



EFFECT OF CHAIR-BASED EXERCISES ON FLEXIBILITY AND QUALITY OF LIFE IN POSTMENOPAUSAL WOMEN.

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Abstract:

Background: Menopause is a natural part of the aging process in women and is defined as occurring 12 months after the last menstrual period, marking the end of menstrual cycles. The decline in the production of ovarian gonadotrophins estrogen and progesterone, caused by the aging of ovaries, leads to menopause. Various somatic, vasomotor, sexual, and psychological symptoms that impair the overall quality of life (QoL) of women are elicited by the deficiency of these hormones.

Objective: Objective of the study were to improve the flexibility and quality of life in postmenopausal women.

Methods: 86 post-menopausal women were included in the study according to inclusion and exclusion criteria and written consent was taken. Further the postmenopausal women were performing Chair based exercises for Upper limb and Lower limb.

Each exercise was given for 30–45 min for 3 days/week over a period of 2 weeks. Outcome measures were assessed pre and post intervention program. Participants underwent Chair based exercises Thrice-a-week 45 mins of exercise intervention for 2 weeks.

Results: According to the result there is a significant difference seen in Upper Limb Flexibility and Menopausal specific quality of life.

Conclusion: This study concluded that there was a significant effect of chair-based exercises on Upper limb flexibility and quality of life in postmenopausal women.

Key words -Menopause, Flexibility, quality of life, chair sit and reach test, back scratch test, menopause specific quality of life.

I. INTRODUCTION

A transition period is experienced by all women beyond middle age, from the reproductive stage to the non-reproductive stage of life. The most striking feature of the non-reproductive stage is the cessation of menstruation, also known as menopause.¹

Researchers found that the prevalence of menopausal symptoms was 47% and that the mean age at menopause was 44.9 years.²

Menopause accelerates the aging process and leads to the cessation of estrogen production. Estrogen has a strong effect on the function of muscle, tendon, and ligament.

Postmenopausal women reported physical domain symptoms as the most common menopausal symptoms (around 81%).³ People perceive physical symptoms more due to the normal aging process and overly emphasize them as a limitation to their daily work performance.⁴ A number of physical changes that are loss of muscle strength and flexibility, which contribute to majority of musculoskeletal disorders, are experienced by menopausal women.^{3,5} In postmenopausal women, the physiological process of aging is markedly seen, with a decrease in motor skills, reduced strength, flexibility, and speed, hindering daily activities and maintenance of a healthy lifestyle, although individual variation is considerable.

Practicing regular physical exercises improves body composition, decreases joint pain and vascular resistance, increases bone mineral density, aerobic capacity, muscle strength, and flexibility, minimizing changes resulting from senescence and menopause.⁶

A seated, structured, and progressive exercise program known as chair-based exercise, which utilizes a chair for stability, can be utilized by older adults and individuals who might be frail or deconditioned.⁷ Safe, simple, and easily implemented physical activities can be participated in by older adults through this form of exercise. For instance, low-impact physical activity can be participated in by individuals with declining mobility through chair yoga, which has been proven to improve mobility, physical function, and psychological health.^{8,9}

A multidimensional concept, QoL, has been utilized in various fields of knowledge including sociology, occupational functioning, politics, marketing, climate, and health care.¹⁰ Menopause-related symptoms are found to have a negative impact on the QoL of perimenopausal women. It was demonstrated by Budakoglu et al that the QoL in postmenopausal women is worse than that of premenopausal women.¹¹

In 1996, the researchers introduced the Menopause-Specific Quality of Life Questionnaire (MENQOL) as a tool to assess health-related quality of life in the immediate post-menopausal period.¹² The MENQOL consists of a total of 29 items in a Likert-scale format that individuals self-administer. Each item assesses the impact of one of four domains of menopausal symptoms, as experienced over the last month: vasomotor (items 1–3), psychosocial (items 4–10), physical (items 11–26), and sexual (items 27–29). Participants rate items pertaining to specific symptoms as present or not present, and if present, how bothersome on a zero (not bothersome) to six (extremely bothersome) scale. Means are computed for each subscale by dividing the sum of the domain's items by the number of items within that domain. Non-endorsement of an item is scored a "1" and endorsement a "2," plus the number of the particular rating, so that the possible score on any item ranges from one to eight.¹²

The MENQOL assumes that disease states and conditions like menopause, which produce symptoms, may disrupt emotional, physical, and social aspects of an individual's life, which must be considered concomitantly with treatment decisions. The MENQOL improves upon several instruments used to assess the impact of menopausal symptoms on quality of life, including the Kupperman Index and the General Well-Being Scale, in the following ways: 1) specificity to the condition of menopause; 2) item development based on women's own qualitative and quantitative accounts of menopausal symptoms; 3) inclusion of all pertinent domains of the menopause experience, including sexual symptoms; and 4) demonstrated reliability and validity.

