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Comparative effect of yoga verses stretching exercise on pain and menstrual distress in adolescent girls with primary dysmenorrhea

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Abstract
Background: Due to dysmenorrhea in adolescent girls age 12 to 18 there is sickness absenteeism, loss of physical activity, academic dissatisfaction, and disruption of personal relationships, confidence and concentration. Physical exercise can be non-medical intervention to relieve primary dysmenorrhea. Aim of this study was to compare the effect of yoga and stretching exercise on pain and menstrual distress in adolescent girl with primary dysmenorrhea.
Method: In this comparative study, (n=60) subjects were divided into 2 groups each Group A Yoga (30) and Group B Stretching (30). The protocol was of 4 weeks each. Pain was assessed by NPRS and menstrual distress was assessed by Moos Menstrual Distress Questionnaire before and after intervention.
Result: Intergroup analysis was done using unpaired t-test which showed significant improvement in Group A subjects (Yoga) for improving pain ($p<0.001$) and decreasing menstrual distress, components i.e pain ($p < 0.0043$), concentration ($p < 0.0486$), behavioral changes ($p < 0.0091$), autonomic reactions ($p < 0.0001$), water retention ($p < 0.017$), negative effect ($p < 0.0085$), arousal ($p < 0.001$), control ($p < 0.0018$) post treatment.
Conclusion: Looking at the statistical analysis and results our study we can concluded that: after comparison yoga is more effective than stretching in reducing pain and menstrual distress in adolescent girls with primary dysmenorrhea at the end of 4 weeks.

Keywords: dysmenorrhea, primary dysmenorrhea, adolescent girls, yoga, stretching, NPRS, menstrual distress questionnaire

Introduction

Dysmenorrhea, defined as painful menstruation. Primary or secondary are two classifications of dysmenorrhea. Pain during menses with no underlying cause is said to be Primary dysmenorrhea. Within 6–12 months of menarche symptoms of primary dysmenorrhea can be seen but it may take as long as 2 years after menarche in some adolescents. Pain can be episodic or crampy and is felt at lower abdominal area and can radiate to back, inner thighs, or both. [1] Many studies conducted in India reported that the prevalence of dysmenorrhea varies from 33% to 79%. [2] Adolescent age can be a critical time in life where girls are adjusting and preparing themselves to manage their menstruation.[3] After menarche, adolescents face irregular menstruation, excessive bleeding or dysmenorrhea and there is lack of knowledge as well in this age group.[4] Various studies have shown that forms of exercise such as core strengthening and active stretching can be beneficial to coping with dysmenorrhea. [5] Evidence shows that exercise induces increase in endocannabinoids or endorphins in the body and is responsible for pain reduction in primary dysmenorrhea.[6] yoga improves physical health via down-regulation of the hypothalamo-pituitary-adrenal axis and the sympathetic nervous system. Yoga reduces stress, sympathetic activity, and increases parasympathetic activity. Yoga improves general health, flexibility and muscle strength. [7] This stretching protocol improves flexibility of muscles, strengthens the muscle, improves endurance and blood circulation, and reduces anxiety. [8]

Methodology

This is a comparative study, subject n=60 which were divided into two groups using chit method in group A (Yoga) group B (Stetching). Subjects who fulfilled inclusion and exclusion criterion were included with purposive sampling.

Inclusion criteria

Adolescent girls who are willing to participate in study of age 12-18 years with primary dysmenorrhea, moderate score on Numerical pain rating scale i.e 4 – 6, moderate score on Moos Menstrual distress questionnaire i.e between 94-235.

Exclusion criteria

Secondary Dysmenorrhea, adolescent girls who are on medications for pain, adolescent girls who already exercise, onset of Menstrual discomfort more than 3 years after onset of menarche, irregular or infrequent menstrual cycle, thyroidism, musculoskeletal and orthopedic conditions.

