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Effectiveness of Yoga therapy for relief of dysmenorrhoea among adolescents of a selected high school in Faridkot.

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INTRODUCTION

We never know how far-reaching something we may think, say or do today, will affect the lives of millions tomorrow

- B. J. Palmer

Adolescence is a period of transition from childhood to adulthood. These are the formative years when maximum amount of physical, psychological and behavioural changes take place. This is the time for them to prepare for understanding greater responsibilities, a time for exploration and widening horizons, and a time to ensure healthy all-round development. Puberty is also a time of behavioural changes when the reproductive capacities get established. The sex hormones secreted during puberty affect the tissues of the body[1].

The phenomenon of menstruation is peculiar to humans and apes. More than a medical concern, menstruation has social, economic, psychological and religious implications. It is associated with "womanhood" in most cultures[2]. Menstruation is a normal physiological cycle, common to all females of the reproductive age group. The initiation of menstruation takes place during early adolescence period. Menstruation is associated with several physical and psychological problems, which are likely to be complicated by a confused state caused by incomplete or wrong information among adolescents[3].

The adolescent years constitute a period of time when girls are vulnerable to the development of menstrual dysfunctions and they must be treated aggressively. The common menstrual cycle problems are dysmenorrhoea, amenorrhoea, pre-menstrual syndrome, menstrual migraine and irregular

or absent menstruation like hypermenorrhoea, oligomenorrhoea, and polymenorrhoea. Of all the menstrual complaints, dysmenorrhoea is by far the most common and addressed complaint[4].

Primary dysmenorrhoea is defined as painful menses with normal pelvic anatomy, which usually begins during adolescence. It is characterised by crampy pelvic pain beginning shortly before or at the onset of menses and lasting one to three days[5].

It is understood by many experiments and studies on both healthy volunteers and patients that yogic practices produce bodily effects like vitalization of endocrine functions, improved general body functions and metabolic corrections. All these benefits can be derived only by a regular and sustained combined yogic practices[6].

Background of the study

Primary dysmenorrhoea is the most common menstrual disorder and is often seen as the single greatest cause of loss of school or working days among young women. Ten to fourteen percent of young women in their late teens and early twenties abstain from classes monthly because of dysmenorrhoea[7].

A study conducted on 234 adult Norwegian female industrial workers found that 50% had menstrual pain; 25% consulted a physician; 30% had to stay in bed; and 30% missed work[8].

A study on 1,546 menstruating Canadian women found that 60% were having primary dysmenorrhoea. Sixty percent of the dysmenorrhoeic women were having severe or moderate pain, 51% reported limitation of activities, and 17% reported absenteeism[9].

Doctors usually treat menstrual difficulties with pain relievers and hormonal supplements and a certain percentage of women on oral contraceptives find their periods easier and the flow lighter. However, the pill is at best, a risky business, most recently being linked to uterine cancers, and an increasing number of women prefer not to use it. Yoga, on the other hand, offers natural and effective methods without toxic side effects and with benefits that extend far beyond the physical[10].

A person lives for threescore and ten years – says the ‘Bible’. If life is smooth and everything goes fine, life appears charming and we feel like living for ever, but if we are afflicted with a fatal disease life loses its charm; it becomes a burden[11].

Diseases are as old as human beings. Thanks to the advanced medical care and treatment, most of the diseases and health discomforts can be cured. Among the various treatments available Yoga assumes relevance today more than ever. Yoga is an eternal practical science evolved over thousands of years aiming at physical, mental, moral and spiritual wellbeing of people. Yoga therapy involves the use of Yoga postures, controlled breathing, relaxation, meditation and nutrition to release emotional and muscular tension, improve concentration, increase oxygen levels in the blood and assist the body in healing itself[11].

The word 'Yoga' is derived from the Sanskrit root 'YUJ' meaning to unite or connect. It means uniting or connecting the mind and body and ultimately with reality[6].

