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Effectiveness of Sustained Natural Apophyseal Glides Mobilization with or Without Scapular Stabilization Exercises for Mechanical Neck Pain Among Beauticians

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Abstract:-

- ***Background:***

"Work related musculoskeletal disorder in beauticians have spread fundamentally over a year. Beautician experiences the illness effect of Mechanical neck pain due to bend their neck upwards or sideways during their working activities. Neck is the most common musculoskeletal discomfort among Beauticians with prevalence rate of 80%.

- ***Purpose:***

To observe the effects of SNAGs mobilization with or without scapular stabilization exercises for mechanical neck pain among the beauticians.

- ***Methodology:***

The research was an experimental study. 30 subjects were separate into two groups. Group A received SNAGs mobilization along with scapular stabilization exercises and Group B received scapular stabilization exercises alone for a period of six weeks. Both groups were assessed by using NPQ and NPRS before and after the intervention.

- ***Results:***

Statistical analysis was done using paired and unpaired 't' test for within the group and between the groups. Statistical analysis for between the groups showed significant improvement in Group A.

- ***Conclusion:***

The study concluded that GROUP A show a more significant effect on decreasing pain and increasing functional activities than GROUP B among Beauticians after 6 weeks of intervention.

Keywords:- *SNAG Mobilization, Scapular Stabilization Exercises, NPQ, NPRS.*

I. INTRODUCTION

Mechanical neck pain regularly arises and generally present in origin including following factor such as poor posture, repetitive neck bending twisting activities, depression, neck strain, and sporting or occupation activities. Work related musculoskeletal disorders (WMSD) in beauticians have expanded fundamentally over past year [4]. Beautician experiences the illness effect of Mechanical neck pain due to flex and rotate their neck upwards or sideways during their working activities. Neck is the major musculoskeletal discomforts among Beauticians with popularity of 80%.

There are numerous mobilization techniques for neck pain. Sustained natural apophyseal glides (SNAGs)technique is used for our research purposes which is composite of a sustained facet glide with movement bear on facet joint between cervical C2 toC7.SNAG is the leading technique as it enhance the range of motion (ROM) of the patient by correcting the biomechanics of the joint, unlocking a jammet facet, and losing the entrapped meniscoid between the joint. It is usually done in sitting or standing SNAG mobilization done on facet where glides are sustained with self-movement followed by over pressure and glides are conserved till the joint return to the true position.

Stabilization training which is composed of strengthening exercises, is means to enhance muscular balance, which aids in keeping original posture when working other the muscular stabilizers include trapezius, serratus anterior, and rhomboids Serratus anterior and upper trapezius muscle are the foremost stabilizes of scapula that regulate the force that control the scapula motion for function activity. Abnormal scapular guidance can alter the activity of stabilizing muscle such as levator scapulae and upper trapezius muscle and also mobilizing the muscle such as rhomboid and pectoralis minor.

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Northwick Park neck pain questionnaire (NPQ) – The questionnaire was formed to calculate self-perceived neck pain and the consequent patient disability. The score was calculated to the answer given by the subject with help of questionnaire. The lowest score is 0 and highest score is 36. The participants were assessed with their pain intensity using Numeric pain rating scale (NPRS) scale, 0 denotes no pain,10 denotes 'severe pain'

So, in this study to assess effectiveness of SNAG mobilization along with or without scapular stabilization exercises for mechanical neck pain among the beauticians.

II. MATERIALS AND METHODS

➢ *Participants.*

Age ranging from 25 to 40 years, both gender male and female, Subjects who are working more than 8 hours per day, Neck Pain for 2 to 4 weeks, numerical pain rating scale value between 3 – 6 and patient with Northwick Park neck pain questionnaire score more than 55% were included in this study. The condition such as cervical spondylosis with radiculopathy, cervical spondylolisthesis, cervical bone weakness (osteoporosis, osteomalacia), Structural abnormality affecting neck, Cervical disk bulge, Inflammatory condition at cervical were excluded in this study. The materials used were chair, couch, TheraBand, ball.

