

The Impact of Shakti Bandha Asanas on Primary Dysmenorrhea Adolescents: A Case Series

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ABSTRACT:

As a broad term, "Primary Dysmenorrhea" (PD) can be used to describe any individual with disruptive menstruation pain who does not have any evident pelvic abnormalities. Shakti Bandha Asanas (SBA) is a group of nine yogic postures, which are particularly beneficial for toning the pelvic muscles and organs, as well as for managing menstrual issues. The current case series involved documenting the efficacy of Shakti Bandha Asanas for reducing pain intensity among primary dysmenorrhea patients. Standardized self-report assessments of pain intensity and menstrual symptoms were obtained before and after interventions, using the Visual Analogue Scale (VAS) and Menstrual Symptom Questionnaire (MSQ) scales respectively. Three participants with PD practiced the SBA series for twenty-one days per one menstrual cycle (starting from the 5th day of the menstrual cycle) and continued the same practice for three consecutive menstrual cycles. Pre-data was collected before beginning the intervention, and post-data was collected after the 5th day of the next menstruation phase for each participant for all three menstrual cycles. All participants showed reduction in the intensity of menstrual pain along with decreased menstrual symptoms and felt better in their day-to-day lives. Shakti Bandha Asanas has great potential to reduce the symptoms of PD adolescents. Further research should be stimulated in this area to find the exact mechanisms underlying the benefits of Shakti Bandha Asanas on primary dysmenorrhea.

KEY WORDS: Adolescents, Energy Block Postures, Menstrual Symptoms Questionnaire, Primary dysmenorrhea, Shakti Bandha Asanas, Visual Analogue Scale.

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INTRODUCTION:

Dysmenorrhea is defined as lower abdominal discomfort that begins at the beginning of menstrual flow and lasts between 8 to 72 hours. ^[1] Dysmenorrhea is one of the most common causes of menstrual disorders and pelvic pain. ^[2] There are two distinct types of dysmenorrhea: primary and secondary. Painful menses in women with normal pelvic anatomy and physiology are known as primary dysmenorrhea, and they typically start in adolescence. ^[3] Menstrual pain linked to underlying pelvic pathology, such as endometriosis, large cesarean scar niche, fibroids, adenomyosis, endometrial polyps, interstitial cystitis and pelvic inflammatory disease, is known as secondary dysmenorrhea. ^[4] According to a recent systematic review of global studies on chronic pelvic pain, dysmenorrhea prevalence ranges from 17% to 80%. It is still unclear how prevalent primary dysmenorrhea is in India. According to Nag, 33.5% of teenage girls in India suffer from dysmenorrhea. According to George and Bhaduri, dysmenorrhea is a prevalent issue in India, with a prevalence rate of 87.7%. ^[5] A positive family history of dysmenorrhea, smoking, more severe bleeding, irregular menstrual cycles, stress, and shorter or longer menstrual periods are among the main risk factors. ^[6] PD is caused by the release of uterine prostaglandins (PG), which induces myometrial contraction, ischemia, nerve end sensitization, and results in pain. ^[7] The most well-researched initial treatment for dysmenorrhea is the use of Non-Steroidal Anti-Inflammatory Drugs (NSAIDs). These drugs are beneficial since they can reduce the production of prostaglandin, which is thought to be the main factor causing uterine contractions and the pain resulting from them. ^[8] Transcutaneous Electrical Nerve

Stimulation (TENS), heat therapies, biofeedback, acupuncture and acupressure are non-pharmacological, non-invasive, and minimally invasive therapies suggested to alleviate the symptoms of dysmenorrhea. ^[9] Due to severe side effects from some drugs and treatments recommended for dysmenorrhea, many patients are now looking for alternate solutions. Yoga is one of the most well-liked forms of complementary and alternative medicine (CAM), as described by the National Center for Complementary and Alternative Medicine of the National Institutes of Health (NIH). ^[10] The Indus Valley culture in northwest India is thought to be the cradle of yoga, which dates back between 4000 and 8000 years. ^[11] Shakti Bandha Asanas is a group of nine postures, which is commonly called Energy Block Postures or Pawanamuktasana Series III. This group of postures helps to break down neuro-muscular knots and enhance the body's energy flow. They also boost endocrine function, clear out energy blockages in the spine, and energize the heart and lungs. This series is particularly helpful for toning the pelvic muscles and organs, as well as for managing menstrual issues. ^[12] The current case series focuses on evaluating the efficacy of Shakti Bandha Asanas on primary dysmenorrhea adolescents using standardized self-report measures such as Visual Analogue Scale (VAS) and Menstrual Symptom Questionnaire (MSQ).

