

Prevalence of Neck Pain and its Associated Factors In Female Sewing Machine Operators in “Leather Coordinators”, Factory of Sahiwal

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ABSTRACT: The main objective of this study was to evaluate how much prevalent was neck pain in sewing machine operators. A cross sectional non experimental survey was conducted on the female sewing machine operators of the garment factory named “Leather Coordinators” located in Sahiwal city of Punjab. Descriptive statistics were applied. Results revealed that out of seventy participants that were recruited for neck pain, fifty five (78.57%) were suffering from this ailment and fifteen (21.43%) persons were not having pain in the neck region due to sewing. Some association was found between intensity of neck ache and total time having neck pain (p-value= 0.06). While no association was found between pain intensity and age of respondents (p-value=0.856). Only 1 participant changed her job due to neck pain while other 54 participants continued the same job despite having neck ache. Pain intensity has association with total time having pain in the neck. There is no association present between intensity of pain and age of the participants. Also neck pain has association with the work prevention. Absence due to sickness (neck ache) was very less in those females in our study.

Key words: Neck pain, prevalence, female sewing machine operators

1. Introduction:

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 (Andersson, 1999). 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 (Binder, 2007). Neck ache is the pain that occurs in neck region. It also involves stiffness along with tenderness in the trapezius muscle. Neck ache is a

difficult term to explain. Neck pain along with stiffness, radiates into the shoulder and occiput that can be episodic or chronic. (McCormack, and Weinstein, 1996). 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. (Kaergaard and Andersen, 2000). Psychological factors are also related like emotional stress and anxiety, headache, neck bending, cervical lordosis causes neck pain. (Bryan et al., 2001). In sewing machine workers, it has been found that the prevalence and occurrence of neck pain increases

with the working years of experience. But it's also been found that some females not ever experience symptoms except slight or moderate and never acquire pain in the neck region or this kind of disorder despite of many years at work (Kaergaard and Andersen, 2000). Many studies describing the disorders of musculoskeletal origin in neck region are cross sectional, explaining combination of both acute and chronic conditions. (Kaergaard and Andersen, 2000). Working in the profession of stitching for the time duration of greater than eight years possibly have some cumulative damaging effects on the neck area. (Andersen and Gaardboe, 1993). Occupation related musculoskeletal system disorders are highly prevalent in 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 aching in stitching machine workers. (Zhang et al., 2011). Surface electromyogram is an appreciated tool to determine the muscular work activity and to measure the muscular loading in neck region during stitching in female seamstress. Results showing load on the muscles while sewing came to be, on (LCES); 6.78%MVE, on (RCES); 6.94%MVE, on (LUT); 6.47%MVE, on (RUT); 5.68%MVE. Hence, working load on the right sided muscles is greater as compared to the left sided muscles. (Zhang et al., 2011). Female seamstress are exposed to greater continued static burden on neck and shoulder muscles on both left and right sides. (Zhang et al., 2011). Neck pain can also result in tension neck syndrome. Neck tension syndrome is most often responsible to cause exhaustion, pain in the neck or headache and rigidity in the neck area. There are minimum of 2 areas in the neck that are tender. These hard nodules are sometimes called as myofascial pain syndrome also known as trigger points. Painful head arches are formed due to trigger points in the muscle that lies behind the eye, into the temple and in the back of neck.

There is a lot of data available on neck pain but our purpose behind conducting this study is to investigate the issues in neglected population because there is less data available on neck pain associated with tailors. What is the prevalence of work related neck pain and its associated factors in tailors of garment factory named "Leather Coordinators"?

Aims and objectives of the study: Aims and objectives of the study are Prevalence of neck pain in tailors, Risk factors among workers, Association in relation to

gender, Baseline for further researches, Identification of problems that are faced by sewing machine operators.

Significance: This study targets in analyzing pain in neck and its associated risk factors. The population selected for this study involves the profession where sustained sitting is required throughout their working hours i.e. tailors. The conclusion of this study would highlight the quality of neck aches in tailors of Sahiwal industry.

