To Compare Aerobic Exercise and Jacobson Relaxation with Deep Breathing Exercise In Perimenopausal Women

Dr.Sonali Uikey[1], Sakshi B. Tarekar[2]

[1]Associate Professor, [2]Intern
Department of Physiotherapy, SMT. Radhikatai Pandav College of Physiotherapy, Nagpur, Maharashtra.441924.
Corresponding Author: **Dr.Sonali Uikey**

Abstract
Background: Perimenopause means 'around the menopause' It typically begins in a Women at age of 40, it varies from women to women. Various menopausal symptoms experienced by middle aged women affect their quality of life. Women are exposed to wide variety of changes in their lifespan right from the menarche till menopause There is lack of awareness regarding menopause and related problems among women The role of exercise to alleviate menopause symptoms, Regular exercise improves physical fitness by increasing aerobic and musculoskeletal capacity. Physical activity during menopause transition , offers many benefits such as weight gain prevention, strength bones, increase muscle mass , decrease risk of diseses.Therefore this study aims to find out the compare aerobic exercise and jacobson relaxation with deep breathing exercise in perimenopausal women with age group 40-50 year.
Aim: The aim of this study to compare aerobic exercise and jacobson relaxation with deep breathing exercise in perimenopausal women with age group 40-50 year.
Objective: To compare aerobic exercise and Jacobson relaxation with deep breathing exercise in perimenopausal women.
Methods: This is an 2 arm pre and post interventional study was conducted in a physiotherapy college maharashtra. The total duration of this study was 6 months. Based on inclusion criteria, 32 subjects were screened for the study which was divided into two group.GroupA(n- 16)will receive Aerobic exercise with deep breathing exercise.GroupB(n-16) will receive Jacobson relaxation with deep breathing exercise. To compare the effectiveness of aerobic exercise and jacobson relaxation with deep breathing exercise in reduction perimenopausal symptoms.Menopause Rating Scale (MRS) was the selected outcome measure.
Results: The age of the subjects ranged from 40-50years. The significant decrease in scores from the pre-test (20.78) to the post-test (10.84). The intervention led to a statistically significant reduction in symptom severity.before the intervention , most participants had moderate to severe symptoms ,after the intervention the symptoms were significant reduced .
Conclusion: Physical activity appears to have a positive influence on reduction in menopausal symptoms.The study concluded that there is significant decrease in scores from the pre- test (20.78) to the post-test (10.84) sleep problems has been reported in 2.31 of perimenopausal womens, while joint and muscular discomfort pain in the joints rheumatoid complaints were found in 2.18 respectively. Organized interventions should be led to a ststistically significant reduction in symptom severity.

Key Words: Aerobic exercise, Jacobson relaxation technique, Deep breathing exercise and perimenopausal women.

INTRODUCTION

Perimenopause means 'around the menopause' It typically begins in a Women at age of 40, it varies from women to women. Various menopausal symptoms experienced by middle aged women affect their quality of life. Women are exposed to wide variety of changes in their lifespan right from the menarche till menopause There is lack of awareness regarding menopause and related problems among women The hormonal changes associated with menopause essentially begin three to five years before the last menstrual period and is called as perimenopause [2]

Estrogen plays a role in maintaining bone density, and the hormonal changes in perimenopause can increase the risk of osteoporosis. During the perimenopausal period the capacity of ovaries to produce estrogen begin to decline and there is no further egg production [2] Perimenopause is the transitional phase leading up to menopause, which the cessation of a women menstrual cycle. Perimenopause has been classified into early perimenopause and late perimenopause. Early perimenopause is increased irregularity of menstruation without missing periods. Late perimenopause is where in the women had menstruation in last 2-12 months but not in the last 2 months [2.]

The typical symptoms of menopause are the hot flushes, sleep, anxiety, irritability, dryness of vagina, depressive mood, sexual problems, joints and muscular problems [2]Menopausal symptoms were also less intense in women that exercised regularly. Additionally, exercise has been shown to modify many menopausal symptoms, particularly mood, sleep, anxiety, depression, and musculoskeletal complaints[13].

Exercise is an important factor to alleviate menopause symptoms. Regular exercise improves physical fitness by increasing aerobic and musculoskeletal capacity[10].Deep breathing exercises help to achieve concentration power, emotional control muscle relaxation [1] a deep breath aids to take more O_2 and extracts Co_2 from the circulation

Physical activity during menopause transition, offers many benefits such as weight gain prevention, strengthen bones, increases muscle mass, decreases risk of diseases[11]Exercises intervention programs have demonstrated to decreases menopause symptom, somatic, psychomotor symptoms but also have a positive development in blood pressure, fertility, aerobic power[10].