According to Patanjali (founder of Yoga) Yoga is divided into 8 steps called "Asthanga Yoga." they are:

1. Yama – which includes universal commandments that a man will have to follow such as non-violence, non-stealing, truth, self-control and non-accumulation of needless wealth.
2. Niyama – includes personal discipline like cleanliness, austerity, ability to bear hardships, purity, satisfaction, contentment, self study, and faith in God.
3. Asana – includes various physical postures to loosen the rigid muscles and tissues.
4. Pranayama – is the control of breath and bio energy.
5. Pratyahara – is the withdrawal of sense organs from the objects of sense
6. Dharana – is to have intense concentration for developing inner vision.
7. Dhyana – is also known as meditation, which includes uninterrupted and deep concentration for prolonged period.
8. Samadhi – the sole goal of Yoga is to have a true sense of communion and peace.

Yoga therapy is the science of applying the various techniques of Yoga in a variety of illnesses and conditions, to facilitate optimal health, healing and awakening[12].

Yoga therapy includes the asanas, meditation, pranayama and relaxation. There are a number of different postures, by the practice of which everyday one can hope to get steadiness in bodily health and also attain tranquillity of mind. These yogic postures increase the strength and vitality of all the

muscles of the trunk and also of all the internal organs. Practice of these asanas everyday will lead to maintenance of a healthy elastic body and delaying of the ageing process[6].

Objectives of the study

1. To determine the severity of dysmenorrhoea among adolescents in the experimental and control group as measured by dysmenorrhoea assessment scale.

2. To evaluate the effectiveness of Yoga therapy in the experimental group.

3. To compare the severity of dysmenorrhoea between experimental and control group.

Operational definitions

- **Effectiveness:** In this study it refers to the extent to which Yoga therapy has achieved the desired effect in relieving severity of dysmenorrhoea as measured by dysmenorrhoea assessment scores.

- **Yoga therapy:** In this study it refers to the use of Yoga postures (asanas), pranayama, meditation, and relaxation to release emotional and muscular tension, improve concentration and assist the body in healing itself.

- **Dysmenorrhoea:** In this study it refers to the pain and symptoms experienced during painful menstruation as measured by dysmenorrhoea assessment scale.

- **Adolescents:** In this study it refers to the girls aged between 12 to 16 years studying in selected high schools in Faridkot .

Variables

Variable refers to a characteristic or attribute of a person or object that varies within the population under study[21].

In this study two types of variables are considered. They are dependent variable and independent variable.

Dependent variable: The presumed effect is referred to as the dependent variable[21].

In this study dysmenorrhoea is the dependent variable.

Independent variable: The presumed cause is referred to as the independent variable[21].

In this study Yoga therapy is the independent variable.

Assumptions

1. Dysmenorrhoea is a common problem among adolescents
2. Adolescents need some therapy to get rid of dysmenorrhoea.
3. Severity of dysmenorrhoea can be measured.

Hypotheses

The hypotheses will be tested at 0.05 level of significance.

H_1: The mean post-test dysmenorrhoea score will be significantly lower than the mean pre-test dysmenorrhoea score in the experimental group.

H_2: The mean post-test score of symptoms experienced during painful menstruation will be significantly lower than the mean pre-test score in the experimental group.

H_3: There will be significant difference between the dysmenorrhoea scores of experimental group and control group after Yoga therapy.

Need for the study

Adolescence is the phase, usually between 10 and 20 years in which children undergo rapid changes in body size, physiology, biological and psychological functioning. Out of biological changes onset of menstruation is the most striking and important event on the way from teenage to perfect adult womanhood[13].

The main problem relating to menstrual flow include painful menstruation, stoppage of

menstruation and excessive menstruation, besides pre-menstrual tension. These disorders are quite common but they are not normal. Healthy women living according to natural laws and eating a diet of natural foods do not suffer from the monthly ordeal[14].

Dysmenorrhoea is painful menstruation caused by prostaglandins which cause the muscles of the uterus to contract[15]. It is probably the most common of all gynaecologic disorders. Some degree of discomfort is experienced by over half of all post-menarcheal women and 10% of these are incapacitated for 1-3 days each month. Dysmenorrhoea has considerable socioeconomic impact; it has been estimated to be the greatest cause of lost time from work and school[16].

Primary dysmenorrhoea is estimated to be present in 40-50% of young women with severe forms giving rise to work or school absenteeism in 15% and the mild forms requiring no medication or occasional analgesics in about 30%. About 60% of adolescent girls suffer significant dysmenorrhoea[9].