PATIENT DETAILS:

Three adolescent females who had already been diagnosed with primary dysmenorrhea came to the outpatient department (OPD) of International Institute of Yoga and Naturopathy Medical Sciences (IYNMS). The primary complaints of all three adolescents had been associated with physical

and mental symptoms related to menstruation. On examination, there was no history of previous surgery or medical illness and the ultrasound (USG) revealed no pelvic pathology. In the absence of pelvic abnormalities on the USG, they were confirmed with diagnosis of primary dysmenorrhea (PD).

Case 1: An 18-year-old adolescent female came with complaints of severe lower abdomen pain during menstruation for the last 3 years, which started one day before the expected date of menstruation and continues for 3 days during menstruation phase. Her menstrual cycle is regular i.e., of 27 days and menstruation phase lasts for 3 days. Lower abdomen pain associated with bloated abdomen and vomiting. USG taken on 14-06-2023 and it shows no pelvic pathology.

Case 2: A 19-year-old adolescent female came with complaints of severe abdomen pain during menstruation for the last 2 years, which started one day before the expected date of menstruation and continues for 3-4 days during menstruation phase. Her menstrual cycle is regular i.e., of 30 days and menstruation phase lasts for 4 days. Abdomen pain associated with nausea, and lower back pain which affects her daily routine. USG taken on 22-10-2023, showed no pelvic abnormalities.

Case 3: An 18-year-old adolescent female came with complaints of severe abdomen pain that radiates to both thighs during menstruation for the last 2 years, which started one day before the expected date of menstruation and continues for 3 - 4 days during menstruation phase. Her menstrual cycle is regular i.e., of 28 days and menstruation phase lasts for 3 - 4 days. Abdomen pain associated with headache and diarrhea. USG taken on 23-10-2023, which shows no pelvic abnormalities.

DIAGNOSTIC ASSESSMENT:

Menstrual Symptom Questionnaire (MSQ):

The Menstrual Symptom Questionnaire (MSQ) was designed by Chesney and Tasto to measure symptoms of dysmenorrhea. However, the definitions and classification of menstrual symptoms have evolved since the time the MSQ was developed. The MSQ is a 24-item self-report questionnaire that assesses menstrual pain and symptoms. Each item has a value ranging from 1 (never) to 5 (always), and a higher overall score implies more symptoms.^[13] Menstrual Symptom Questionnaire was elaborated in Figure 1.

Visual Analogue Scale (VAS): VAS is a tool widely used worldwide to measure pain in many abnormal health conditions. The VAS using a 10-points line represented degree of pain. Points 1-3 indicate no or mild pain, 4-7 indicate moderate pain, while 8-10 signify severe pain.^[14]

METHODS:

A detailed case history along with Height (cm), Weight (kg), BMI (kg/m^2), Pulse rate (ppm) and Resting blood pressure (mmHg) were measured for all three adolescent females. Details of the data are depicted in Table 1. Informed consent was obtained after giving the complete counselling about interventions and the methods of data collection. The intervention was planned by a team of yoga and naturopathy experts. Patients came to OPD of IYINMS for the practice of intervention during the complete course of study.

THERAPEUTIC INTERVENTION:

After the complete evaluation, Yoga protocol was planned. Yoga protocol comprised of Shakti Bandha Asanas - a group of nine yogic postures namely *Raju Karshanasana* (Pulling

the Rope), *Gatyatmak Meru Vakrasana* (Dynamic Spinal Twist), *Chakki Chalanasana* (Churning the Mill), *Nauka Sanchalanasana* (Rowing the Boat), *Kashtha Takshanasana* (Chopping Wood), *Namaskarasana* (Salutation Pose), *Vayu Nishkasana* (Wind Releasing Pose), *Kanna Chalasana* (Crow Walking) and *Udarakarshanasana* (Abdominal Stretch Pose). Table 2 explains the procedure of each posture as per traditional textbook.^[12]

TIMELINE:

The detailed timeline of the study events for all three adolescents are explained in Table 3.