2. Literature Review

Neck pain is very common issue prevailing in the society. In comparison with the general population, it is much more prevalent in working population. Cervical laminectomies was first performed by Paul of Aegina (625-690 CE), the Greek Physician. In second century, Separation of the spinal cord at different cervical spine levels and documentation of subsequent sensory and motor effects was done by Galen who was the Physician of Marcus Aurelius, the Roman emperor. (Randall et al., 2000). Patients suffering from neck pain have been ranked as second largest in the population receiving different maneuvers and manual therapy. (Muye et al., 2003). In a clinical practice, neck pain is everyday experiencing problem. In general population the prevalence of neck ache percentage is larger in females than males, 13% and 9% respectively. At least once, every third individual can experience neck pain in his lifetime. (Randall et al., 2000). The incidence of neck pain is higher in working population as compared with the general population, giving the percentage of 51-80 of cervicobrachial pain in laborers. Musculoskeletal symptoms like neck aches, highly occur in working population associated with the profession of sewing. The nature of this job involves repetitious tasks performed for continuous several hours in a fixed sitting posture. Head is bent over the sewing machine and upper part of back is curved, worker maintains this position for several hours on daily basis. This type of job requires high grade concentration and attention and visual focusing to a great extent (Kaergaard and Andersen, 2000). In a study conducted in Sweden, the commonly facing problem was neck and shoulder pain in tailors. 75% of sewing operators were complaining about shoulder and neck problems in previous twelve months and 15% of tailors were complaining about pain in past 7 days. (Blader et al, 1991). According to another study conducted in Norway, percentage of tailors which was complaining for neck discomfort was 95% in comparison with the office employees, the percentage

for which was 71%. The percentage for sick leaves applied by the sewing operators was 70% while that for office employees was 50%. Pain in neck and shoulder areas was most often. (Westgaard and Jansen, 1992).

Neck pain may initiate from any of the structures surrounding the neck that sensitize pain that involve ligaments (both anterior and posterior), bones, nerve roots, muscles, specific capsules and specific facets. Moreover, some other structures associated with the neck region, with the organs and viscera are faced (Delisa et al., 1988). Any person that is complaining of ache and discomfort in his or her neck will be experiencing uneasiness and pain in the neck and also the upper part of the back (Delisa et al., 1988). Soreness is felt on the neck region either on one side or on both, pain with burning sensation, tight and stiff muscles are felt on the sides of the neck that is may be unilaterally or bilaterally, pain is also felt like moving about the body, lethargy, tiredness and aches involving the head are felt. Treatment for this pain has been provided by a number of physical therapists. This treatment is varied based on the severity and condition of the patient and the fundamental cause behind the problem. Treatment methods for this issue include, physiotherapy, chiropractic and osteopathy. While it's not much clear that either manipulation or mobilization is beneficial in this regard or not (Gross et al., 2004). Some other methods and techniques are also use to ease the discomfort and pain in the ache like stretching techniques and strength training exercises. More methods which are not much traditional like acupressure, therapeutically given massage are also used on common (Hoving et al., 2002).

3. Methodology

Research is an arduous and systemic method of analysis and gathering of data (Barhyte, 1990). Research methodology is a process of solving a question, in a systemic method, related to a particular topic (Barhyte, 1990).

Study type: In this study, research method which was used was quantitative. Cross sectional study conductance was done to accomplish this study. This study was conducted to inquire prevalence and its associated work related factors that directs to exploitation of neck ache among female sewing machine operators of leather factory. This study was carried out on female sewing machine workers of "leather coordinators", a garment factory, located in

Sahiwal, a city of Punjab. Total 70 females were recruited to the study on the basis of fulfillment of our inclusion and exclusion criteria.

Parameters of the study: Parameters of the study are Neck Trouble, Neck hurt in accidents, Change of job due to neck trouble, Total length of time that you had neck pain, Functional limitation due to neck ache, Length of rest period due to neck ache, Consultation to doctor or physiotherapist, Neck pain in last week, Working hours, Working duration and Pain intensity

Age: Any abnormality or pathology related to musculoskeletal system is regarded as disorder of the musculoskeletal system. Pain in the neck area also falls in this kind of disorder. It mostly occurs in 20-60 years of age. (Rheumatol, 1994).

Working hours: Appropriate and sound posture is of great importance for healthy and fit life. At workplaces, these issues arise greatly due to working hours and false posture. In case of prolonged working duration, individuals acquire wrong posture to compensate the workload limits.

Working experience: Working for extended period with bad posture results in health related issues. Like, consequences of working from several years and for prolonged time period are the adoption of incorrect postures and disturbed biomechanics which in turn causes various muscular issues like pain in the neck region. Leisure and work activities of working population are then limited due to these problems. (Stubbs, 1983; videman, 1984; Wilkinson, 1992).