Arora R, Rajaram P, Gowri, Praveena, Swapna were conducted a population based study on menstrual disorders at Pondicherry among 500 adolescent girls between the ages of 12 and 20 years. Pre- formed proforma was used to gather data. The study reported that 296 (59%) adolescent girls had normal regular menstrual cycle, 127 (25.4%) showed menstrual disorders, 41 (8.2%) complained of hypermenorrhoea, 24 (4.8%) oligomenorrhoea, 5 (1%) polymenorrhoea, and only 0.8% had hypo-menorrhoea where as, 52 (10.4%) had dysmenorrhoea[13].

Ram R, Bhattacharya KS, Sarkar T. Were conducted an another study to determine reproductive tract infection (RTI) among 100 female adolescents aged 10-19 years in the immunisation clinic at Kolkata. Data was collected by interview technique. It was observed that 35% of the girls had given history of excessive vaginal discharge without low backache/lower abdominal pain and they were supposed to suffer from vaginitis and 29% had history of lower abdominal pain/low backache with vaginal discharge. Considering both the groups together 64% of the girls were suffering from RTIs. Among them 12% had a history of burning sensation during micturition and 50% had dysmenorrhoea[17].

The management of dysmenorrhoea is multifaceted and depends on the severity of the problem, and the individual woman’s response. In addition to drug therapy, nurse may take the opportunity to educate women about the available alternative therapies and supportive measures such as heat application, pelvic rock, herbs, homeopathic measures, massaging of the lower back, exercise, good nutrition and Yoga[18].

A diseased person can get his/her ailments cured through systematic practice of Yoga. The therapeutic value of Yoga is becoming clear these days and people are becoming more and more aware of it. Yoga offers natural and effective benefits that extend far beyond the physical. Yoga practice does not require much space or equipment; it needs an airy place and determination of the aspirant to perform these without fail[19].

Sherman KJ, Cherkin DC, Erro J. Were conducted a study to determine the effectiveness of Yoga for low back pain at Seattle Washington. The randomised controlled study enrolled 101 participants mostly college educated White women between the ages of 40 and 50 years who had visited a primary care provider for back pain. Participants were randomly assigned to one of the three interventions – Yoga classes, exercise classes or receipt of a self-help book. Participants were interviewed by telephone to assess pain level, ability to perform daily activities and medication use. In the Yoga group, 78% of the participants had reduction in their Roland disability scores, 63% and 47% of the participants in the exercise and book groups showed reduction respectively. The Yoga group participants also reported taking less analgesic than the other two groups[20].

Nowadays dysmenorrhoea is a common problem among adolescents because of the lifestyle especially physical inactivity and food habits. Much as adults, even children need Yoga to cope with these lifestyle changes. It is necessary that the adolescents be educated regarding alternatives for alleviating menstrual discomfort, and dysmenorrhoea. Yoga is considered to be one of the simple, cost effective and natural methods. Yoga, by its very nature is easier for children to learn than adults because their bodies are closer to the natural stage. Hence the investigator felt the need to evaluate the effectiveness of Yoga therapy for the relief of dysmenorrhoea among adolescents of selected high schools.

RESULTS

Severity of dysmenorrhoea before and after Yoga therapy in experimental group

N = 20

Severity	Pre-test		Post-test	
	F	%	f	%
Mild pain (1-20)	-	-	16	80
Moderate pain (21-40)	19	95	4	20
Severe pain (41-61)	1	5	-	-

Data presented in Table 2 shows most (95%) of adolescents had moderate pain before Yoga therapy whereas only 20% had moderate pain after Yoga therapy. It is observed that 80% of sample suffered from mild pain after Yoga therapy.

Table 3: Severity of dysmenorrhoea in experimental and control group in the post-test

N_1 = 20, N_2 = 20

Severity dysmenorrhoea	Experimental Group		Control Group	
	F	%	f	%
Mild pain (1 – 20)	16	80	-	-
Moderate pain (21 – 40)	4	20	20	100
Severe pain (41 – 61)	-	-	-	-

Data presented in Table 3 depicts that majority (80%) of adolescents had mild pain and 20% had moderate pain after the Yoga therapy in the experimental group, whereas all the sample (100%) in control group had moderate pain.