➢ *Study procedures.*

The study was conducted in Jawid Habib beauty parlor, Lawspet, Puducherry. It was an experimental study.30 beauticians were taken as subjects for this study. Random Sampling Method was used. The patients signed consent forms after being separate into a group (GROUP A and GROUP B) having 15 patients each. GROUP A one was experimental group where all received SNAG Mobilization with scapular stabilization exercises and GROUP B was the control group who received only SNAG Mobilization for 6 weeks. The outcome measures were Northwick Park neck pain questionnaire (NPQ) and Numerical pain rating scale (NPRS).

➢ *Intervention.*

- GROUP A: SNAG Mobilization with scapular stabilization exercises.
- GROUP B: SNAG Mobilization.

➢ *SNAGs Mobilization:*

- *Both Group A and B Received Snag Mobilization.*

Therapist standing behind the patient in stride stance. patient sitting upright on a chair. For central snags; Therapist stabilize spinous process of vertebra by placing medial border of the thumb. Therapist places pulp of the thumb of his other hand supporting the lateral side of the thumb placed earlier. The other fingers placed comfortably the mandible/ temporomandibular joint. The glide is given under the spinous process by pushing it in direction of the eyeball. Patient is asked to achieve the painful or limited movement.

- *For Unilateral Snags:*

Therapist place medial border thumb at facet joint of the vertebra. If SNAGs are given on the right side, right thumb is placed on the facet joint, which is reinforced by the left thumb. If SNAGs are given on the left side, left thumb is placed on the facet joint, which is reinforced by the right thumb. The other fingers placed comfortably the mandible/temporomandibular joint. The glide is given over the affected facet in direction of the same eyeball. Patient is asked to achieve the restricted or painful movement.

➢ *Scapular Stabilization Exercises:*

- *Group A Received Scapular Stabilization Exercises.*

1.Scapular retractions exercise are scapular retractions "w" position, scapular retractions "y" position ;2. resistance band scapular strengthening are resistance band rows, resistance band extensions, chest opening with bands -hold for 10 seconds,5sec relax, 3 repetitions 3. wall exercises for scapula stabilization are ball roll, wall press up -3 set ,15 repetition 4 times a week for 6 weeks. After the treatment session pain and functional activities were assessed.

III. DATA ANALYSIS

The significant variance between the two groups were statistically analyzed. The pre-test and post-test interventional variances within the separate groups were analyzed by applying a paired 't' test for outcome measures. to study effectiveness of SNAG with or without scapular stabilization exercises for mechanical neck pain among beauticians.

Table 1 Display the Pre and Post-Test values of Group A (Paired t-Test Value)

GROUP-A	MEAN	SD	t-value	p-value
PRE-TEST	69.8	5.93	42.75	<0.0001
POST TEST	55.06	6.67		

The t value of NORTHWICK PARK NECK PAIN QUESTIONNAIRE group A is 42. and regard statistically significant($p<0.0001$)

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Table 2 Displays the Pre and Post-Test values of Group B (Paired t Test Value)

GROUP-B	MEAN	SD	t-value	p-value
PRE-TEST	66.66	6.21	37.24	<0.0001
POST TEST	53.13	6.93		

The t value of NORTHWICK PARK NECK PAIN QUESTIONNAIRE in group B is 37. and regard statistically significant($p<0.0001$)

➢ *Graphical Representation: 1 & 2 within the Group Analysis of Pre and Post Test of Group A And B of NPQ (Paired T Test)*

