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Research article

## Impact of pilates training versus progressive muscle relaxation technique on quality of life in menopausal women- a comparative study

Anjali Bais, Om C. Wadhokar, Sakshi P. Arora, Waqar M. Naqvi, Pratik Phansopkar\*

Ravi Nair Physiotherapy College, Datta Meghe Institute of Medical Sciences, Wardha, Maharashtra, India

### ABSTRACT

Menopausal women shows common symptoms which includes night sweats and hot flushes, heart distress, disturbances in sleep, depression, irritability, anxiousness, weight changes, physical and mental fatigue, joint and muscle pain. This affects the Quality Of Life of the Menopausal women. Pilates Training has proven beneficial for enhancing QOL in menopausal women but there is paucity of evidence of effect of Progressive Muscle Relaxation Technique in Menopausal women on QOL. The research is an initiative study that focuses on the effectiveness of PMRT on the various aspects of Quality Of Life of the menopausal women and comparison of the Pilates training and PMRT in order to enhance the QOL of participants. Effect of Pilates training & Progressive Muscle Relaxation Technique on menopausal women's QOL and comparison of both the technique. Methods: 42 participants aged >45 years will be randomly categorized in two groups: Group A (n= 21) and Group B (n=21). The study duration will be of 6 months. The pre and post Intervention will be taken from both the group and data will be analyzed with the help of main outcome measure which is Menopause specific Quality Of Life. Subject showed significant improvement in physical and psychosocial domain of MENQOL followed by both the intervention and Pilates Training has been seen more effective than PMRT. The study concluded that both the Pilates and Progressive Muscle Relaxation Therapy helped in improving the patients QOL.

**Keywords:** Menopausal women, Quality Of Life, Pilates, Progressive Muscle Relaxation Technique.

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**Correspondence:** Pratik Phansopkar\* ✉ [drpratik77@gmail.com](mailto:drpratik77@gmail.com)

Associate Professor & HOD, Department of Musculoskeletal Physiotherapy, Ravi Nair Physiotherapy College, Datta Meghe Institute of Medical Sciences, Wardha, Maharashtra, India.

### INTRODUCTION

Mean age for Indian women in menopause is 44 years. The symptoms peak between 45 to 55 years and decrease in severity after 55 years [1]. Menopause is impacted not just by a woman's individual perspective, but also by socio - cultural factors. There is a paucity of awareness about menopause and its treatment in our society which leads to avoidance of the symptoms and collectively hampered lifestyle of the women [2]. Most common symptoms of menopause include muscle and joint pain, slow feeling, poor memory, lower back pain and trouble sleeping whereas lower back pain is considered as frequent disorder of musculoskeletal system [3,4]. The vasomotor and emotional domains reported less often compared with the physical and psychological domains.

About 75 per cent of women are reported to experience acute symptoms after menopause. Such adverse changes in physical and mental

health may have an adverse effect on Quality Of Life (QOL) as they undergo transition from menopause [5]. The self-administered questionnaire that works well to classify women by their Quality Of Life and find out how their Quality Of Life benefits is known as Menopause-specific Quality of Life (MENQOL) questionnaire [6].

Pilates is a therapeutic exercise intended to enhance strength, stabilizer core muscles, endurance, muscle coordination, posture and respiration. Exercises can be done on mats or require the use of specialized equipment and the concepts of Pilates include centering that occurs by tightening of the body's muscle core between the ribcage and the pelvic floor throughout exercise, focus where cognitive focus needed to accomplish the activity, balance that needs the posture and movement control throughout the activity, precision that allows the accurateness of the technique of exercise, flow to get smooth movement changes within the course of exercise and most

importantly, respiration that needs proper inhalation and exhalation of air from the lungs in combination with the exercise [7]. The Pilates mat training regimen results in young women's physical and psychological health in terms of body weight, slimming, anxiety, depressed mood, tiredness and quality of life [8]. Pilates helps to enhance both the mental and physical components in women during menopause [9].