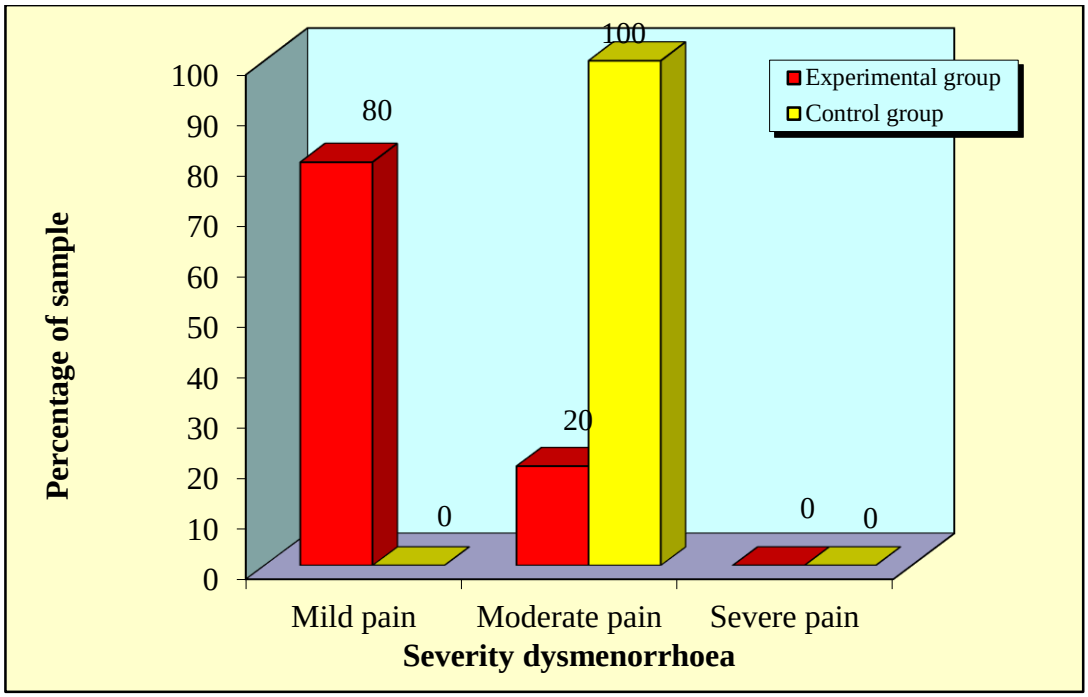

Figure 3: 3-D Bar diagram showing distribution of sample according to the severity of dysmenorrhoea in the post-test

Table 4: Range, mean, median and standard deviation of pre-test and post-test dysmenorrhoea scores of experimental and control group

$N_1 = 20, N_2 = 20$

Group	Test	Range of score	Mean	Median	Standard deviation
Experimental group	Pre-test	22-42	28.95	28	5.072
	Post-test	14-23	19.10	19	2.359
Control group	Pre-test	22-37	27.25	27	4.020
	Post-test	22-34	26.50	27	3.677

The data shows that the mean post-test dysmenorrhoea score (19.10±2.359) was less than the

mean pre-test dysmenorrhoea scores (28.95±5.072) in the experimental group, whereas in the control group, the mean post-test dysmenorrhoea score (26.50±3.677) was almost similar to the mean pre-test dysmenorrhoea score (27.25±4.020). It is also observed that the mean post-test dysmenorrhoea score of the experimental group was less than the mean post-test dysmenorrhoea score of the control group.

Table 5: Frequency, percentage and cumulative frequency distribution of dysmenorrhoea scores before and after yoga therapy in the experimental group

N = 20

	Pre-test				Post-test			
Range	**f**	**%**	**cf**	**cf%**	**f**	**%**	**cf**	**cf%**
10-15	-	-	-	-	1	5	1	5
15-20	-	-	-	-	11	55	12	60
20-25	4	20	4	20	8	40	20	100
25-30	10	50	14	70	-	-	-	-
30-35	4	20	18	90	-	-	-	-
35-40	1	5	19	95	-	-	-	-
40-45	1	5	20	100	-	-	-	-

The data presented Table 5 shows that in the pre-test majority (50%) of the sample in the experimental group had dysmenorrhoea score in the range of 25-30, whereas in the post-test majority (55%) of the sample had dysmenorrhoea score in the range of 15-20.