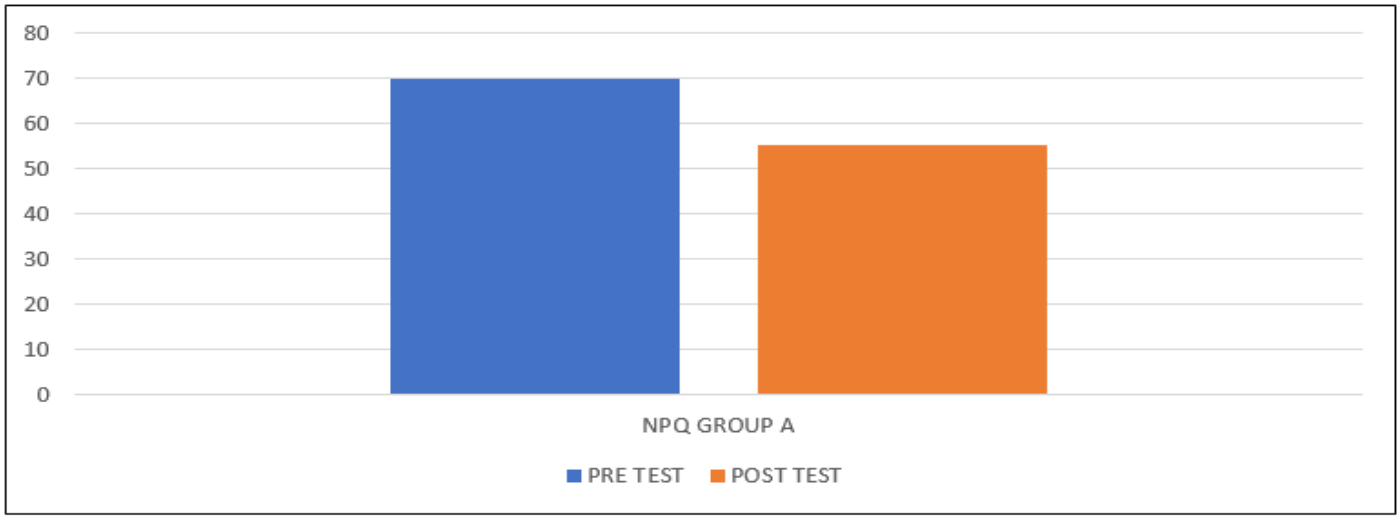

Fig 1 NPQ Group A

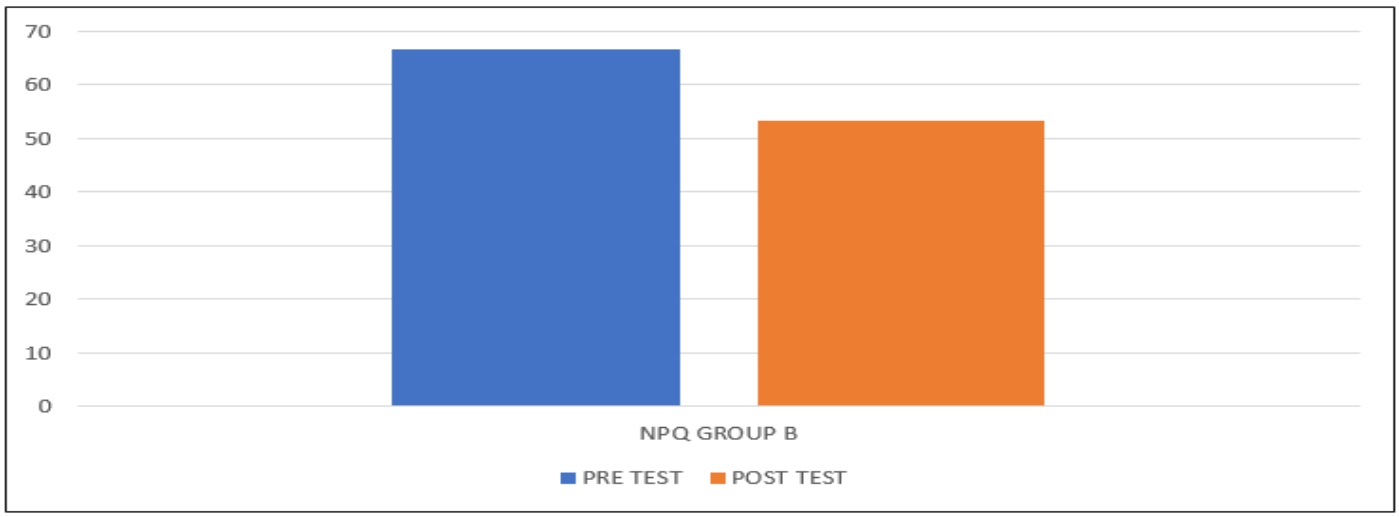

Fig 2 NPQ Group B

Table 3 Displays the Pre and Post-Test values of Group A: (Paired t Test value)

GROUP-A	MEAN	SD	t-value	p-value
PRE-TEST	5.33	0.72		
POST TEST	2.8	0.67	19	<0.0001