Relaxation offers or helps to reduce anxiety, muscle tension and controls the pain [10]. Progressive muscle relaxation technique (PMRT) is a therapy used since Edmond Jacobson's implementation in 1938. PMRT involves tensing a muscle and then relaxing the tension; it is based on the psychological claim that people with stress and anxiety have tensed muscles and are able to relieve their pain both mentally and physically by learning how to relieve the tension [10]. Music-accompanied PMRT can be a beneficial therapy to improve pain and QOL in pregnant women with LBP [11,12]. Study conducted on diagnosed multiple sclerosis patient stated that Progressive Muscle Relaxation Technique is practically feasible and is associated with increase in quality of life of multiple sclerosis patient [13]. Researches had been conducted which shows positive effect of PMRT on cardiac patients, insomnia, chronic pain, anxiety [14]. But there is paucity of evidence of Progressive Muscle Relaxation Technique effect in menopausal women on the QOL.

The research is an initiative study that focuses on the effectiveness of PMRT on the various aspects of QOL of the menopausal women and comparison of the Pilates training and PMRT in order to enhance the Quality Of Life of participants. Pilates training effect in menopausal women on Quality Of Life objectify to find out the effect of Progressive Muscle Relaxation Technique in menopausal women in view of Quality Of Life and the Comparison of Pilates training & Progressive Muscle Relaxation Technique on menopausal women's Quality Of Life.

## METHODOLOGY

This research is being conducted in local communities in Wardha City, Maharashtra, India after ethical clearance is obtained from Institutional Ethics Committee, Datta Meghe Institute of Medical Sciences, Deemed to be University. The design of the study is comparative enrolling 42 participants and it has been grouped in both Group A and Group B through envelope method. The study has been done in Local communities from Wardha, Maharashtra, India. Written informed consent were taken by the patients and participants were explained about the interventions. Inclusion criteria for the participants were female in the age group more than 45 years, participants willing to perform exercises, menopause without any medical or surgical intervention, no contraindications related to performing the physical activity and she might not indulged in any kind of structured physical activities or exercise program since 6 months. Exclusion criteria were women having menopause due to any surgical condition like

oophorectomy, hysterectomy; pathologies related to musculoskeletal and cardiovascular system, cognitive impairments and neurological disorders, recent Orthopedic surgery of lower back and lower limb, hormone replacement therapy, subjects on anti-depressant medications and history of vertigo or fall in previous 6 months.

## Data source measurement

After using intraclass correlation coefficients (ICC), the test-retest reliability were 0.81 for physical domain, 0.79 for psychosocial domain, and 0.70 for sexual domain, 0.37 for vasomotor domain and 0.55 for QOL. There are certain systematic changes demonstrated in vasomotor domain. The score of face validity was 4.7 out of 5. Validity of the evaluative construct suggested correlation coefficients in which physical domain was 0.60, vasomotor domain was 0.28, psychosocial domain was 0.55 and 0.54, sexual domain was 0.54 and 0.32, and 0.12 for the QOL. Discriminative construct validity ranges from 0.57 to 0.70 in between all the domains [6].

## Intervention

It has been categorized as Group A (Pilates Training) and Group B (PMRT)

### Group A

A six week protocol has been made. The average length of every session was 40 to 50 minutes including 5 minutes of warm up and cool-down each. The exercise prescription had been formed by the FITT (Frequency, Intensity, Time and Type of exercise) principle which includes frequency of 3 days a week for 6 weeks. Intensity was calculated according to Rate of perceived exertion (RPE) scale and the progressions was done with the same scale and there was an interval of 10 seconds between each performed exercise. In order to get the desired effect, the exercises contained in this intervention are classified as beginner and intermediate level workouts. The therapist demonstrated the activities to the patient through visual and verbal directions, as well as educate them on the proper form of exercise and how to conduct it appropriately. The main program consisted of exercise that illustrate 6 principles of Pilates includes- 1) Hundred 2) Half roll-down 3) Leg stretch (single and double) 4) Leg circle (single and double) 5) Rolling back (also known as rolling like a ball) 6) Spine stretch forward 7) Shoulder Bridge 8) Criss-cross and progression will be done accordingly [15].