Outcome measure

Numerical Pain Rating Scale: It is 11-point numeric scale. Reliability is 0.92.[(9)] Menstrual Distress questionnaire (MDQ): A well validated, self-report 47-item inventory for assessment of pre menstrual and menstrual symptoms. There are 7 subscales i.e pain, water retention, negative affect, autonomic reaction, concentration, behaviour changes and arousal. Reliability: 0.82 to 0.98. [(10)]

Intervention

Yoga

group A 4 weeks protocol, duration - 30 minutes/day, frequency - 4 times/week, hold time-30 seconds hold, rest/interval-30 seconds relax, repeation-2 sets warm Up and cool down –10 minutes each.

Matsyasana, Adho Mukha savanasana, Dhanurasana, Setu Bandha Sarvangasana, Ustrasana, Paschimottanasana.

Stretching exercise

group B 4 (control group) weeks protocol, Duration – 30 min/day, frequency -4 times/week, hold time - 30 seconds, rest/interval - 10 seconds, repeation - 2 sets Warm Up and cool down- 10 minutes each.

Stretch 1.Bend trunk forward from the hip joint so that the shoulders and back are positioned on a straight line and the upper body was placed parallel to the floor.

Stretch 2 Raise 1 heel off the floor, then repeat the exercise with the other heel alternatively.

Stretch 3 Spread the feet shoulder width, place trunk and hands in forward stretching mode, then completely bend the knees and maintain a squatting position, the subject then raised her body.

Stretch 4 Spread feet wider than shoulder width. Then the bend and touch left ankle with her left hand while keeping right hand in a stretched position above the head, This exercise is repeated for the opposite foot with the same method. The exercise was repeated alternatively.

Stretch 5 In this position the knees was bent with the help of her hands and reached to the chin.

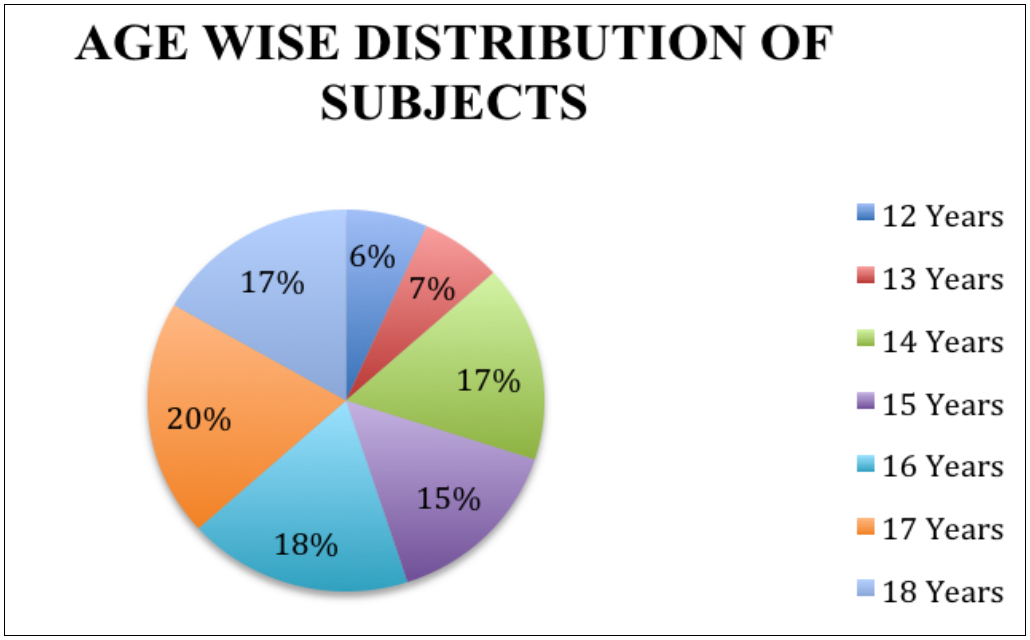
Stretch 6 Stand against a wall and put hands behind head and elbows pointed forward in the direction of the eyes, then without bending the vertebral column, the abdominal muscle wall is contracted for 10 seconds. [11]