- The t value of NPRS of group A is and regard statistically significant ($p<0.0001$)

Table 4 Displays the Pre and Post-Test values of Group B: (Paired t-Test value)

GROUP-B	MEAN	SD	t-value	p-value
PRE-TEST	5.13	0.83		
POST TEST	3.33	0.97	10.3	<0.0001

- The t value of NPRS of group B is 10and regard statistically significant ($p<0.0001$)

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➢ *Graphical Representation: 3& 4 within the Group Analysis of Pre and Post Test of Group A and B of NPRS (Paired T Test):*

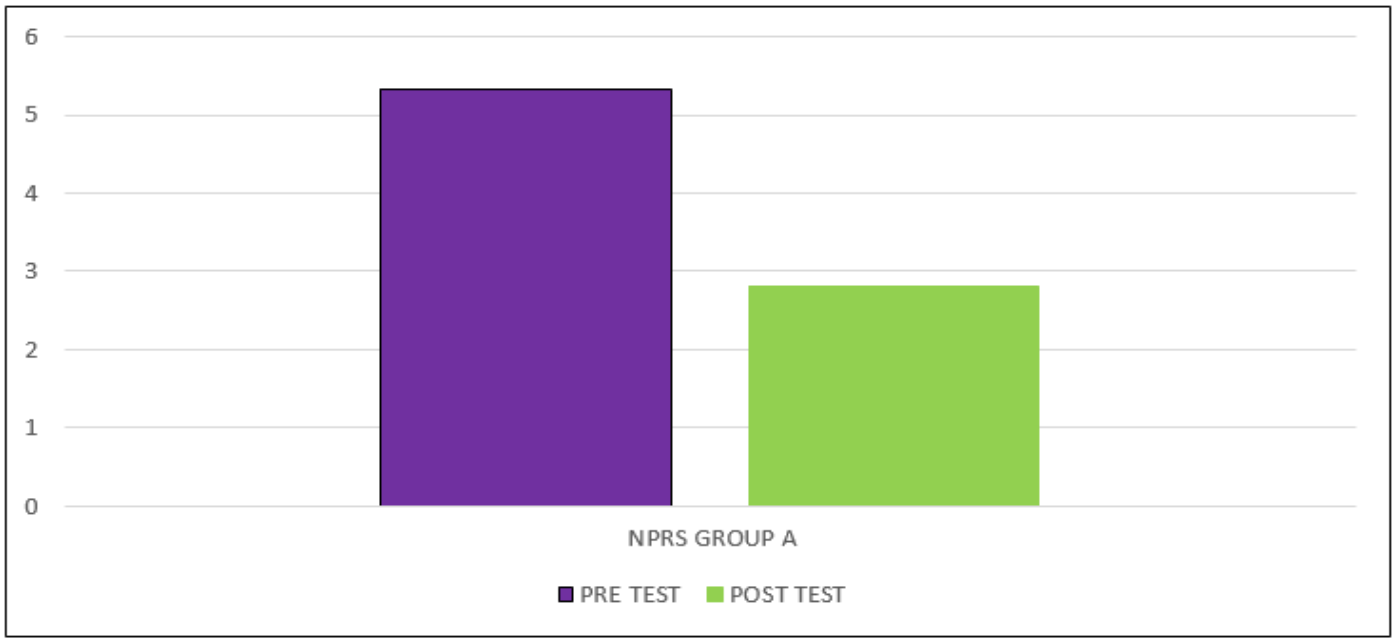

Fig 3 NPRS Group A

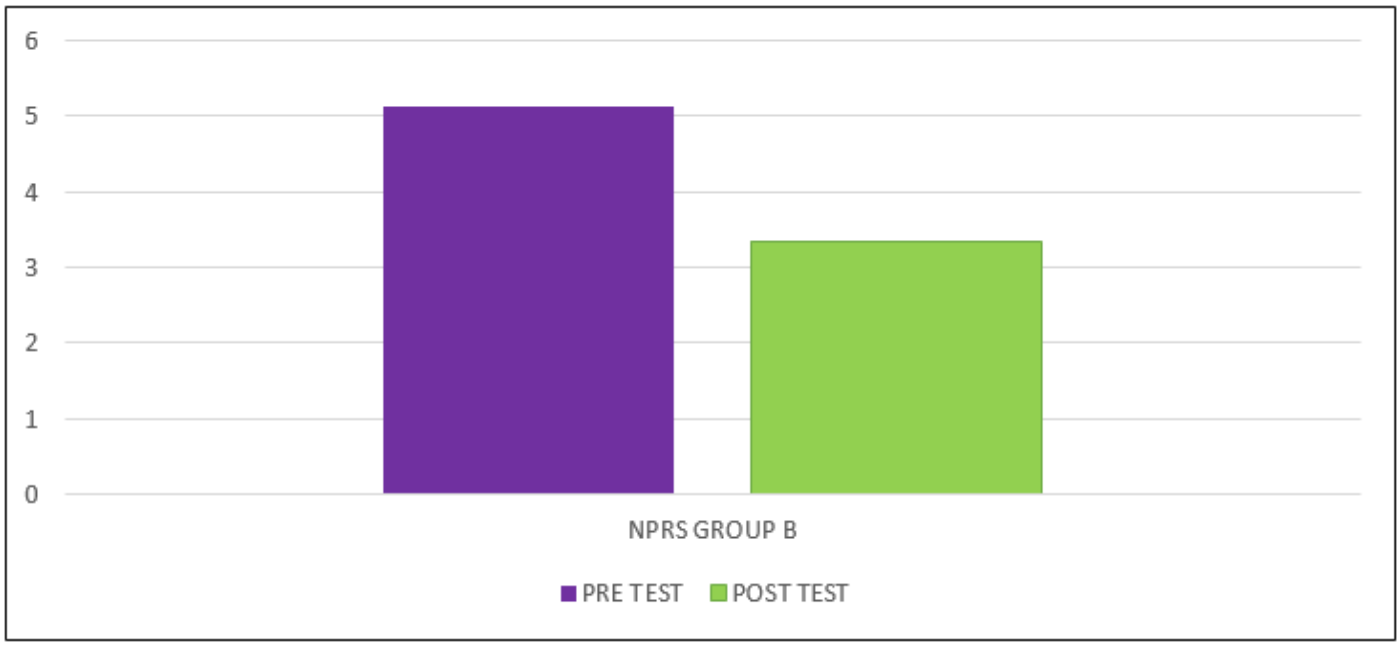

Fig 4 NPRS Group B

Table 5 Displays the mean Differences of Group A & B: (Unpaired t Test values)

	MEAN	SD	t-value	p-value
GROUP-A	14.73	1.33		
GROUP-B	13.53	1.40	2.39	<0.01

- The t value of NPQ between the group is 2.39 and regard statistically significant ($p<0.01$)

Table 6 Displays the mean Differences of Group A & B: (Unpaired t-Test values)

	MEAN	SD	t-value	p-value
GROUP-A	2.53	0.516		
GROUP-B	1.8	0.67	3.33	<0.001

- The t value of NPRS between the group is 33.3 and regard statistically significant ($p<0.001$)

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➢ *Graphical Representation: 5 & 6 between the Group Analysis of Group, A & B of NPQ and NPRS (Unpaired T Test Values)*