### Group B

Division of body by four muscle group technique occurs in such manner [1] both upper limb and arms; [2] the face, neck & shoulder; [3] the chest, back and abdomen; and [4] both lower limb. It was done alone, in a quiet place. Each group of muscles retain tension for 5 seconds and relaxes for 10 seconds.

The participant were in quiet place where there won't be any interruption. Subjects were in prone-lying and in comfortable position. Guidance must be given to the participants to keep the muscle group tighter and tensor and to feel it. For the specified seconds, the

participant inhaled deeply and tense the first group of muscles. The tension had be kept to a minimum so that no cramps or soreness in that muscle group occur. Following that, the muscle group had relaxed along with an exhale that should be complete and sudden. When the person is tense, the therapist had instructed them to note the changes in muscle groups. The therapist then helped these muscles relax by advising them to remember what it feels like to relax those muscles in prior activities, this is the relaxation technique and recall. The process of counting involves count of 10 at the conclusion of the completed recall. This includes a profound technique of relaxation. The procedure was planned for 20 days, as well as a training program that could be done with 45 minute sessions [15].

**RESULTS**

Table 1. Comparison of Vasomotor Domain, Psychosocial Domain, Physical Domain and Sexual Domain in group A and group B pre and post operatively

GROUP A					
	Pre Test	Post Test	Mean Difference	t-value	p-value
Vasomotor Domain	6.66±3.91	4.85±3.27	1.80±1.56	5.28	0.0001,S
Psychosocial Domain	11.57±3.52	5.66±2.39	5.90±2.87	9.39	0.0001,S
Physical Domain	30.90±8.56	15.47±4.94	15.42±5.05	13.98	0.0001,S
Sexual Domain	4.57±2.99	4.28±2.86	0.28±0.46	2.82	0.010,S
GROUP B					
	Pre Test	Post Test	Mean Difference	t-value	p-value
Vasomotor Domain	7.42±4.28	4.28±2.43	3.14±2.39	6.01	0.0001,S
Psychosocial Domain	10.14±3.45	7.57±2.61	2.57±1.83	6.43	0.0001,S
Physical Domain	28.90±7.16	24.33±6.24	4.57±2.78	7.52	0.0001,S
Sexual Domain	5.23±2.16	4.80±2.15	0.42±0.50	3.87	0.001,S

Table 1 revealed that Group A (Pilates Group) and Group B (PMRT group) showed significant difference in all vasomotor, psychosocial, physical and sexual domains respectively from baseline to 6 weeks whereas the P-value (P>0.0001) is found to be significant in all the domains and it is represented graphically.

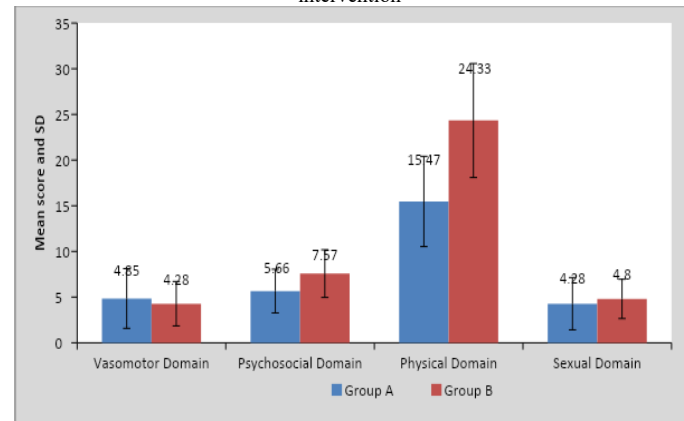
Table 2. Comparison of all domains in group A and group B at post intervention

