Effect of Global Posture Re-Education Versus Static Stretching on Pain, Range of Motion And Quality of Life in Post-Menopausal Women with Chronic Neck Pain

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ABSTRACT

Objective: To compare the effects of global posture re-education and static stretching on pain, range of motion and disability in post-menopausal women with chronic neck pain.

Study Design: A quasi-experimental study.

Place and Duration of Study: Sheikh Zayed hospital Rahim Yar Khan, from Jun to Dec 2020.

Methodology: A total of 36 female patients between 45-65 years of age were included in the study. Patients who had received physiotherapy or manual therapy treatment for neck pain in the previous six months or had any tumour infection were excluded. There were two groups, the global posture re-education group (n=18) performed muscle chain stretching, while the static stretching group (n=18) performed conventional static muscle stretching. Visual analogue scale, neck disability index and goniometer were used for outcome measurement.

Results: The results showed significant improvement in visual analogue scale score, neck disability index, flexion and extension range at four weeks and three months follow up (p<0.05). There was no significant improvement in NDI score at three months follow up (p-value >0.05).

Conclusion: There was a significant difference in pain, function and disability in both groups, but the global posture re-education group showed a maximum decrease in pain and disability and gain in ROM as compared to the static stretching group.

Keywords: Articular, Neck muscles, Neck pain, Range of motion.


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INTRODUCTION

Neck pain is a significant health problem experienced by many people during their life.1 After low back pain, neck pain is the second most commonly reported musculoskeletal disorder.2,3 The lifetime prevalence of neck pain is reported to be high, varying from 14.20% to 71% in adults.4 Prevalence is generally higher in females (25-27.20%) than in males (16-17.40%) and increases with age.5

Physiotherapists often use a multimodal treatment approach (exercise, manual therapy, electro-therapy, thermal agents, etc.) to manage the neck pain.6,7

Park et al, determined the effectiveness of different manual treatments for several musculoskeletal and medical conditions and concluded that cervical manipulation is effective for neck pain and acute whiplash-associated disorders (WADS) combined with exercises. They reported inconclusive evidence for cervical mobilisation/manipulation alone for neck pain of any duration.8

Lomas-Vega et al, performed a systematic review to determine manual therapy effectiveness for treating non-specific neck pain and found that it improves pain and function in non-specific neck pain patients.9 However, the evidence was limited for manual therapies in managing patients with neck pain. They also concluded that manual therapy combined with exercises produced better results than manual therapy alone.10

This study will help in identifying specific types of combined therapeutic approaches that are most effective in reducing pain and disability and increasing neck ROM in patients with neck pain. The results could assist in developing future management strategies in patients having chronic neck pain, which may help healthcare professionals reduce the individual and societal burden of neck pain and its associated disorders.

METHODOLOGY

This quasi-experimental study was conducted at Physiotherapy Department of Sheikh Zayad Hospital, Rahim Yar Khan, from June to December 2020. The sample size was calculated by using G* power version 3.1 with the input values; effect size-d=1.6871339, α error=0.05, power (1-β err prob)=0.80, allocation ratio...
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n2/n1=1, output: non centrality parameter d=3.1563385, critical t=2.1788128 and Df=12.11,12

The ethical approval was taken from Sheikh Zayed hospital Rahim Yar Khan (reference number REC/RCRS/20/1002).

**Inclusion Criteria:** Post-menopausal female patients, suffering from mechanical neck pain with no specific pathology were included in the study. Patients having neck pain for more than three months and patients who had a secondary complaint of headache were also included in the study.

**Exclusion Criteria:** Patients who had received physiotherapy or manual therapy treatment for neck pain in the previous six months were excluded from the study.

Three outcome measures were used: visual analogue scale (VAS) for pain, neck disability index (NDI) for disability and a goniometer for neck range of motion.13 Patients were randomly distributed in two groups using the flip a coin method. Group-1 patients got global postural re-education and group-2 got static stretching. All the patients were given 12 treatment sessions for 4-weeks, which consisted of three treatments in a week.14 A follow-up assessment was done at six weeks and then at three-month intervals.

Statistical Package for Social Sciences (SPSS) version 21 was used for the data analysis. The paired sample t-test and independent t-test were applied for the group comparisons. The p-value of ≤0.05 was considered statistically significant.