RESULTS:

The detailed result was shown in Table 4 and evaluated through the graph diagram in Figure 1 & Figure 2 for all the three patients. The Above result shows gradual decrease in VAS (pain intensity) and MSQ (Menstrual Symptom Questionnaire) scores over three months for all three cases. Pre-treatment VAS scores were severe (8–9), and MSQ scores indicated significant menstrual symptom impact (75–79). Post-treatment, the first month showed the largest reductions, with VAS decreasing by 22–37% and MSQ by 33–41%. Over three months, VAS scores improved by 67–88% and MSQ by 56–61%, demonstrating sustained progress.

Table 1: Vital Data

Table 1	Age	Height (cm)	Weight (kg)	BMI (kg/m ²)	Pulse Rate (ppm)	Resting Blood Pressure (mmHg)	
						Systole	Diastole
Case 1	18	150	44	19.6	105	107	68
Case 2	19	153	48	20.5	98	100	74
Case 3	18	151	53	23.2	83	103	72

Table 2: Procedure of Shakti Bandha Asanas

Posture Name	Procedure
<i>Rajju Karshanasana</i> (Pulling the rope)	Keep the legs together as if holding a rope. Lift right hand up while inhaling, then slowly lower while exhaling. Repeat with left hand to complete one. Do for 5 to 10 rounds.
<i>Gatyatmak Meru Vakrasana</i> (Dynamic Spinal Twist)	Open legs to maximum, stretch arms sideways; twist trunk left with straight arms, reach towards left toe, gaze left palm, stretch right arm back. Repeat on right side. Do 10 to 20 rounds, increasing speed gradually with breath synchronization.
<i>Chakki Chalanasana</i> (Churning the mill)	Extend legs, interlock fingers, lean and move fingers towards feet, tilt back, breathe accordingly. Practice 5 to 10 rounds in each direction.

<i>Nauka Sanchalanasana</i> (Rowing the boat)	Clench hands like grasping oars, bend forward and lean back, moving arms in circular motion up the sides. Keep knees straight, do 5 to 10 rounds in each direction.
<i>Kashtha Takshanasana</i> (Chopping wood)	Squat with feet flat, knees bent, hands clasped, arms straight, elbows inside knees with opened eyes. Inhale, raise arms overhead, gaze at fingers, chop wood motion, exhale with 'Ha' sound. Repeat 5 to 10 rounds.
<i>Namaskarasana</i> (Salutation pose)	Perform squats with hands in prayer gesture, knees wide apart. Inhale, push knees outward and hold for 3 secs; exhale, bring knees together, hold for 3 secs. Repeat 5 to 8 rounds.
<i>Vayu Nishkhasana</i> (Wind releasing pose)	Perform squat, grasp feet, inhale and tilt head back, hold for 3 seconds. Exhale and straighten knees, bringing head to knees, hold for 3 seconds. Repeat 5-8 rounds.
<i>Kauva Chalasana</i> (Crow walking)	Perform squat, alternating knees and turning trunk; move forward 50 steps while maintaining normal breathing.
<i>Udarakarshanasana</i> (Abdominal stretch pose)	Squat with feet apart, then exhale while bringing right knee to floor. Twist left, hold for 3 to 5 seconds, then repeat on other side to complete one round. Practise 5 rounds.

Table 3: Timeline of the Events for All Three Participants

Study Details	Case 1	Case 2	Case 3
First Visit in OPD	10.06.2023	18.10.2023	21.10.2023
USG Scan Report	14.06.2023	22.10.2023	23.10.2023
Pre - Data Collection & First Month Intervention	25.06.2023	05.11.2023	03.11.2023
Second Month Intervention	22.07.2023	05.12.2023	01.12.2023
Third Month Intervention	18.08.2023	04.01.2024	29.12.2023
Post – Data Collection	11.09.2023	03.02.2024	26.01.2024

Table 4 – Results of All Three Participants:

Case (Age)	Pre/Post	VAS	MSQ
Case 1 (Age – 18)	Pre	9	75
	Post – 1st Month	6	51
	Post – 2nd Month	4	40
	Post – 3rd Month	2	33
Case 2 (Age – 19)	Pre	8	79
	Post – 1st Month	5	47
	Post – 2nd Month	4	42
	Post – 3rd Month	1	31
Case 3 (Age – 18)	Pre	9	77
	Post – 1st Month	7	49
	Post – 2nd Month	5	41
	Post – 3rd Month	2	35

Menstrual Symptom Questionnaire (MSQ) ^[13]