Despite women's widespread use and established reliability and validity of the MENQOL among those experiencing naturally-occurring menopause, its psychometric properties have not been evaluated in a population of breast cancer survivors. However, cancer treatment, including chemotherapy, radiation, oophorectomy, and hysterectomy, frequently causes menopause. Although menopausal symptoms' prevalence and physiological mechanism are believed to be similar between naturally-occurring and treatment-induced menopause, the transition may be accelerated and symptoms intensified in those who have undergone cancer therapy. Numerous qualitative and quantitative accounts confirm the negative impact of menopausal symptoms in this group on quality of life.

It was shown in a study by Nisar et al that the scores of the physical domain were significantly higher in the postmenopausal group, and menopause-related symptoms had a negative impact on the QoL of postmenopausal women.¹³

According to a study by Poomalar¹⁴, menopause-related symptoms had a negative impact on the QoL of perimenopausal and postmenopausal women, and the scores of the physical domain were significantly higher in the late postmenopausal group.

This tool was also used by Abedzadeh et al,¹⁵ and it was found by them that a better QoL in the menopausal period was had by women who were employed, had a high educational level, a menopause duration of less than five years, and who had income and marriage satisfaction. In a study conducted by Norozi et al,¹⁶ in 2013, it was observed that the QoL in postmenopausal women was correlated with age, educational level, marital status, and employment status.

Therefore, it is necessary to check the effect of Chair based exercises on flexibility and quality of life in postmenopausal women.

II. MATERIALS AND METHODOLOGY

Study Design: Experimental study.

Study Type: Pre-Post experimental design

Study Setting: In Metropolitan region

Study Population: Post-menopausal females Age 45-55

Sample Size: 86

Eligibility Criteria

Inclusion Criteria

1. Post-menopausal Female population from age group 45-55 who were in menopausal stage for >1yr
2. Females not undergoing any intense exercise programme.

Exclusion criteria

1. Having complains of musculoskeletal, neurological problems, pulmonary disorders and cardiac problems that would contradict physical activity.
2. Receiving hormonal replacement therapy within the past 6 months.
3. Any recent trauma or fracture within the last 6 months.
4. Acute Abdominal surgeries.

Materials Used

Measuring tape, Pen and paper, Ruler, Pencil, Mats for exercises.

Outcome Measures

- 1) YMCA SIT AND REACH Test
- 2) Back Scratch Test.

III. PROCEDURE

The study began after approval from the ethical committee. Post-menopausal women were approached. The subjects were given information about the study. Subjects were selected according to inclusion and exclusion criteria and written consent was given after explaining aims and objectives. Each of them was asked to fill consent form. Further the postmenopausal females were performing Chair based exercises for Upper limb and Lower limb as follows.

Chair based exercises for Upper limb which consisted of exercises Seated rows, Shoulder rolls, Seated jumping jacks, alternate arm cross body, Double arm forward and back to armrest.

Chair based exercises for Lower limb consisted of exercises Toe taps, Knee Lifts, Sit to Stand, Heel slides, Calf raises.

Each exercise was given for 30–45 min for 3 days/week over a period of 2 weeks. Outcome measures were assessed pre and post intervention program. Participants underwent Chair based exercises Thrice-a-week 45 mins of exercise intervention for 2 weeks.

IV. RESULTS

Age (years)	Mean \pm SD
45-50	47.213 \pm 1.756
50-55	53.4 \pm 1.692

Table No 1: Age Distribution with mean Age

Variables	Pre- training	Post- training	Mean % change
Chair sit and Reach test (inches) (Right)	0.9141 \pm 1.89308	0.7734 \pm 1.75465	14.07%
Chair sit and Reach test (inches) (left)	0.8516 \pm 1.78770	0.7188 \pm 1.66815	13.28%
Back scratch test (inches) (right)	3.4453 \pm 2.49621	2.8750 \pm 2.59425	19.90%
Back scratch test (inches) (left)	5.0422 \pm 3.49370	4.2359 \pm 3.47985	19.02%

Table No 2: Percentage of Mean Change in Both the outcome measures.