So, this study will investigate whether deep breathing exercises with Jacobson's relaxation and aerobic exercise will be beneficial.

MATERIAL AND METHODS:

This is an 2 arm pre and post interventional study was conducted in a physiotherapy college maharashtra.The sample size estimated for this study is 32. The total duration of this study was 6 months. The sample technique used in this study was convenient sampling technique. The sample was calculated by utilizing the standard formula:

$$\frac{n=2s_p^2\left[z_{1-\alpha/2}+z_{1-\beta}\right]^2}{\mu_d^2}$$

$$S_p^2 = \frac{S_1^2+S_2^2}{2}$$

Where ,

S_1^2 : Standard deviation in the first group

S_2^2 : Standard deviation in the second group

$\mu^2 d$: Mean difference between the samples

α : Significance level

1 β : Power

The inclusion criteria for this study was perimenopausal women between the age 40-50, women those who are around menopausal stage was selected. Individuals having any recent history of hysterectomy, any neurological disorders, regular menstrual cycle, joints or bone disease were not included in the study. This study was carried out by using the Menopause Rating Scale (MRS) to analyzed the severity reduction in perimenopausal symptoms. Which is a list of 11 items (symptoms and complaints) each of the eleven symptoms contained in the scale can get 0 (no complaints) or up to 4 scoring points (severe symptoms) depending on the severity of the complaints perceived by the women completing the scale.

RESULTS AND DISCUSSION:

The study was undertaken for to compare aerobic exercise and jacobson relaxation with deep breathing exercise in perimenopausal womens has yielded the following results.

The age of the subjects ranged from 40 years to 50 years. The significant decrease in scores from the pre-test (20.78) to post-test (10.84). The intervention led to a statistically significant reduction in symptom severity before the intervention , most participants had moderate to severe symptoms ,after the intervention the symptoms were significant reduced, with no participants reporting severe or very severe symptoms, and a majority reporting only mild symptoms.

In the present study, 32 subjects was taken. The age of the subjects varies from 40-50 years.The study was to find out the to compare aerobic exercise and jacobson relaxation with deep breathing exercise in perimenopausal women by using self reported scale questionnaire. It divided into two groups . 16 subjects in group A and 16 subjects in group B. The intervention protocol is given for 30 days.

Group A – Jacobsons relaxation technique with deep breathing.Group B – Aerobic exercise with deep breathing.

There are also women complained the sleeping problems, anxiety, joint pain, depressive mood, hot flashes, dryness of vagina.On an average the MRS rate was 2, 3, 4 for the above symptoms, 53.13 % participants had moderate symptoms before the intervention, it will be significantly reduce after the intervention i.e. 43.75% (Table 5, graph 5).

In the present study, (2.31) of study population had symptoms of sleep problems.The second most common problem found in our study is joint and muscular discomfort (2.18) pain in the joints, rheumatoid complaints, The other symptoms that we found were (2.09) Anxiety, (2.03) Drynes of vagina, (1.87) Irritability, (1.84) Heart discomfort, (1.81) Bladder problems, (1.78) Hot flushes generalized sweating, and night sweats are the most common prevalent vasomotor symptoms in menopausal age, (1.62) Physical and mental exhausation general decrease in performance, impaired memory, decrease in concentration, forgetfulness. (1.43) Sexual problems, and last (1.9) Depressive mood feeling down, sad, mood swings . It will be significant improvement in participants performance from pre-test to post-test across all questions. Total pre -test (20.78) to post-test (10.84) . (Table 6, graph6) .

In all measured parameters, systolic blood pressure, diastolic blood pressure, heart rate, respiratory rate and SPO2 were significant increases after the intervention. 18.18% with age range 40-44 of total group and 81.82% with age range 45-49 of total group. 42.42% whose weight 41-50 kg of total group and 57.58% whose weight 51-60 kg of total group. (Graph 1,2) .

Exercise is an important factor to alleviate menopause symptoms. Regular exercise improves physical fitness by increasing aerobic and musculoskeletal capacity.It decreases menopause symptoms, somatic, psychomotor symptoms but also have a positive development in blood pressure, fertility, aerobic power.

Deep breathing exercise help to promote relaxation and reduces stress, to improve vital capacity, it also to achieve concentration power, emotional control muscle relaxation. It involves 10 min with a rest period of 10 sec between each breath. It is benifical hormonal balance and hot flash management to perimenopausal women. Jacobsons relaxation technique help to reduce stress and anxiety, improved sleep quality, mood regulation, muscle tension relief.