S. No.	Item	Nearly (1)	Rarely (2)	Sometime (3)	Often (4)	Always (5)
01	I feel irritable, easily agitated, and am impatient a few days before my period.	N	R	S	O	A
02	I have cramps that begin on the first day of my period.	N	R	S	O	A
03	I feel depressed for several days before my period.	N	R	S	O	A
04	I have abdominal pain or discomfort which begins one day before my period.	N	R	S	O	A
05	For several days before my period, I feel exhausted, lethargic or tired.	N	R	S	O	A
06	I only know that my period is coming by looking at the calendar.	N	R	S	O	A
07	I take a prescription drug for the pain during my period.	N	R	S	O	A
08	I feel weak and dizzy during my period.	N	R	S	O	A
09	I feel tense and nervous before my period.	N	R	S	O	A
10	I have diarrhoea during my period.	N	R	S	O	A
11	I have backaches several days before my period.	N	R	S	O	A
12	I take aspirin for the pain during my period.	N	R	S	O	A
13	My breasts feel tender and sore a few days before my period.	N	R	S	O	A
14	My lower back, abdomen, and the inner sides of my thighs begin to hurt or be tender on the first day of my period.	N	R	S	O	A

15	During the first day or so of my period. I feel like curling up in bed. using a hot water bottle on my abdomen, or taking a hot bath.	N	R	S	O	A
16	I gain weight before my period.	N	R	S	O	A
17	I am constipated during my period.	N	R	S	O	A
18	Beginning on the first day of my period, I have pains which may diminish or disappear for several minutes and then reappear.	N	R	S	O	A
19	The pain I have with my period is not intense, but a continuous dull aching.	N	R	S	O	A
20	I have abdominal discomfort for more than one day before my period.	N	R	S	O	A
21	I have backaches which begin the same day as my period.	N	R	S	O	A
22	My abdominal area feels bloated for a few days before my period.	N	R	S	O	A
23	I feel nauseous during the first day or so of my period.	N	R	S	O	A
24	I have headaches for a few days before my period.	N	R	S	O	A

MSQ Score: _____.

The MSQ is a 24-item self-report questionnaire that assesses menstrual pain and symptoms. Each item has a value ranging from 1 (never) to 5 (always), and a higher overall score implies more symptoms.