**RESULTS**

In the present study, the impact of global posture re-education and static stretching treatment among post-menopausal women with chronic neck pain was evaluated. Patients were divided into two groups: the global posture group (n=18) and the static stretching group (n=18). The mean age of the group under treatment of GPR and static stretching were 51.82 ± 10.94 years and 49.00 ± 12.80 years respectively. Mean weight of GPR-group was 76.03 ± 12.70kg and in SS-group was 80.35 ± 16.31kg. Mean height of GPR-group was 164.09 ± 7.03cm and in SS-group was 165.06 ± 9.16cm as shown in Table-I.

The comparative analysis showed significant improvement in VAS score and neck disability index (p-value <0.05) at four weeks and three months follow up. There was no significant improvement in NDI score at three months follow up (p-value >0.05) as shown in the Table-II. Mean flexion and extension ROM for the two groups were found significant (p-value <0.05).

GPR group exhibited greater improvement in flexion ROM with the mean difference of 9.92 & 8.84 degrees (p<0.001). There was no significant improvement in flexion ROM in the two groups after the interventions time to 3 months follow-up, as shown in the Table-III.

**DISCUSSION**

This study was conducted to determine the effects of global posture re-education and static stretching on pain, range of motion and disability in post-menopausal women with chronic neck pain. Results of the current study showed a significant difference in pain, function and disability in both the groups However global posture re-education group showed the maximum decrease in pain and disability and gain in ROM compared to the static stretching group. It was found in this current research that global posture re-education is
more effective than static stretching in the treatment of neck pain in postmenopausal women. Global posture re-education targets the postural muscles and is thus effective in neck pain.\textsuperscript{15}

There was a significant effect on pain, ROM and disability (p-value <0.05) in the global postural re-education group compared to the stretching group. According to previous studies, conventional stretching and muscle chain stretching are very effective treatments.\textsuperscript{16-18} Results of the current study were supported by another research that showed that GPR and SE had similar effects on neck and upper extremity function in patients with neck pain. When evaluating groups, GPR was superior to SE in enhancing pain and quality of life.\textsuperscript{19} Global Posture reduction static stretching was used in current research to check improvement in range of motion in chronic neck patients. Results of the current study stated that there was a good improvement in neck range of motion in the group of global posture reduction compared to static stretching.

Pillastrini \textit{et al}, concluded that in patients with mechanical neck pain, both MET and stretching effectively alleviate pain and reduce disability. However, MET has shown a better effect on improving pain and functional status of patients with mechanical neck pain than stretching. MET can also be preferred along with traditional exercises over-stretching when treating patients with mechanical neck pain.\textsuperscript{17} In the current study, NDI was used to check the disability of chronic neck pain in postmenopausal women. Our results exhibited that participants having global posture reduction as the treatment method showed better improvement in disability.

Previous studies showed results in favour of current research. They concluded that global posture re-education is extremely effective in reducing pain and enhancing the quality of life of women with chronic neck pain.\textsuperscript{20,21} A study by Sneha Somarajan et al, showed statistically significant reductions in VAS and NDI in both groups after a 4-week intervention. However, this outcome measure has identified no significant differences between the groups. In combination with traditional therapy, global postural re-education and static stretching were equally effective in reducing pain and disability in women with chronic neck pain.\textsuperscript{22} Our study also stated that static stretching exercises and global posture reduction exercises have helped improve range of motion in patients with chronic neck pain.

There is a significant difference in pain, function and disability in both groups, but the global posture re-education group showed a maximum decrease in pain and disability and gain in ROM as compared to the static stretching group. Therefore, it can be concluded that global posture re-education is more effective than static stretching in treating neck pain in postmenopausal women.

**LIMITATIONS OF STUDY**

There was lack of placebo group in our study. Multiple neurophysiological effects related to mobilisation are also associated with non-specific effects like a placebo.

**CONCLUSION**

There was a significant difference in pain, function and disability in both groups, but the global posture re-education group showed a maximum decrease in pain and disability and gain in ROM as compared to the static stretching group.

**Conflict of Interest:** None.

**Authors’ Contribution**

HA: Conception and design, drafting of article, final approval, NA: Acquisition and analysis of data, critical analysis, ST: Conception and design, analysis drafting of article final approval, KK: Critically revising and final approval.

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