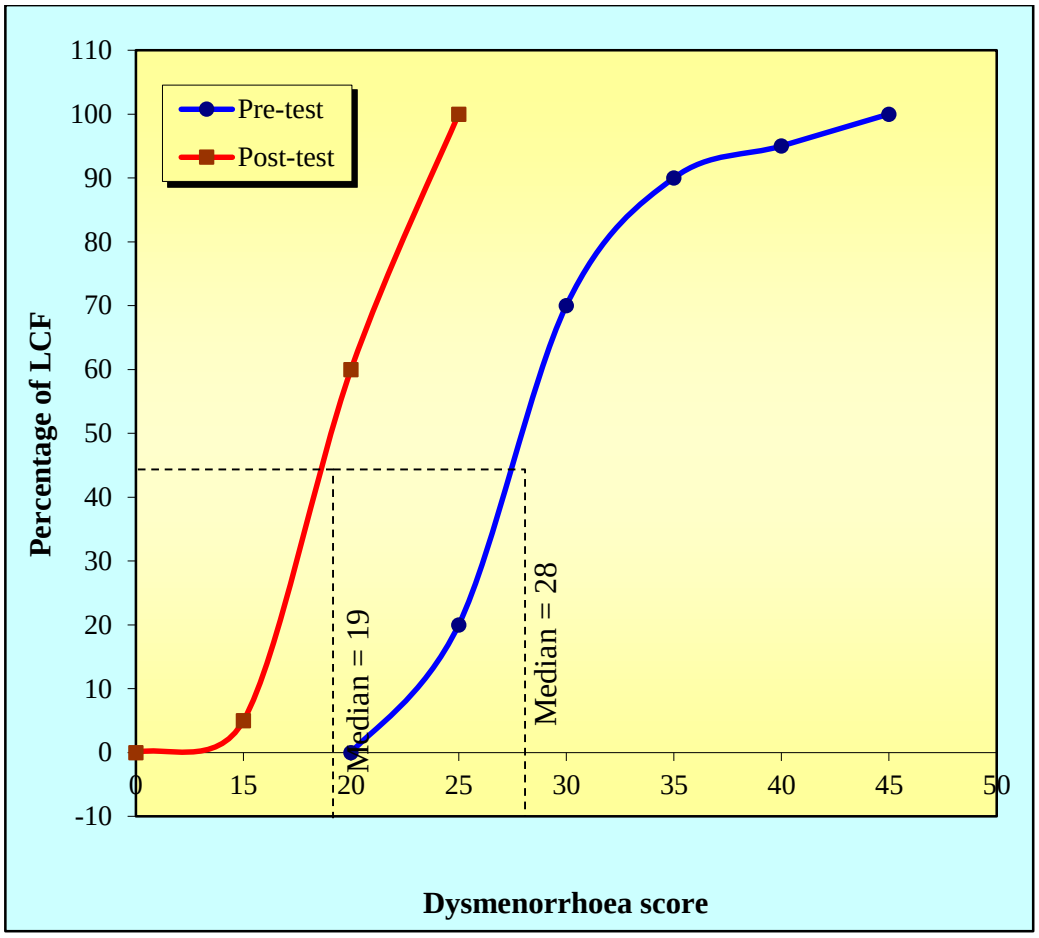

Figure 4: Ogives representing pre-test and post-test dysmenorrhoea score of the experimental group

The post-test ogive lies to the left of the pre-test ogive over the entire range showing that the post-test dysmenorrhoea scores were consistently lower than the pre-test dysmenorrhoea score. The difference of 9 between the pre-test and post-test median shows that the intervention was effective in reducing dysmenorrhoea in the sample.

Table 6: Mean and SD of symptoms experienced during painful menstruation in the pre-test and post-test in the experimental group

N = 20

	Pre-test		Post-test	
Symptoms	**Mean**	**SD**	**Mean**	**SD**
Nausea	0.50	0.512	0.40	0.502
Vomiting	0.25	0.443	0.05	0.224
Diarrhoea	0.30	0.470	0.10	0.307
Constipation	0.55	0.685	0.60	0.598
Loss of appetite	0.85	0.586	0.70	0.470
Abdominal distension	0.75	0.786	0.55	0.509
Back pain	1.80	0.410	1.50	0.688
Leg cramps	1.25	0.638	1.10	0.447
Giddiness	0.75	0.638	0.20	0.410
Head ache	1.30	0.732	0.95	0.509
Drowsiness	0.65	0.586	0.35	0.488
Sleeplessness	0.90	0.410	0.25	0.443
Irritability	1.05	0.685	0.95	0.604
Depression	0.85	0.586	0.75	0.786
Mood swings	0.95	0.509	0.40	0.598
Anxiety	0.85	0.744	0.45	0.604
Lower abdominal pain	1.85	0.365	1.50	0.512
Increased frequency of urination	0.90	0.640	0.35	0.488
Pain in the breast	0.40	0.492	0.10	0.307
Tiredness	1.35	0.488	1.20	0.523