	Group A	Group B	Mean Difference	t-value	p-value
Vasomotor Domain	4.85±3.27	4.28±2.43	0.57±0.89	0.64	0.52,NS
Psychosocial Domain	5.66±2.39	7.57±2.61	1.90±0.77	2.46	0.018,S
Physical Domain	15.47±4.94	24.33±6.24	8.85±1.73	5.09	0.0001,S
Sexual Domain	4.28±2.86	4.80±2.15	0.52±0.78	0.66	0.50,NS

According to Table no-2, based on the unpaired t-test, the mean difference of MENQOL was compared at baseline and 6 weeks. The P-value was 0.52 and 0.50 for vasomotor and sexual domain (P>0.0001) which was found to be non-significant post intervention

and P-value was 0.018 and 0.0001 for psychosocial and physical domain (P>0.0001) which was found to be significant and it is represented graphically.

Figure 1. Comparison of all domains in group A and group B at post intervention



**DISCUSSION**

Menopause is described as the total cessation of ovarian function, during which a woman suffers a variety of symptoms that lead to changes in her physical and mental health, as well as a negative impact on her QOL [1,5]. This study compared the effects of Pilates training to the Progressive Muscle Relaxation Technique on menopausal women's quality of life. The study's outcome measure is the Menopause Specific Quality of Life [6]. Result showed comparison of pre and post intervention of Group A which showed significant difference as P value was >0.0001 and it showed greater mean difference specifically in physical domain (15.42±5.05) and psychosocial domain (5.90±2.87). Group B also showed significant difference between pre and post intervention and it also showed greater mean difference in physical domain (4.57±2.78) as compared to other.

Result reflected significant improvement in both the groups after intervention and Group A has shown progressively more improvement than Group B. Present study indicated that 6 weeks protocol of Group A (Pilates Training) helped to improve the QOL in menopausal women. Akbas et al., conducted a study and proposed that in terms of QOL, a 6-week Pilates Training programme benefits young females' physical and psychological well-being [8]. Rodriguez et al., conducted a study and proposed that in elderly female, the Pilates approach can significantly improve their QOL along with other outcome measures [9]. Both these studies helps to validate the study duration as well as how the intervention has been helpful in improving the taken outcome measure.

Comparatively, Group A post intervention showed significant improvement in physical as well as psychosocial domain (P value is 0.0001). Ender et al., conducted a study and revealed that physical performance significantly increases in the Pilates group (p < 0.05) [16]. Rodriguez et al., also revealed that Pilates seems to improve

both the physical and mental components in QOL<sup>[9]</sup>. Both these studies validates how the specific domains showed greater improvement in the patients.

It also revealed that PMRT has been helpful in improving QOL of the menopausal women in some aspect. Chaudhari et al., revealed in her study that elderly women's QOL can be improved by performing relaxation activities to alleviate stress<sup>[14]</sup>. Zehra et al., suggested that PMR may be an effective therapy for improving pain and QOL in pregnant women. PMRT has not been evaluated on menopausal women prior to this<sup>[17]</sup>.

When we correlate the difference in mean value of Group A and Group B, the pre intervention result were non-significant. But, after 6 weeks, when compared, Group A and group B revealed significant changes in physical and psychosocial domain and it has been showed that Group A has been seen more effective than Group B.

### CONCLUSION

Research aimed at testing the Quality of Life in Menopausal women. It involved a variety of exercises under the following interventions. Menopause-specific Quality Of Life has been used as an outcome measure and helped to conclude that both the intervention i.e Pilates Training and Progressive Muscle Relaxation Technique has been proven effective in decreasing the menopausal symptoms as well as enhancing the Quality Of Life of them.

### Author's contribution

All authors made best contribution for the concept, assessment and evaluation, data acquisition and analysis and interpretation of the data.

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