"Effectiveness Of Isometric Neck Exercises On Neck Pain Among Self Employed Sewing Machine Operators Staying At Selected Places Of Vijayapur District."

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ABSTRACT

Background of the study: During the past decades musculoskeletal disorders have been progressively common throughout the world. It is the one of the most common work related complication in working individual. Due to inactive and tiring lifestyle; there is a constant increase in severity, frequency and intensity of pain in neck that may cause stiffness and tension on areas of neck. Musculoskeletal complaints regarding neck region are extensively present in sewing machine workers. As this profession involves highly monotonous, repetitive work in sitting position with bent neck and upper part of back curved on the sewing machine for longer duration. This kind of effort requires greater concentration and precision.[1]

Aim of the study: To evaluate the effectiveness of isometric neck exercises among self employed sewing machine operators **Methodology:** The design selected for the study was pre experimental one group pretest - posttest design. 40 self employed sewing machine operators are selected by using non probability sampling technique (Convenient & purposive sampling). Knowledge was assessed through a pretested semi-structured questionnaire. ; Visual Analogue Scale for assessment of neck pain**.**

Results: Present study revealed, majority 15(37.5%) of the self employed sewing machine operators were in the age groups 21-25 years and very few 4(10.0%) were in the age groups of 31-35 years, majority 22(55.0%) of the self employed sewing machine operators were males and 18(45.0%) were female, majority 28(70.0%) of the self employed sewing machine operators were married and remaining 12(30.0%) were singles, majority 26(65.0%) of the self employed sewing machine operators were belongs to the nuclear family and remaining 14(35.0%) were belongs to the joint family, majority 14(35.0%) of the self employed sewing machine operators had income between Rs11000-15000 and remaining 7(17.5%) had income between Rs5000-10,000, majority 14(35.0%) of the self employed sewing machine operators had work experience between 2-3 years and very few 6(15.0%) had work experience between 4-5 years, majority 29(72.5%) of the self employed sewing machine operators working 4-5 hours/day and very few 4(10.0%) working 2-3 hours/day, majority 30(75.0%) of the self employed sewing machine operators had not utilized rest hours and remaining 10(25.0%) had utilized rest hours, it was seen that out of 40 self employed sewing machine operators, majority 28(70.0%) had mild neck pain, followed by 7(17.5%) had moderate pain, very few 5(12.5%) had severe neck pain and there were no sewing machine operators with NO Pain. It was revealed that there was no association between neck pain of Self Employed Sewing Machine Operators with selected demographic variable such as utilization of rest hours, but pain score was highly associated with Age, gender, marital status, types of family, family income, work experience and working/day with chi-square p-value less than 0.0001. **Conclusion:** It was concluded that isometric neck exercise was highly effective in reducing pain among the self employed sewing machine operators.

Key Words: Isometric Neck Exercises, Neck Pain, Self Employed Sewing Machine Operators

INTRODUCTION Prevalence of neck pain is higher in Sewing machine operators due to repetition of similar repetitive movements. Neck pain has complex etiology and influenced by individual, physical and psychosocial factors. Working in the profession of stitching for the time duration of greater than eight years possibly have some cumulative damaging effects in the neck region. Occupation related musculoskeletal system disorders are highly prevalent among the persons associated with the profession of stitching. Prolonged working extent, working at lower levels of table, accurate hand work, these are all the risk factors causing neck pain in stitching machine operators.[2]

Neck pain is a multifactorial disease, and is a major problem in modern society. Although neck pain may not be the most common musculoskeletal disorder, it is still very important. The economic burden of neck pain is remarkable and includes treatment costs, reduced productivity and job-related problems. In 2016, among the 154 conditions, low back and neck pain had the highest health care spending in the United States with an estimated $134.5 billion. In 2012, neck pain was responsible for job absences among 25.5 million Americans, who missed an average of 11.4 days of work. In 2017, the global age-standardized prevalence and incidence rate of neck pain were 3551.1 and 806.6 per 100, 000, respectively.[3]

PROBLEM STATEMENT

Effectiveness of Isometric Neck Exercises on Neck Pain among Self Employed Sewing Machine Operators Staying At Selected Places of Vijayapur District

Objectives of the Study:

1. To assess neck pain among self employed sewing machine operators staying at selected places of vijayapur district.

2. To find out the effectiveness of isometric neck exercises among self employed sewing machine operators staying at selected places of vijayapur district

3. To find out the association between neck pain & effectiveness of isometric neck exercises with selected demographic variables.

ASSUMPTIONS

The study will be based on the following assumptions.

1) self employed sewing machine operators may have neck pain

2) Isometric necks exercises may be effective in reduce the neck pain.

Hypotheses:

The hypotheses will be tested at 0.05of significance.

H1- There is significant difference between mean pre-test and post-test neck pain among self employed sewing machine operators.

H2- There is a significant association between pre-test neck pain with selected demographic variables.

MATERIALS AND METHODS

Research design

"Pre-experimental one group pre-test and post-test design"

Setting and population

Self employed sewing machine operators at Vijayapur District.

Sample.technique and Sample size

The sample size for the present study is 40 selected through non probability sampling technique (Convenient & purposive sampling).

Sampling Criteria: Samples were selected with the following predetermined set of criteria

Inclusion Criteria

- Sewing machine operators aged between 25-35years.
- Sewing machine operators who are willing to participate in the study.
- Sewing machine operators who are available during the study.

Exclusion criteria

- ▣ Self employed sewing machine operators who are not available at the time of study
- ▣ Self employed sewing machine operators who are not willing to participate in the study
- ▣ History of trauma to neck.
- ▣ History of whiplash injury.
- ▣ Bilateral upper limb symptoms
- ▣ Prior surgery to cervical and upper thoracic spine.