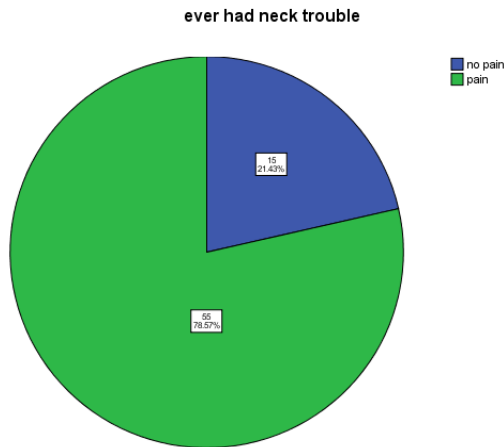
3.14 Statistical analysis: For the purpose of analysis and coding of data, Statistical Package for Social Sciences (SPSS), 16 version was used. Statistical Package for Social Sciences (SPSS) is a kind of software used for the purpose of entry of data along with to make charts and tables for the application of apposite tests to test the hypothesis by evaluating p-values (Flinders University, 2013).

4. Results

This chapter demonstrates the outcomes that have received from 70 female sewing machine operators having neck pain from Leather Coordinator factory of Sahiwal.

Descriptive Statistics:

Prevalence of neck pain



In this study, 70 individuals were recruited for neck pain, out of which (78.57%) individuals were having neck pain and 21.43% individuals were not having neck pain.

So, according to this study, prevalence of neck pain in female sewing machine operators comes out to be 78.57%.

Age:

A. Age groups for 70 participants

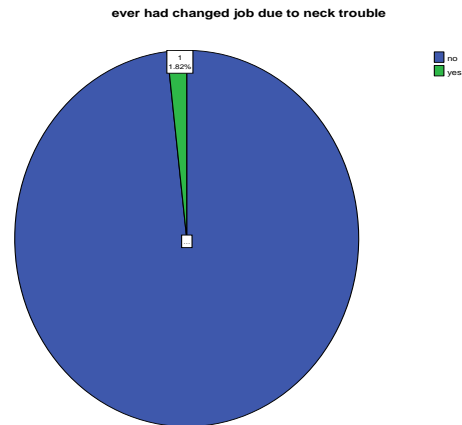
A. Age groups for 70 participants

	Frequency	Percent	Valid Percent	Cumulative Percent
20-30	33	47.1	47.1	47.1
31-40	24	34.3	34.3	81.4
41 & above	13	18.6	18.6	100.0
Total	70	100.0	100.0	

Frequency distribution has been made for 70 participants involved in this study, as shown by the above table. Ages of participants are categorized into 3 classes i.e., (20-30) , (31-40) , (41&above). Frequency distribution demonstrate that, 33 individuals (47.1%) were falling in the category of 20-30 years of age.24 individuals (34.3%) were falling in the category of 31-40

years of age.13 individuals (18.6%) were falling in the category of 41 & above years of age

Job Change



Only those 55 participants who were having neck pain were involved for this frequency distribution as those having no pain couldn't include in further analysis.

According to the above mentioned pie chart, only 1 participant (1.82%) changed job due to her neck trouble while 54 participants (98.1%) continued the same job despite having neck pain.

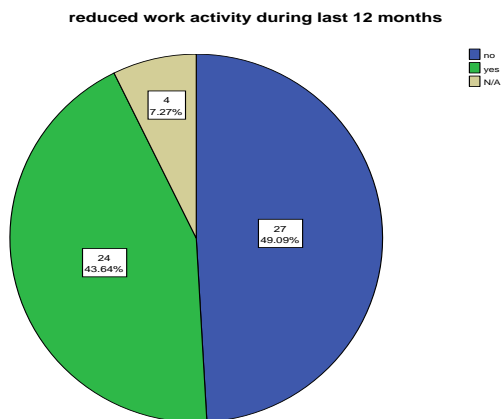
Duration Of Neck Pain

B. Total length of time you had neck pain in past 12 months

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid 0 days	4	7.3	7.3	7.3
1-7 days	3	5.5	5.5	12.7
> 30 days but not everyday	48	87.3	87.3	100.0
Total	55	100.0	100.0	