Physical activity during menopause transition , offers many benefits such as weight gain prevention, strengthen bones, increases muscle mass, decreases risk of diseases.

In this study perimenopausal women were noted to experience more of vasomotor symptoms . The typical symptoms of menopause are the hot flushes, sleep, anxiety, irritability, dryness of vagina, depressive mood, sexual problems, joints and muscular problems.

Aerobic exercise which is more effective in perimenopausal women i.e. weight-bearing aerobic exercises, like walking or jogging, help maintain bone density , reducing the risk of osteoporosis, which is more prevalent after menopause.Regular aerobic exercise can improve sleep patterns,helping to combat insomnia and other sleep disturbances often experienced during perimenopause.It can also help reduce the frequency and severity of hot flashes.

It stimulates the production of endorphins, which are natural mood lifters. This can help alleviate symptoms of depression and anxiety that are common during perimenopause. It increases overall energy and reduces fatigue, helping perimenopausal women feel more active.It improves insulin sensitivity and helps regulate blood sugar levels, which is important as perimenopausal women have a higher risk of developing metabolic syndrome and type2 diabetes.

The study has an reduction in perimenopausal symptoms in women after the aerobic exercise protocol.The result of the study is Group B i.e. Aerobic exercise with deep breathing is more effectiveness than Group A i.e. jacobsons relaxation with deep breathing.

CONCLUSION:

Physical activity appears to have a positive influence on reduction in menopausal symptoms. The asesment tool used in our study was based on Menopause Rating Scale [MRS] The study concluded that there is significant decrease in scores from the pre- test (20.78) to the post-test (10.84), the intervention led to a ststistically significant reduction in symptom severity. (2.31) of study population had symptoms of sleep problems, joint and muscular discomfort (2.18) pain in the joints, rheumatoid complsints respectively. Organized interventions should be led to a ststistically significant reduction in symptom severity.

Table No.1 Age distribution of study population

Age in years	No. of individuals	Percentage
40 – 44	6	18.18
45 – 49	26	81.82
Total	32	100
Mean Age SD (Range)	45.84 ± 1.90 (40 – 49)	

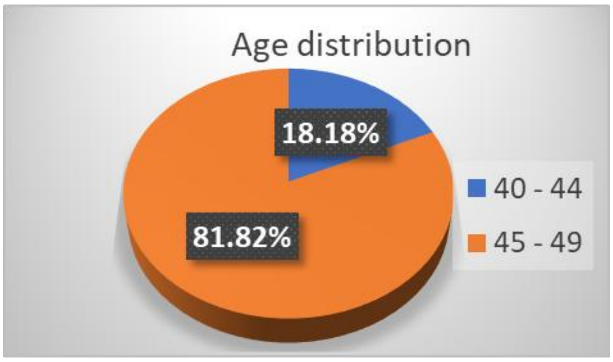


Table No.2 Distribution of study population according to weight (kg)

Weight in kg	No. of individuals	Percentage
41 – 50	14	42.42
51- 60	19	57.58
Total	33	100
Mean Weight SD(Range)	51.51 ± 3.92 (42 – 58)	

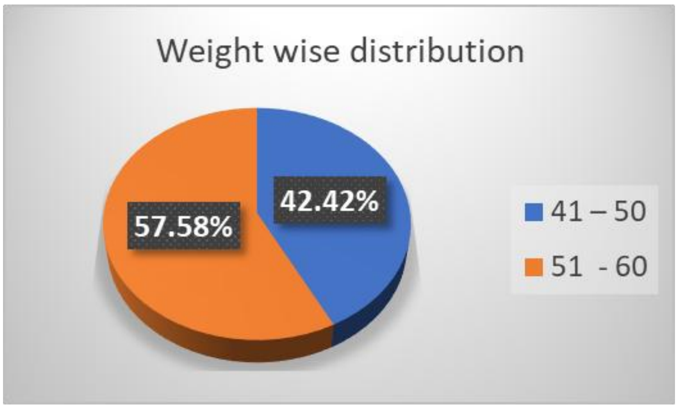


Table No. 3 Comparison of hemodynamic parameters pre and post therapy.