Possible score=40

The data in Table 6 shows the mean post-test score of all the symptoms except constipation experienced during painful menstruation was lower than the mean pre-test score in the experimental group.

Section C: Effectiveness of Yoga therapy

Comparison of pre-test and post-test dysmenorrhoea scores of the experimental group

To compare the pre-test and post-test dysmenorrhoea scores, paired 't' test was used.

In order to test the statistical significance, the following null hypothesis (H_{01}) was stated:

H_{01}: The mean post-test dysmenorrhoea score of the experimental group will not be significantly lower than the mean pre-test dysmenorrhoea score at 0.05 level.

Table 7: Mean, standard deviation, mean difference and 't' value of pre-test and post-test dysmenorrhoea scores in experimental group

N = 20

Test	Mean score	Standard deviation	Mean difference	't' Value
Pre-test	28.95	5.072	9.85	8.249*
Post-test	19.10	2.359		

t_{19}=1.729, $p < 0.05$ * = Significant

Data in Table 7 shows that the mean post-test dysmenorrhoea score (19.1) was lower than the mean pre-test dysmenorrhoea score (28.95). The calculated 't' value (t_{19}= 8.249) was greater than the table value (t_{19}= 1.729) at 0.05 level of significance. Hence the null hypothesis (H_{01}) was rejected and the research hypothesis was accepted.

Comparison of pre-test and post-test scores of symptoms experienced during painful menstruation

To compare the pre-test and post-test scores of symptoms experienced during painful menstruation paired 't' test was used.

In order to test the statistical significance the following null hypothesis (H_{02}) was stated:

H_{02}: The mean post-test score of symptoms experienced during painful menstruation will not be significantly lower than the mean pre-test score at 0.05 level.

Table 8: Mean, standard deviation, mean difference and 't' value of symptoms experienced during painful menstruation in the pre-test and post-test in the experimental group

N = 20

Test	Mean score	Standard deviation	Mean difference	't' Value
Pre-test	18.05	3.648	5.70	6.496*
Post-test	12.35	1.904		

t_{19}=1.729, p < 0.05 * = Significant

Data in Table 8 depicts that the mean post-test score (12.35) of symptoms experienced during painful menstruation was lower than the mean pre-test score (18.05). The calculated 't' value (t_{19} =6.496) was greater than the tabled value (t_{19}=1.729) at 0.05 level of significance. Hence the null hypothesis (H_{02}) was rejected and the research hypothesis was accepted.

Section D: Comparison of severity of dysmenorrhoea score between experimental group and control group

To determine the significant difference in the post–test dysmenorrhoea scores among the experimental and control group, unpaired 't' test was computed between both groups. To test the statistical significance between the post-test dysmenorrhoea scores of experimental and control group, following null hypothesis (H_{03}) was stated.

H_{03}: There will not be significant difference between the dysmenorrhoea scores of experimental and control group after Yoga therapy at 0.05 level.

Table 9: Mean, standard deviation, mean difference and 't' value of post-test dysmenorrhoea scores in experimental and control group

N_1 = 20, N_2 = 20

Group	Mean score	Standard deviation	Mean difference	't' Value
Experimental group	19.10	2.359	7.40	7.581*
Control group	26.50	3.677		

t_{38}=2.021, $p < 0.05$ * = Significant

Data in table 9 show that the mean post-test dysmenorrhoea score (19.1) of the experimental group after Yoga therapy was lower than the mean post-test dysmenorrhoea score (26.5) of control group. The calculated 't' value (t_{38} = 7.581) was greater than the table value (t_{38} = 2.021) at 0.05 level of significance. Hence the null hypothesis (H_{03}) was rejected and the research hypothesis was accepted. This shows that Yoga therapy was effective in reducing dysmenorrhoea.

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