Data analysis

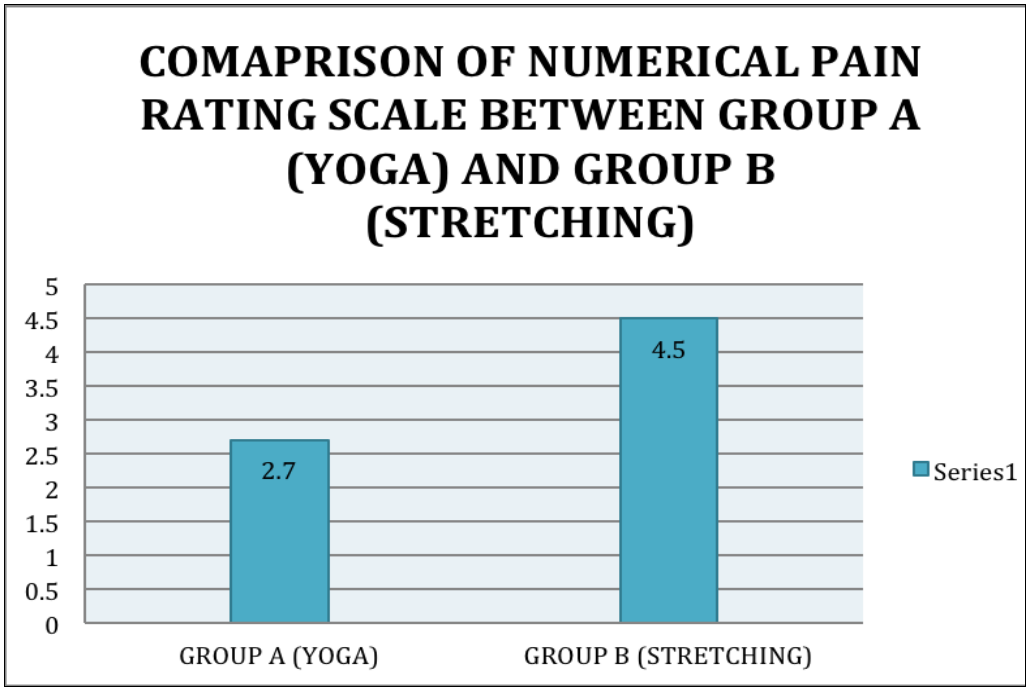
The data was analyzed with the help of Graph-pad Instat. 95% confidence interval was taken into consideration. Data was analyzed using unpaired t test for Inter group analysis and Paired t test for Intra group analysis.