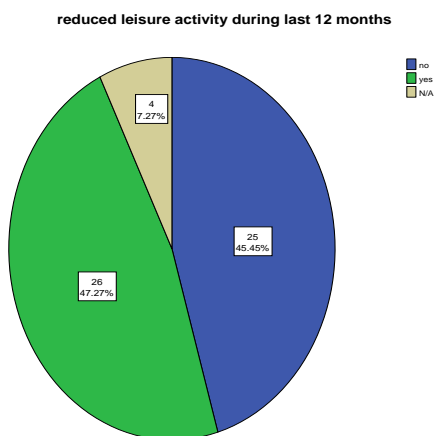
Above table shows the frequency distribution of 55 participants having total length of time of neck pain in past 12 months.4 (7.3%) participants were those who experienced neck pain for not even a single complete day.3 (5.5%) subjects were having neck pain for 1-7 days.48(87.3%) participants were experiencing neck pain for more than 30 days but not every day.

Work Activity Limitation



Above mention pie chart exhibits frequency distribution of 55 participants, providing information about either neck trouble affects their work activity or not.4(7.27%) observations (N/A) were **not applicable**, of those participants who had neck trouble for 0 days during last 12 months from the time of data collection, and according to Nordic Questionnaire they were not supposed to fill the information regarding work activity limitation due to neck pain.24(43.64%) participants were those whose work activity got reduced due to neck pain problem.While 27 (49.09%) participant’s work activity was not limited by neck pain problem.

Leisure Activity Limitation



Above mention pie chart exhibits frequency distribution of 55 participants, providing information about either neck trouble affects their leisure activity or not.4(7.27%) observations(N/A=**not applicable**) have

been appeared, of those participants who had neck trouble for 0 days during last 12 months from the time of data collection, and according to Nordic Questionnaire they were not supposed to fill the information regarding leisure activity limitation due to neck pain.26(47.27%) participants were those whose leisure activity got reduced due to neck pain problem.While 25 (45.46%) participant’s leisure activity was not limited by neck pain problem.

Work Prevention

C. Length of time neck trouble prevented you from normal work in last 12 months

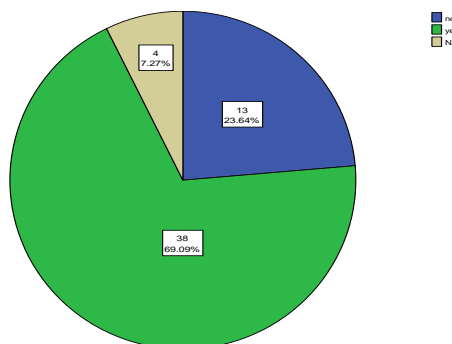
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0 days	36	65.5	70.6	70.6
	1-7 days	15	27.3	29.4	100.0
	Total	51	92.7	100.0	
	N/A	4	7.3		
Total		55	100.0		

Above mentioned table is the frequency distribution applied on 55 participants to evaluate duration of time for which neck ache prevented them from normal work during last 12 months from the time of data collection.

And according to the results, In 36(65.5%) subjects, neck ache prevented normal work for not even one complete day during last 12 months. 15(27.3%) participant’s normal working was prevented for 1-7 days during last 12 months. 4(7.3%) observations have been appeared, of those participants who had neck trouble for 0 days during last 12 months from the time of data collection, and according to Nordic Questionnaire they were not supposed to fill the information regarding length of time neck trouble prevented them from doing normal work.

Doctor Referral: Above mentioned pie chart is the frequency distribution of 55 participants with respect to visit to the doctor due to neck pain in past 12 months

ever seen by doctor,physiotherapist due to neck pain in last 12 months

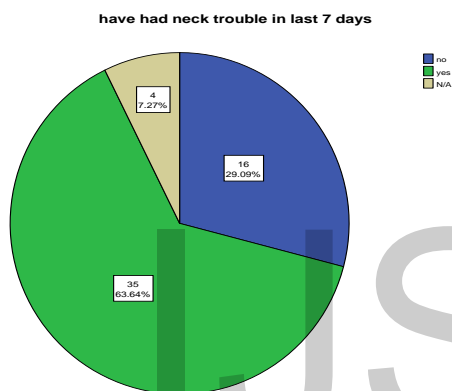


from the time of data collection.

