significant reduction following pelvic floor exercise intervention. The mean score decreased from 3.83 ± 1.62 to 1.55 ± 0.78 , indicating marked improvement in constipation symptoms after performing pelvic floor exercises.

Table 4: Bristol Stool Form Scale Analysis

Outcome Measure	Pre (Mean $\pm$ SD)	Post (Mean $\pm$ SD)	Mean Difference	t-value	p-value
BSFS	3.00 ± 1.89	3.15 ± 0.83	0.15	0.41	0.681

Comparison of Bristol Stool Form Scale Scores

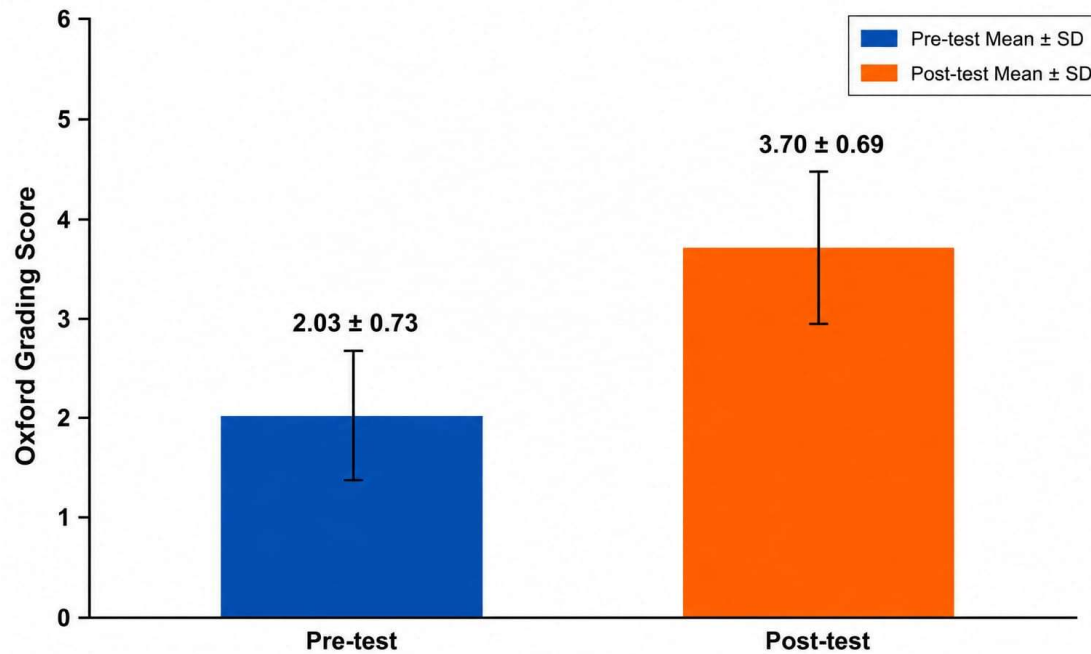


Interpretation: BSFS scores showed slight improvement after intervention. However, the difference was not statistically significant ($p > 0.05$).

Table 6: Pelvic Floor Assessment Scale Analysis

Outcome Measure	Pre (Mean $\pm$ SD)	Post (Mean $\pm$ SD)	Mean Difference	t-value	p-value
Shin Pain Scoring System	2.03 $\pm$ 0.73	3.70 $\pm$ 0.69	1.68	14.51	< 0.001

Comparison of Pelvic Floor Muscle Strength



Interpretation:

The mean Oxford Grading Scale score increased from 2.03 $\pm$ 0.73 to 3.70 $\pm$ 0.69, representing an improvement of 1.68 grades. Pre-intervention scores indicated weak pelvic floor muscle contractions, whereas post-intervention scores reflected moderate to good muscle strength. The statistically significant difference ($t = 14.51$, $p < 0.001$).

Final Interpretation for Results Section

A total of 40 postnatal women completed the 9-week pelvic floor exercise program. Analysis of the Constipation Severity Scale (CSS) demonstrated a statistically significant reduction in constipation symptoms following the intervention. The mean CSS score decreased from 3.83 $\pm$ 1.62 before intervention to 1.55 $\pm$ 0.78 after intervention ($t = 11.60$, $p < 0.001$), indicating a marked improvement in bowel function and reduction in constipation severity.

The Bristol Stool Form Scale (BSFS) showed a slight improvement from 3.00 $\pm$ 1.89 to 3.15 $\pm$ 0.83 following the intervention. However, the change was not statistically significant ($t = 0.41$, $p = 0.681$). This suggests that while stool

consistency demonstrated some positive change, the improvement was not sufficient to reach statistical significance.