	Pre test		Post test		t-value	p-value
	Mean	SD	Mean	SD		
SBP	116.78	6.71	122.81	5.71	10.1398	<0.0001,HS
DBP	75.62	6.69	86.15	5.60	8.4088	<0.0001,HS
Heart Rate	72.40	3.25	74.40	3.08	8.0000	<0.0001,HS
Respiratory rate	15.87	1.94	16.93	1.29	7.1550	<0.0001,HS
SPO2	96.53	1.64	97.65	1.23	7.3093	<0.0001,HS

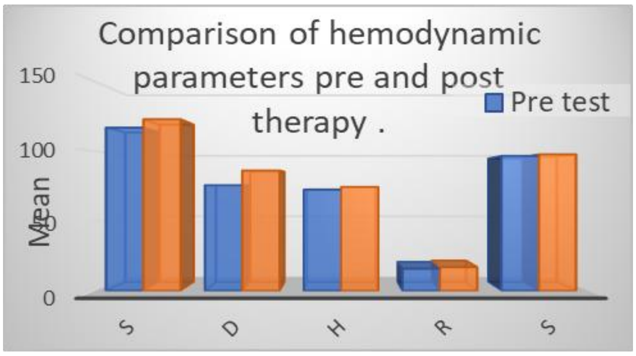


Table No. 4 Comparison of Total score pre and post therapy.

	Pre test		Post test		t-value	p-value
	Mean	SD	Mean	SD		
Total score	20.78	5.71	10.84	2.85	12.1112	<0.0001,HS

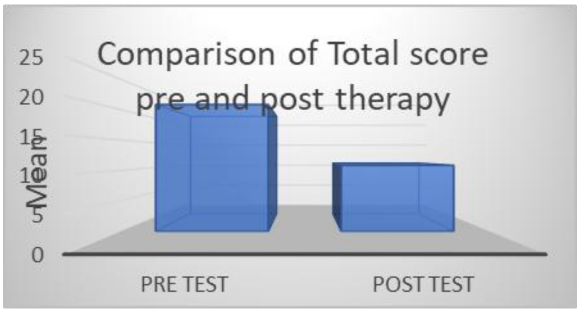


Table No. 5 Comparison of Severity of disease.

	Pre test		Post test	
	N	%	N	%
No symptoms	0	0	0	0
Mild symptoms	1	3.13	18	56.25
Moderate symptoms	17	53.13	14	43.75
Severe symptoms	13	40.63	0	0
Very severe symptoms	1	3.13	0	0
Total	32	100	32	100
chi2-value	29.5008			
p-value	<0.0001,HS			

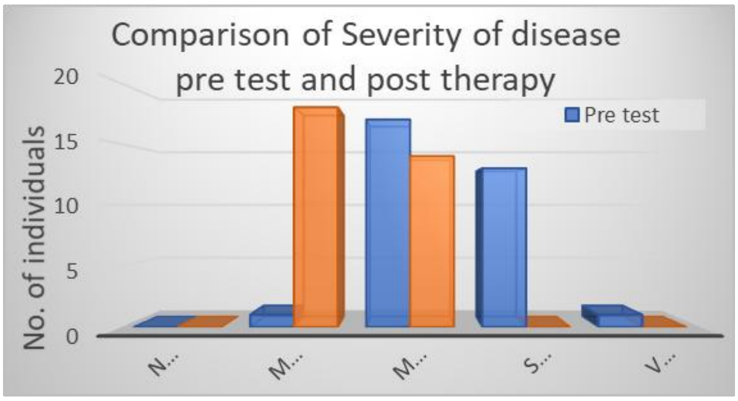
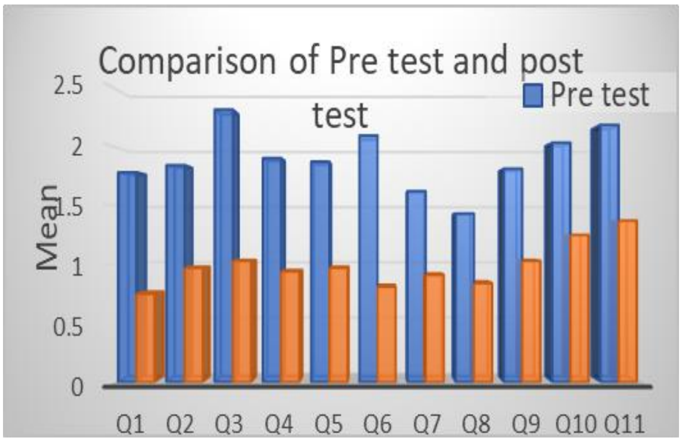