Figure 1: Menstrual Symptoms Questionnaire

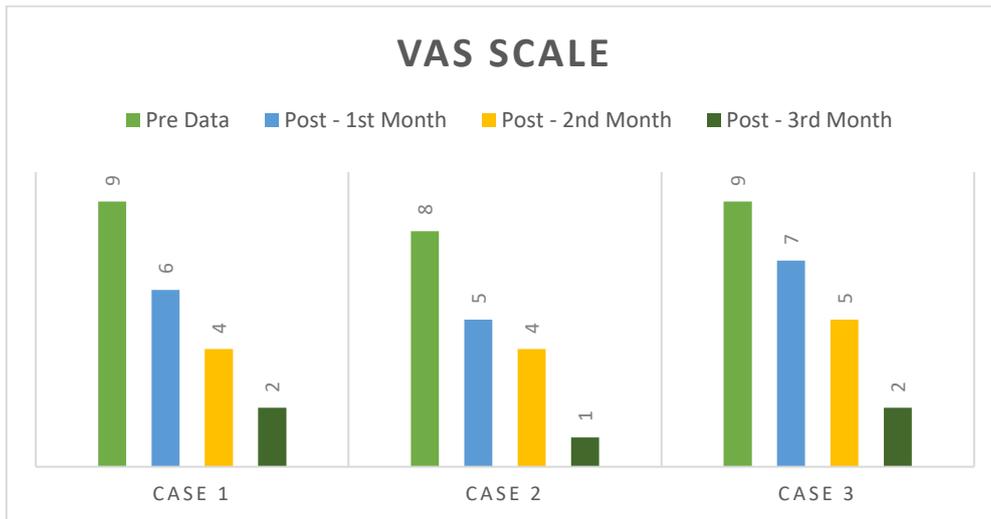


Figure 2 – VAS Scale Comparison

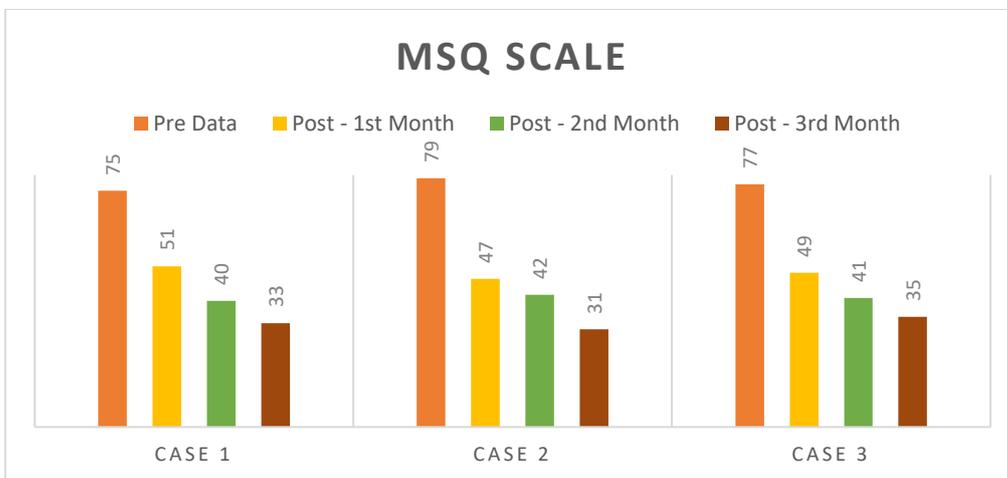


Figure 3 – MSQ Scale Comparison

DISCUSSION:

Shakti Bandha Asanas intervention was given to all three patients suffering from primary dysmenorrhea. Patients were followed the intervention for three consecutive menstrual cycles. There were significant improvements in all study variables. MSQ scores were reduced gradually in all three patients, which is indicative of reduction in abnormal menstrual symptoms. There was also reduction in scores of VAS scale, which denotes the reduced intensity of menstrual pain during menstruation phase. Although the pathophysiology of dysmenorrhea is not fully known, an increase in uterine prostaglandin production is considered to be

one of the key reasons. Prostaglandins promote vasoconstriction and myometrial contractions, resulting in uterine ischemia and the production of muscular spasms and pain, resulting in pelvic discomfort. [15] According to earlier studies, yoga increases the flow of blood into the pelvis and triggers the release of beta endorphins, which have a general analgesic effect. [16] A study demonstrated that participants who practiced yoga for three ten-day courses experienced a significant decrease in serum prostaglandin compared to those who did not engage in yoga. [17] A study indicated that specific protocol which includes abdominal stretching, yoga and dysmenorrhea exercises

could effectively reduce prostaglandin levels, which are associated with menstrual pain. This reduction helps alleviate the intensity of dysmenorrhea experienced by individuals. [18] Shakti Bandha Asanas are known to enhance the blood circulation to abdominal muscles, uterus, pelvic organs and muscles. Enhanced blood flow can clear excess prostaglandins from the uterine tissue [19, 20] Reduced prostaglandins in turn alleviate the menstrual symptoms and pain threshold occurring during menstruation phase. This shows that yoga protocol followed in this study will be very effective in managing primary dysmenorrhea. Patients self-reported that this yoga protocol was easy to adapt and follow in coming days.

CONCLUSION:

The current study demonstrates that practicing Shakti Bandha Asanas, a series of nine yogic postures, effectively reduces the intensity of menstrual pain and symptoms in adolescents with primary dysmenorrhea. Over three menstrual cycles, participants reported significant decrease in pain intensity (measured by the Visual Analogue Scale) and menstrual symptoms (measured by the Menstrual Symptom Questionnaire). The asanas enhanced pelvic blood circulation, likely reducing prostaglandin levels, and alleviating uterine contractions. Further studies with larger sample size and randomization can strengthen the evidence behind Shakti Bandha Asanas on primary dysmenorrhea patients.

Limitation of the study:

The limitations of the study include a small sample size, lack of a control group, reliance on self-reported measures, and a short duration of only three menstrual cycles, which limit the generalizability and objectivity of the findings. Additionally, the absence of biochemical data to confirm

physiological changes and the focus on a homogenous group of healthy adolescents restricts the applicability of the results to broader populations or individuals with varying health profiles. Future research with larger, diverse populations, control groups, and objective markers is needed.

Declaration of patient consent:

An informed written consent was obtained from all three patient for participating in the study and reporting this case in research journal.

Conflict of interest: The author declares that there is no conflict of interest.

Guarantor: The corresponding author is the guarantor of this article and its contents.

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