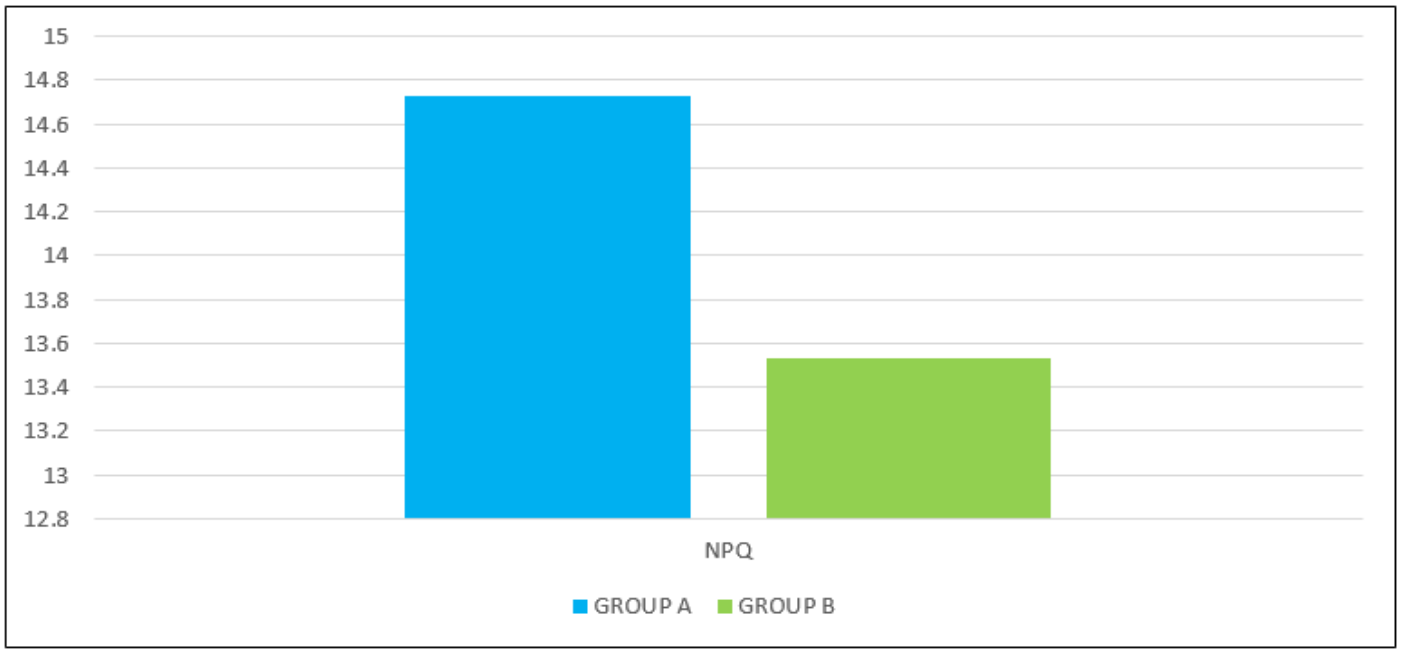

Fig 5 NPQ Group A Group B

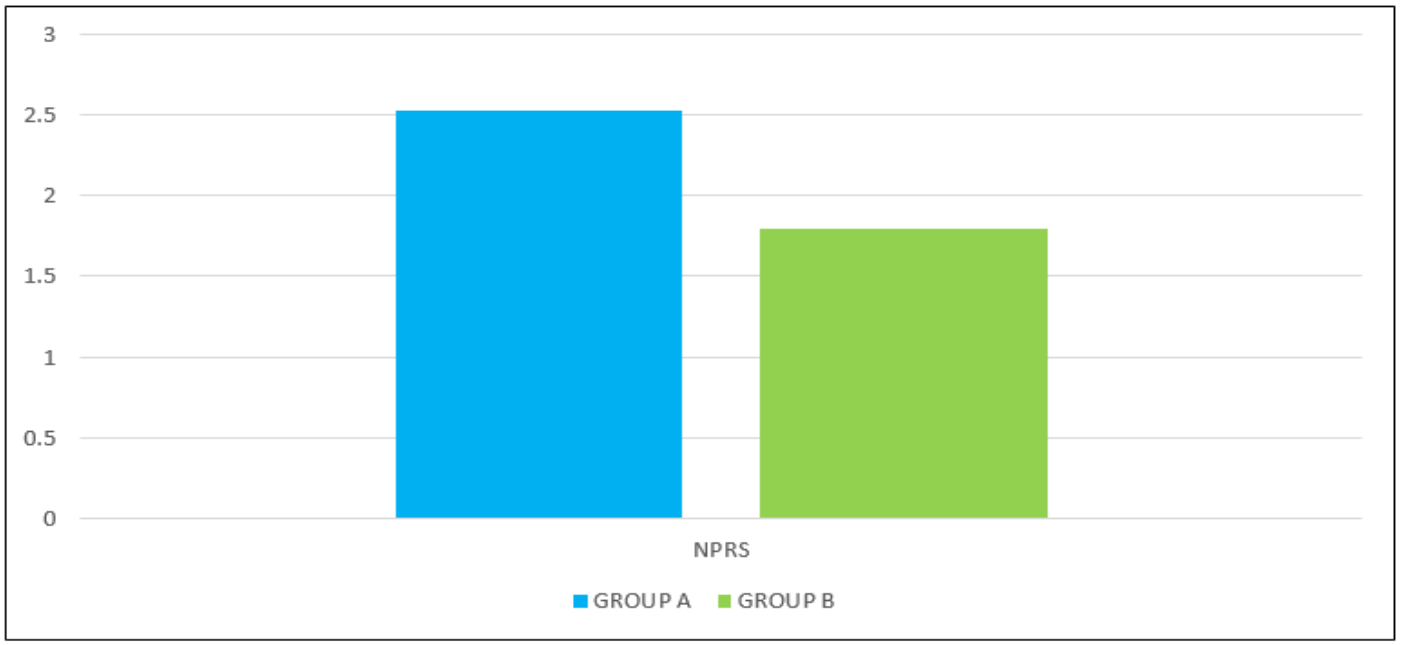

Fig 6 NPQ Group A Group B

IV. RESULT

The result done by applying unpaired 't' test with the values of Group A and Group B shows significance of ($p<0.05$). Between the group analysis of the post values produces in the Group A is significant than Group B. After the statistical analysis, it shows that there is a reduced pain in Group A (SNAG Mobilization with scapular stabilization exercise) than Group B (SNAG Mobilization) which produces that the Group A is better than Group B.

V. DISCUSSION

This study was done for the purpose to observe the effectiveness of SNAGs mobilization with or without scapular stabilization exercises for mechanical neck pain among the beauticians. Based on the inclusion criteria, the subjects have been selected between the age group of 25 and 40years.The pretest was taken for 30 subjects (group A-15 and group B-15) using NPQ and NPRS After 6 weeks duration of treatment, post-test was taken for the both groups. Statistical analysis was done applying the paired 't' test.

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S. Arul Pragassame et.al, conclude that SNAG mulligan technique shows indeed enhance in decreasing pain and enhance cervical ROM and functional ability. The improvement is through stretching of the structures on the convex side of the offending motion and release the intervertebral foramen on the convex side, which assist to unclose the jammed facet. if present might also free up entrapped meniscoid between the facet joints. The neurophysiological effects are that it stimulates mechanoreceptors and proprioceptors in and around the joints, thus assist to unlock the muscles surround the joints. Mobilization cause movements contribute to the nutrition of the facet joints and disc.