Table No. 6 Comparison of pre- test and post -test

	Pre test		Post test		t-value	p-value
	Mean	SD	Mean	SD		
Q1	1.78	0.90	0.75	0.56	7.4576	< 0.0001,HS
Q2	1.84	0.88	0.97	0.53	7.0000	<0.0001,HS
Q3	2.31	0.69	1.03	0.64	8.1580	<0.0001,HS
Q4	1.90	0.77	0.94	0.71	7.4070	<0.0001,HS
Q5	1.87	0.75	0.97	0.64	6.9807	<0.0001,HS
Q6	2.09	0.89	0.81	0.59	11.4282	<0.0001,HS
Q7	1.62	0.90	0.91	0.64	5.9514	<0.0001,HS
Q8	1.43	0.87	0.84	0.62	5.0490	<0.0001,HS
Q9	1.81	0.86	1.03	0.59	6.2563	<0.0001,HS
Q10	2.03	0.82	1.25	0.67	7.2659	<0.0001,HS
Q11	2.18	0.86	1.37	0.61	5.8903	<0.0001,HS



Ethical policy and institutional review board statement: Obtained from the ethical committee of college of physiotherapy.

Data availability statement: data are available based upon from Dr. More

Financial suport and sponsorship: Nil

Conflict of interest: Nil.

ACKNOWLEDGEMENT:
The authors would like to thank all the watch mechanics who participated in this study.

REFERENCES:

1.Sellakumar GK. Effect of slow-deep breathing exercise to reduce anxiety among adolescent school students in a selected higher secondary school in Coimbatore, India. Journal of Psychological and Educational Research (JPER). 2015; 23(1):5

2.V ijayalakshmi S, Chandrababu R, V ictoria EL. Menopausal transition among northern Indian women. Nitte University Journal of Health Science. 2013 Jun 1;3(2):73.

3.Palacios S, Henderson VW, Siseles N, Tan D, Villaseca P. Age of menopause and impact of climacteric symptoms by geographical region. Climacteric. 2010 Oct 1; 13(5):419-28.

4.Zhang J, Chen G, Lu W, Yan X, Zhu S, Dai Y, Xi S, Yao C, Bai W. Effects of physical exercise on health-related quality of life and blood lipids in perimenopausal women: a randomized placebo-controlled trial. Menopause. 2014 Dec 1;21(12):1269-76.

5.Rahman SA, Zainudin SR, Mun VL. Assessment of menopausal symptoms using modified Menopause Rating Scale (MRS) among middle age women in Kuching, Sarawak, Malaysia. Asia Pacific family medicine. 2010 Dec;9(1):1-6.

6.A.K.ThuwaibahRaabia, jenifer Augustina. ‘Efficacy of deep breathing exercise and aerobic exercise on perimenopausal women’ Saveetha college of physiotherapy, Thandalam , Chennai-602105, Tamilnadu ,india. International journal of physiotherapy and research 2022.

7.M.Dena Gardiner, B.A.,F.C.S.P. ‘The principles of exercise therapy’ Fourth Edition Revised by the teachers of physiotherapy , The London hospital.

8.Patricia A. Downie FCPSwith D.M.Innoocenti Mcsp and S.E. Jackson Mcsp, Diptp ‘Cash’s textbook of chest, heart and vascular disorders for physiotherapists’ fourth edition .

9.Carolyn Kisner,PT,MS , Lynn Allen Colby, PT,MS , John Borstad, PT,MS Therapeutic exercise foundation and techniques .seventh edition 2018 by F.A.Davis compsany.

10. . Cabral PU, Canário AC, Spyrides MH, Uchôa SA,Eleutério JJ, Giraldo PC, Gonçalves AK. Physical activity and sexual function in middle-aged women.Revista da Associação Médica Brasileira. 2014 Feb;60(1):47-52.

11. Stojanovska L, Apostolopoulos V, Polman R,Borkoles E. To exercise, or, not to exercise, during menopause and beyond. Maturitas. 2014 Apr 1;77(4):318-23.

12. Wolters kluwer madeline paternostro bayles, PhD, FACSM, ACSM-CEP,ACSM-PD ‘ACSM’S Exercise Testing and Prescription’ department of kinesiology, health, and sport science.indian university of pennsylvania.

13. Patricia Uchoa Leitao Cabral ‘Physical activity and sexual function in middle-aged women.’

14. Jennifer A. Pryor, Barbara A. webber ‘ physiotherapy for respiratory and cardiac problems’ Head of physiotherapy, Royal brompton hospital,london,UK ISBN 0443058415.