	Q_Vasomotor	Q_Psychological	Q_Physical	Q_Sexual
Q_Vasomotor Pearson Correlation	1	.483**	.509**	.218*
p value		.000	.000	.044
N	86	86	86	86
Q_Psychological Pearson Correlation	.483**	1	.680**	.241*
p value	.000		.000	.025
N	86	86	86	86
Q_Physical Pearson Correlation	.509**	.680**	1	.360**
p value	.000	.000		.001

	N	86	86	86	86
Q_Sexual	Pearson Correlation	.218*	.241*	.360**	1
	p value	.044	.025	.001	
	N	86	86	86	86

Table No 3: Correlation between each domain of Menopause specific quality of life.

v. DISCUSSION

This study was conducted to evaluate the effect of chair-based exercises on flexibility and quality of life in postmenopausal women. Menopause accelerates the aging process and leads to the cessation of estrogen production. Estrogen has a strong effect on the function of muscle, tendon, and ligament. In postmenopausal women, the physiological process of aging is markedly seen, with a decrease in motor skills, reduced strength, flexibility, and speed, hindering daily activities and maintenance of a healthy lifestyle, although individual variation is considerable.

Chair-based exercise is a seated, structured and progressive exercise programme, which uses a chair to provide stability and can be used by older adults and those who may be frail or deconditioned. Safe, simple, and easily implemented physical activities can be participated in by older adults through this form of exercise. For instance, low-impact physical activity can be participated in by individuals with declining mobility through chair yoga, which has been proven to improve mobility, physical function, and psychological health. Chair based exercises is a low to medium intensity exercise in which the spine is stabilized by a fixed base of support compared to that of standing or dynamic exercises, which require a lot of stability (also chair based exercises facilitate a greater range of movement by providing points of leverage and support, it also minimizes load-bearing on joints while some postural muscles are relaxed; it also reduces balance problems in those with poor mobility and makes a great form of exercise while sitting).

The main aim of this study was to evaluate the effect of chair-based exercises on an improvement of flexibility and quality of life of postmenopausal women. The objectives of the study were to improve the flexibility and quality of life in postmenopausal women. 94 individuals participated in the study out of which 86 individuals fulfilled the selection criteria and 64 individuals continued their participation in the study for the 2 weeks. Subjects were screened by measuring their flexibility and by measuring Menopause-Specific Quality of Life Questionnaire to assess their health-related quality of life in the immediate post-menopausal period. The chair based exercises were carried out 3 days per week for 2 weeks, when Flexibility and Quality of life was again measured. Each exercise was given for 30–45 min for 3 days/week over a period of 2 weeks. Outcome measures showed significant differences among Flexibility and the Components of quality of life.

This was confirmed using statistical analysis using a ‘Paired t-test’ and non-parametric Wilcoxon tests for intra group comparisons. Within the intra group comparison, the pre-treatment Chair sit and Reach test of Right side was 0.9141 ± 1.89 and dropped to 0.7734 ± 1.75 ($p < 0.0001$) which showed significant difference in lower limb flexibility of right side. The pre-treatment Chair sit and Reach test of life side was 0.8516 ± 1.78 and dropped to 0.7188 ± 1.66 ($p < 0.0001$) which showed significant difference in lower limb flexibility of left side.

The pre-treatment back scratch test of Right side was 3.445 ± 2.49 and dropped to 2.875 ± 2.29 ($p < 0.0001$) which showed significant difference in upper limb flexibility of right side. The pre-treatment back scratch test of left side was 5.042 ± 3.49 and dropped to 4.235 ± 3.47 ($p < 0.0001$) which showed significant difference in upper limb flexibility of left side. Also, the quality of life was assessed by menopause specific quality of life questionnaire, a significant improvement was seen in all components. Vasomotor, Psychological, Physical, Sexual components had improved. Physical component has increased probably due to chair based exercises.

VI. CONCLUSION

This study concluded that there was a significant effect of chair-based exercises on Upper limb flexibility and quality of life in postmenopausal women.

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VIII. REFERENCES

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