Yong Gon Seo et.al, conclude that scapular stabilization exercise shows an indeed improvement for subjects with nonspecific neck pain. The scapular stabilization includes a group of exercises that strengthen the shoulder girdle muscles to improve original scapular motion and correct dyskinesia. The serratus anterior, rhomboid major and minor and trapezius muscles are the important muscles that stabilize the scapula. The scapula-stabilizing muscles were selected for strengthening.

In the present study, it is clear that SNAG mobilization exercise is also effective in reducing the pain of an individual and make them to feel relax, thereby improving the functional activity. During SNAG mobilization along with scapular stabilization exercises, there is stretching of structure on convex side of offending movement, unlocking the jammed facet and corrects the positional fault between vertebrae. It also helps to strengthen the shoulder girdle muscles and improve original scapular motion, thereby reducing the neck pain and the improving the functional activities.

This study showed more significant in reducing pain and improving functional activity for group A (SNAG mobilization with scapular stabilization exercises) than the group B (SNAG mobilization) for mechanical neck pain among beauticians.

VI. CONCLUSION

This study concluded that experimental group -A which received SNAG mobilization along with scapular stabilization exercises shows greater statistically better in decreasing pain and improving the functional activity than group-B by using NPQ and NPRS among beauticians with mechanical neck pain for treatment duration of 6 weeks.

Hence, the null hypothesis is rejected.

VII. LIMITATIONS AND RECOMMENDATIONS.

As only immediate effects have been studied in this research and the research was conducted with little size, only two outcome tools are used, also Neck region only taken another region not included. This study can be conducted for larger population and long-term effect has to be report and other outcome measure likes Neck disability index and Craniovertebral angle can be use and Further studies have to conducted in individuals with Muscle energy technique with scapular stabilization exercises.

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