So, according to the chart,

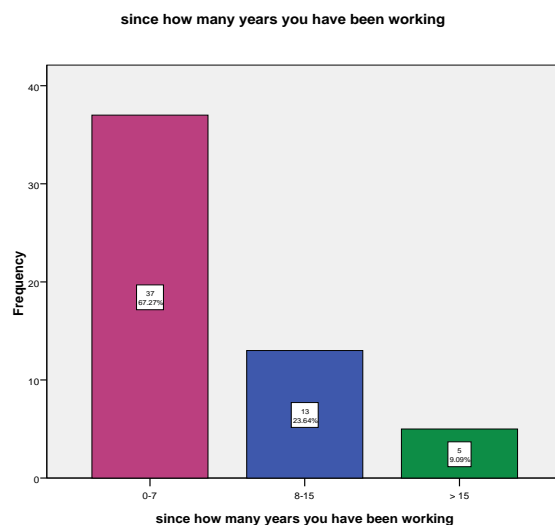
38(69.09%) participants were those who visited the doctor for complain of their neck pain.13(23.64%) participants never visited doctor for their neck ache.And 4(7.27%) observations have been appeared, of those participants who had neck trouble for 0 days during last 12 months from the time of data collection, and according to Nordic Questionnaire they were not supposed to fill the information regarding whether visited the doctor for neck ache or not.

Neck Trouble

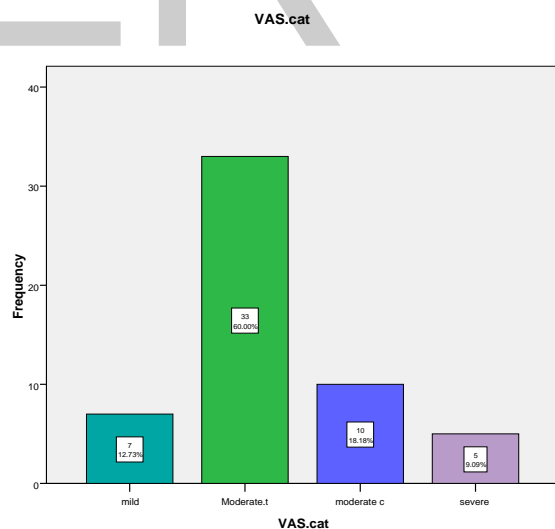


Frequency distribution of 55 participants regarding occurrence of neck ache during last 7 days from the time of data collection have been shown by above pie chart.And according to the outcomes,35(63.64%) participants had neck ache during last 7 days.16(29.09%) participants didn't exhibit neck ache during last 7 days.And 4(7.27%) observations have appeared, of those participants who had neck trouble for 0 days during last 12 months from the time of data collection, and according to Nordic Questionnaire they were not supposed to fill the information regarding whether they had neck ache during last 7 days or not.

Working Hours: All participants worked for same time i.e. 8 hours. They didn't do overtime job.



Frequency distribution of 55 participants in relation to years they were working has been shown by the above bar chart. And according to the results,37(67.27%) participants were falling in the category 0-7 years.13(23.64%) participants were falling in the category 8-15 years.And 5(9.09%) participants were working for more than 15 years.



Moderate t: Moderate pain that interferes with tasks.
Moderate c: Moderate pain that interferes with concentration.

Above mentioned bar chart shows the frequency distribution of 55 participants in relation to the pain intensity (VAS scale) and it shows that,7(12.73%)

participants were having mild pain on VAS scale that ranges from 1-2 points.33(60.00%) participants were having moderate pain that interferes with tasks and 8t ranges from 3-5 points on the VAS scale.10(18.18%) subjects were having moderate pain that interferes with concentration and it ranges from 6-7 points on the VAS scale.5(9.09%) subjects were having severe pain that ranges from 8-10 points on VAS scale.

5. Conclusion:

Among the whole population of the female sewing machine workers, majority of them reported pain in their neck regions i.e. out of 70 individuals, 55 were having neck pain. According to the results of this study, there is no association present between intensity of pain and age of the participants. While there is association present between neck pain and the work prevention. Absence due to sickness (neck ache) was not much frequent in those females in our study. This is also supported by another study according to which in spite of high levels of pain in neck area in females doing stitching, they try hard to come up with the daily target of work, so there comes very low rate of sickness absenteeism (Kaergaard and Andersen, 2000).

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