Results

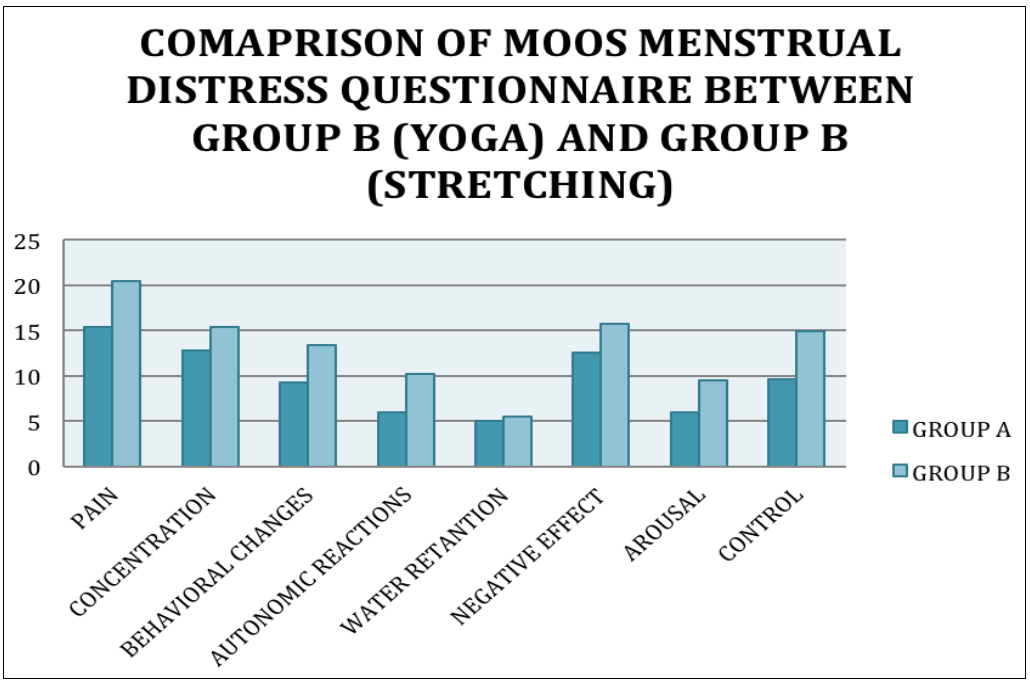
Age wise distribution (graph 1). The pre and post intervention data in group A (Yoga) and group B was analyzed using Paired t-test. The comparison of numerical pain rating scale between group A (2.700± 1.119) and group B (4.500± 1.408) was analyzed using unpaired t test(graph 2). There was significant difference with p value 0.0001 when compared in adolescent girls with dysmenorrhea at the end of 4 weeks. MDQ: Pain ($p < 0.0043$) in group A (15.367±5.708) and group B (20.467±6.180) mean. MDQ: concentration ($p < 0.0486$) in group A (12.800±4.012) and group B (15.367±5.708) mean. MDQ: behavioral changes ($p < 0.0091$) in group A (9.267±5.675) and group B (13.400±6.173) mean. MDQ: autonomic reactions ($p < 0.0001$) in group A (5.967±1.159) and group B (10.133±1.655) mean. MDQ: water retention ($p < 0.017$) in group A (5.033±0.999) and group B (5.433±1.223) mean. MDQ: negative effect ($p < 0.0085$) in group A (12.500±3.540) and group B (15.700±5.370) mean. MDQ: arousal ($p < 0.001$) in group A (5.900±1.155) and group B (9.500±1.358) mean. MDQ: control ($p < 0.0018$) in group A (9.600±4.917) and group B (14.867±7.300) mean (graph 3).



Graph 1



Graph 2



Graph 3

Discussion

The present study was undertaken with an intention to see the effects yoga and stretching on pain and menstrual distress in adolescent girls with primary dysmenorrhea. 60 subjects were taken under this study. Graph 1 shows the age wise distribution in which we can observe that 17 years of age is 20% that is the maximum number of age which is showing dysmenorrhea in this particular study.

Graph 2 shows comparison of score of numerical pain rating scale in group A (yoga) and the data shows significant difference. In this study, the yoga group had significantly reduced menstrual pain intensity after a 4-week yoga program compared with the control group. These findings are similar to those of a previous study, which suggested that menstrual pain intensity levels reduced significantly from baseline after 1 and 2 months. In a previous study, the effects of an 8-week intervention comprising cobra, cat, and fish poses on students with primary dysmenorrhea showed results that indicated yoga interventions can be effective in reducing pain based on the gate control theory, promoting relaxation, and increasing circulation.[12,13] Sana Lalkate *et al* (2020) stated that yoga helps promote deeper relaxation which has a effect of maximum pain relief. Pain reduction may be due to endorphin production at a cortical level, which is known to result from alternate stretch and relax procedures of yoga asana practice [14].

However, limited data is available on the effect of the integrated yoga program studied on menstrual distress scores in participants with primary dysmenorrhea. The authors also suggested that yoga might have positive

physical and psychological effects and that yoga might be considered as part of an exercise program to reduce stress, reduce physical and psychological problems in girls with primary dysmenorrhea [12].