Variable under study are

Dependent variable: Neck Pain among Self Employed Sewing Machine Operators.

Independent variable: Isometric Neck Exercises.

Demographic variables: Age, sex, Family affluence, Socioeconomic status, Duration of work per day, suffering with musculoskeletal related disorders, any other health problems related to neck etc.

- ▣ **Method of data collection and tool description:** The data were collected through data questionnaires consist of 2 Section A: Socio-Demographic Data Section B: A copy of Visual Analogue Scale for pain.

Results:

Present study revealed, majority 15(37.5%) of the self employed sewing machine operators were in the age groups 21-25 years and very few 4(10.0%) were in the age groups of 31-35 years, majority 22(55.0%) of the self employed sewing machine operators were males and 18(45.0%) were female, majority 28(70.0%) of the self employed sewing machine operators were married and remaining 12(30.0%) were singles, majority 26(65.0%) of the self employed sewing machine operators were belongs to the nuclear family and remaining 14(35.0%) were belongs to the joint family, majority 14(35.0%) of the self employed sewing machine operators had income between Rs11000-15000 and remaining 7(17.5%) had income between Rs5000-10,000, majority 14(35.0%) of the self employed sewing machine operators had work experience between 2-3 years and very few 6(15.0%) had work experience between 4-5 years, majority 29(72.5%) of the self employed sewing machine operators working 4-5 hours/day and very few 4(10.0%) working 2-3 hours/day, majority 30(75.0%) of the self employed sewing machine operators had not utilized rest hours and remaining 10(25.0%) had utilized rest hours, it was seen that out of 40 self employed sewing machine operators, majority 28(70.0%) had mild neck pain, followed by 7(17.5%) had moderate pain, very few 5(12.5%) had severe neck pain and there were no sewing machine operators with NO Pain.

Table no 1: Frequency and Percentage distribution socio-demographic variables of the study participants

Socio-Demographic Variables	Frequency	Percentage
Age (years)		
21-25	15	37.5
26-30	10	25.0
31-35	4	10.0
36-40	11	27.5
Gender		
Female	18	45.0
Male	22	55.0
Marital Status		
Single	12	30.0
Married	28	70.0
Types of Family		
Nuclear	26	65.0
Joint	14	35.0

Family Income(Rs)		
Rs 5,000-10,000	7	17.5
Rs11,000 - 15,000	14	35.0
Rs16,000-20,000	11	27.5
Rs 20,000 and Above	8	20.0
Work Experience		
1- 2 years	13	32.5
2- 3 years	14	35.0
3- 4 years	7	17.5
4 - 5 years	6	15.0
Work/day		
2- 3 Hours	4	10.0
4 - 5 Hours	29	72.5
6- 7 Hours	7	17.5
Utilize rest		
Yes	10	25.0
No	30	75.0

Table no 4: Comparison of mean pair score level self employed sewing machine operators according to their work experience

Test	Paired Differences			t	df	Sig. (2-tailed)
	Mean	Std. Deviation	SE Mean			
Pre-test	3.42	2.27	0.35	9.93	39	**<0.0001(S)**
Post-test	2.12	2.04	0.32			

Above table revealed that mean pre-test pain score was 3.42 while mean post test score was 2.12 and difference in mean pre-test and post test score was highly significant with t-value =9.93 with p-value < 0.0001

DISCUSSION

Section 1: Description of demographic characteristics of study subjects.

Study findings revealed that, majority 15(37.5%) of the self employed sewing machine operators were in the age groups 21-25 years and very few 4(10.0%) were in the age groups of 31-35 years, majority 22(55.0%) of

the self employed sewing machine operators were males and 18(45.0%) were female, majority 28(70.0%) of the self employed sewing machine operators were married and remaining 12(30.0%) were singles, majority 26(65.0%) of the self employed sewing machine operators were belongs to the nuclear family and remaining 14(35.0%) were belongs to the joint family, majority 14(35.0%) of the self employed sewing machine operators had income between Rs11000-15000 and remaining 7(17.5%) had income between Rs5000-10,000, majority 14(35.0%) of the self employed sewing machine operators had work experience between 2-3 years and very few 6(15.0%) had work experience between 4-5 years, majority 29(72.5%) of the self employed sewing machine operators working 4-5 hours/day and very few 4(10.0%) working 2-3 hours/day, majority 30(75.0%) of the self employed sewing machine operators had not utilized rest hours and remaining 10(25.0%) had utilized rest hours.

Section II: **Description of pre-test and post test pain score.**

It was seen that out of 40 self employed sewing machine operators, majority 28(70.0%) had mild neck pain, followed by 7(17.5%) had moderate pain, very few 5(12.5%) had severe neck pain and there were no sewing machine operators with NO Pain. After isometric neck exercises, 20.0% of the self employed sewing machine operators had no neck pain. Percentage of mild neck pain was reduced 65.0% from 75.0%, moderate reduced to 10.0% from 17.5% and severe was reduced to 5.0 from 12.5 after isometric neck exercise.

Section III: **Comparison of mean pain score level self employed sewing machine operators.**
Study revealed that mean pre-test pain score was 3.42 while mean post test score was 2.12 and difference in mean pre-test and post test score was highly significant with t-value =9.93 with p-value < 0.0001.

Section III: **Association between neck pain of Self Employed Sewing Machine Operators with selected demographic variables.**
There was no association between neck pain of Self Employed Sewing Machine Operators with selected demographic variable such as utilization of rest hours, but pain score was highly associated with Age, gender, marital status, types of family, family income, work experience and working/day with chi-square p-value less than 0.0001.

Conclusion: It was concluded that isometric neck exercise was highly effective in reducing pain among the self employed sewing machine operators

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