The Modified Oxford Scale used to assess pelvic floor muscle strength demonstrated a highly significant improvement. The mean score increased from 2.03 $\pm$ 0.73 pre-intervention to 3.70 $\pm$ 0.69 post-intervention ($t = 14.51$, $p < 0.001$). These findings indicate that pelvic floor muscle training effectively enhanced muscle strength and functional performance of the pelvic floor muscles among postnatal women.

Discussion

This study was conducted with the objective of assessing the efficacy of pelvic floor exercises for postnatal constipation and bowel health among postnatal women. It was found that there was a remarkable improvement in all outcome parameters, including the decrease in severity of constipation and improvement in the bowel health score.

Postpartum constipation is a very frequent symptom and it is affected by various factors including hormonal changes (particularly rise in

progesterone levels), lowered activity of the digestive tract, pain in the perineum region, lack of physical exercise, intake of iron, and mental stress. Moreover, birth through the vagina can cause stretching and weakening of the pelvic floor muscles that are involved in the process of evacuation of bowels and control of urination. Weakened muscles of the pelvic floor cause poor rectal support during defecation.

The pelvic floor muscle exercises which are popularly referred to as Kegel exercises seek to develop the levator ani and adjacent musculature. The muscles help in the support of the pelvic organs and aid in the proper functioning of the urinary and bowel movements. In the current study, it is likely that consistent training of pelvic floor muscles would have contributed to the improvement of neuromuscular control and coordinated defecation.

Results obtained from this study correlate with the previous literature findings that suggest that pelvic floor muscle training is essential for dealing with functional bowel problems. Pelvic floor muscle strengthening is known to contribute to the improvement of anorectal coordination, increase in the ability to regulate intra-abdominal pressure, and help achieve better bowel evacuation. In several studies, it was noted that there are pelvic floor exercise-related benefits for postpartum patients who have straining problems, incomplete bowel evacuation, and hard stools.

The next significant conclusion that can be made based on the results obtained during the experiment is the improvement in the overall bowel health score. It should be noted that the cause of this improvement is not only due to muscle strength but also due to increased awareness regarding the bowels' habits and their regulation as well as due to increased physical activities caused by the exercise program.

The lowering of pelvic floor disorder scores provides more evidence for the success of the intervention. This test assesses the level of pelvic floor dysfunction and its effect on the quality of life of a person. Significant lowering of the scores implies that there was an improvement in the symptoms experienced and the functional capacity of the participants after the exercise.

However, despite the success of the intervention, there are some limitations that have to be mentioned. These include the relatively low number of participants in the study. No follow-up was done in the long term to determine if there was any sustainability of improvement in the patients. Furthermore, the outcomes used in the study were subjectively assessed; hence, there was potential response bias involved. More studies should be conducted with large sample size and randomized control and long-term follow-up.

In conclusion, the results of the study have indicated that pelvic floor muscle exercises are a simple, effective, harmless, safe, and inexpensive means of dealing with constipation and bowel dysfunction among postnatal women. Pelvic floor rehabilitation should be incorporated in the postnatal routine care.

Conclusion

The findings of the present study indicate that pelvic floor exercises are an effective intervention for improving postnatal constipation and pelvic floor muscle strength among postnatal women. Significant improvements were observed in constipation severity and pelvic floor muscle function following the 9-week exercise program. Although improvements in stool consistency were observed, they were not statistically significant.

Pelvic floor exercises are safe, cost-effective, non-invasive, and easy to perform, making them a valuable component of postpartum rehabilitation. The incorporation of pelvic floor muscle training into routine postnatal care may contribute to better bowel health, improved quality of life, and enhanced pelvic floor function among postnatal women.

The present study was conducted to determine the effectiveness of pelvic floor exercises on postnatal constipation and bowel health among postnatal women. Based on the findings, it can be concluded that pelvic floor exercise training significantly improved constipation severity and pelvic floor muscle strength after a 9-week intervention period.

The reduction in Constipation Severity Scale scores indicates that participants experienced less straining, easier bowel evacuation, and improved bowel habits following the exercise program. Furthermore, the significant increase in Modified Oxford Scale scores demonstrates that regular pelvic floor training effectively strengthened the pelvic floor muscles, which play an important role in supporting bowel function and maintaining continence.

Although improvement in Bristol Stool Form Scale scores was not statistically significant, a positive trend toward improved stool consistency was observed. These findings suggest that pelvic floor exercises may contribute to overall bowel health when performed consistently.

Pelvic floor exercises are simple, safe, inexpensive, and non-invasive, making them an ideal physiotherapy intervention for postpartum women. Therefore, pelvic floor muscle training should be incorporated into routine postnatal rehabilitation programs to promote bowel health, enhance pelvic floor function, and improve quality of life among postnatal women.

Future studies with larger sample sizes, randomized controlled designs, and long-term follow-up are recommended to further establish

the effectiveness of pelvic floor exercises in managing postnatal bowel dysfunction.

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Conflicts of Interest

We claim that there are no conflicts of interest in the content of this study.

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