Stretching as a therapeutic exercise is helpful for the treatment of primary dysmenorrhea. Stretching helps in decrease attenuate menstrual symptoms through increase of local metabolism in turn increasing local blood flow at the pelvic level which will increase endorphin production. Similarly, in the present study, adolescent girls with moderate score on menstrual distress questionnaire were included and after the intervention was given for 4 weeks showed that it had improvement in pain and menstrual distress [12].

Conclusion

Looking at the statistical analysis and results this study we concluded that: When comparison was done the result showed that yoga is more effective than stretching in reducing pain and reducing menstrual distress in adolescent girls with primary dysmenorrhea at the end of 4 weeks.

Limitations

The diagnosis of primary dysmenorrhea was purely based on history.

Future scope

The further research can investigate more about the benefits of yoga and stretching exercises employing the different methods of yoga and stretching.

References

1. Ferries Rowe E, Corey E, Archer JS. Primary Dysmenorrhea: Diagnosis and Therapy, Obstet Gynecol,2020:36(5):1047-1058. doi: 10.1097/AOG.0000000000004096. PMID: 33030880.
2. Udayar SE, Jeeragyal DP, Kruthika K. Predictors of Dysmenorrhea and Its Impact on Quality of Life among Tribal Adolescent Girls in India, Unnes Journal of Public Health,2022:31:11(1).
3. Ayele E, Berhan Y. Age at menarche among in-school adolescents in Sawla Town, South Ethiopia. Ethiopian journal of health sciences,2013:11:23(3):189-200.
4. Deepthi CS, Gayathry D, Chandra C. A cross-sectional Study on Menstrual Problems among the Adolescence Girls in Warangal City, Telangana. European Journal of Molecular & Clinical Medicine (EJMCM),2022, 9(03).
5. Kaur S, Kaur P, Shanmugam S, Kang MK. To compare the effect of stretching and core strengthening exercises on Primary Dysmenohrrea in Young females. IOSR Journal of Dental and Medical Sciences (IOSR-JDMS),2014:1(13):22-32.
6. Jaleel G, Shaphe MA, Khan AR, Malhotra D, Khan H, Parveen S, *et al*. Effect of Exercises on Central and Endocrine System for Pain Modulation in Primary Dysmenorrhea. Journal of Lifestyle Medicine,2022:31:12(1):15.
7. Nayak SG, George LS, Assariparambil AR, George A, Rao KS, Annapoorna K, *et al*. Meditation and yoga impact on dysmenorrhea (MY-ID): a study protocol, F1000Research,2022:30:11(590):590.
8. Kiranmayi P, Ponmathi P, Sivakumar VP. Comparison of aerobic versus stretching exercise programmes on pain and menstrual symptoms in subjects with primary dysmenorrhea. Journal Women's Health Care,2016:5(4):1.
9. Alghadir AH, Anwer S, Iqbal A, Iqbal ZA. Test–retest reliability, validity, and minimum detectable change of visual analog, numerical rating, and verbal rating scales for measurement of osteoarthritic knee pain. Journal of pain research,2018:11:851.
10. Moos RH. The development of a menstrual distress questionnaire. Psychosomatic medicine,1968:1:30(6):853-67.
11. Shahr Jerdy S, Hosseini RS, Gh ME. Effects of stretching exercises on primary dysmenorrhea in adolescent girls, Biomedical Human Kinetics,2012:4(2012):127-32.
12. Yang NY, Kim SD. Effects of a yoga program on menstrual cramps and menstrual distress in undergraduate students with primary dysmenorrhea: a single-blind, randomized controlled trial. The Journal of Alternative and Complementary Medicine,2016:1:22(9):732-8.
13. Carolin BT, Maesari I, Hisni D. Yoga Exercise on Reduction of Menstrual Pain among Adolescent Girls, Nursing and Health Sciences Journal (NHSJ),2022:1:2(1):29-33.
14. Rakhshaee Z. Effect of three yoga poses (cobra, cat and fish poses) in women with primary dysmenorrhea: a randomized clinical trial. Journal of pediatric and adolescent gynecology,2011:1:24(4):192-6.