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Orignal Article

Association of Neck Pain With Hand Grip Strength in Private School Teachers of Lahore

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ABSTRACT

Neck pain is one of the most common musculoskeletal disorders and getting persistently developing all through the world. It is seen in different sorts of Professions, for instance, Dentists, Physiotherapists, Teachers, etc. Assessment of handgrip strength is compulsory for the assessment of upper limb disabilities and successful exercise treatment. The present investigation is designed to discover the relationship of neck pain as estimated by Visual Analog Scale (VAS), Neck Disability as estimated by Neck Disability Index (NDI) with hand grasping strength estimated by digital hand dynamometer in lb. (Unit). **Objective:** To find the association of neck pain with handgrip strength in private school teachers of Lahore. **Methods:** 210 school teachers were selected. Data was collected from different schools in Lahore. Data was collected through a self-made questionnaire and analyzed by SPSS version 24.0. Data was completed in a span of 11 visits. **Results:** The prevalence of neck pain was 20.3%. Among 210 instructors, the pervasiveness of NPD and hand grasp quality was 48.7% and 45.6% individually. There was a critical relationship between the degree of Neck pain and Handgrip strength. The association was found between them, NPD index and handgrip strength among selected participants is hundred percent. The above P-value chi-square value is 0.03 which is less than 0.05 which shows that there is an association between neck pain and Handgrip strength. **Conclusion:** This research shows the association of neck pain with handgrip strength in school teachers.

INTRODUCTION

The region in between the occiput and the third thoracic vertebra, also between the fundamental margins of the scapulae, was defined as stress, discomfort, or discomfort. One of the most frequent musculoskeletal disorders is neck pain [1-5]and was shown to be the major problem throughout the world [2]. It is a frequent cause of work-related disability [3]. The prevalence of neck pain is reported to be as high as 84%.4Neck pain can also be due to disc problems or degenerative disc diseases [5].Recently, it has been suggested that there is a strong link among both duty time and cervical pain in dental educators [6].some other study concluded that increasing work time from week to week shows minimal effect on cervical pain. Most common cause of neck pain among instructors is prolonged working, that puts a lot of strain on the muscles in the cervical and shoulder area (trapezius more than splenius)[7].The instructor's functional component seems to be the hand [8].The hand grip is a measurement of the strength that the hand can exert or a measurement of static power that the hand might squeeze around a dynamometer. Hold ability is impacted by sexual orientation (male>female), age (peaking in the fourth decade), and dominant hand control over non-dominant hand control [9]. Different postures may also have an impact on handgrip efficiency: elbow while approximation (extension>flexion90%), upheld lower arm vs. unaided, and standing vs. seated. Grasp quality is a basis for assessing how useful a hand movement is. The evaluation of grip strength quality was used to determine the quality of the entire upper arm. According to research, patients with chronic upper limb discomfort across one side have a 20-30% poor quality of handgrip on the non-painful side [10].

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The participants ranged in age around 25 to 40 years old, and they had a normal BMI (18.5-25). They were categorized into different groups based on how they maintained their necks while working. The pain intensity was quantified using a visual analog scale (VAS), and the handgrip power was recorded using a Jamar hand dynamometer in kilogram (Kg). Study findings revealed a strong link between cervical pain and handgrip strength across 25 dentists (directly proportional). The researcher came to the conclusion that the direct relationship between cervical pain and handgrip power is caused by a sensory-motor integration impairment or neuro hyperexcitability [11]. Another study was conducted in 2018 by Mansi et al to consider the relationship between neck agony and handhold quality and its consequences for personal satisfaction among female cosmetologists. The study included a total of 62 females aged 25 to 35 years old. Individually, the NDI scale, handheld dynamometer, World Health Organization Quality of Life, and brief modifications were used for Cervical Pain, grasp performance, and QoL. The Pearson co-effective connection among NDI and HHD was 0.4372 and among HHD and WHOQOL was 0.5257. The creator inferred that there was a critical relationship between neck agony and hand grasp quality, and consequently QOL [12].

METHODS

Data on subject demographics, job characteristics, work demands, and musculoskeletal symptoms and pain were collected in cross-sectional research of instructors from ten schools. The data is collected from 210 people who suffer from cervical pain and weak grip strength as a result of postural imbalance, and the questionnaire for this purpose is included. A convenient sampling method was used. The questionnaire for assessing physical activity was implemented. Data was collected from private children in Lahore using various questionnaires.

RESULTS

Public sector Hospitals	Private sector hospitals
Gender	M(83), F(127)
Age	43.97±12.21
BMI	16.82±31.98
Mean Measurement	48±179.20
Occupation	Teachers
Daily Duty Hours	4 or more
Onset of Pain	More than 3 months
Previous physiotherapy treatment	Yes= 44.9% No= 65.1%

Table 1: Among 210 teachers, 83 were males and 127 were females.

The mean age was 43.97±12.21 years and BMI was 16.82±31.98. The mean measurement was 48±179.20. All the patients were teachers. The duty hours of the teachers were 4 hours or more. Patients were experiencing pain for more than 3 months. 44.9% of teachers had received previous physiotherapy treatment while 65.1% of participants had not received any previous physiotherapy treatment. (Table 1)

VAPS	Mean	Standard Deviation	Minimum	Maximum
210	4.2333	1.28957	1	7

Table 2: Descriptive statistics for vaps

In 210 participants, the mean score for vaps is 4.2333 with ranges maximum1 and minimum 7. The standard deviation is 1. 28957. (Table 2)

NDI_SCORING	Mild	Moderate	Severe	Total
Mild Disability	2	2	2	6
Moderate Disability	21	26	41	88
Severe Disability	31	43	42	116
Total	54	71	85	210

Table 3: NDI_SCORING*Hand _Grip Strength Cross-tabulation

Mild disability is present in 6 of which 2 are mild,2 with moderate, and 2 were associated with strong disability. Moderate disability is present in a total of 88 individuals. Severe disability was present in 116 individuals. (Table 3)

	Value	Df	Asymptotic Significance (2_Sided)
Pearson chi-square	4.081*	6	0.03
Like hood Ratio	4.066	6	.668
Linear_by_Linear Association	.358	1	.549
N Of Valid cases	210		

Table 4: Chi-Square Tests

Neck pain was found to be prevalent in 20.3 percent of the population. The incidence of NDI and handgrip strength was 48.7% and 45.6 percent, correspondingly, among 210 teachers. Teachers at different private schools in Lahore had a substantial relationship between their level of neck pain and their handgrip strength. Female teachers had a substantially greater incidence of neck pain and handgrip strength than male teachers. Two variables were chosen from the NPD index and handgrip strength. The association was found between them NPD index and handgrip strength among selected participants is hundred percent. The above P-value chi-square value is 0.03 which is less than 0.05 which shows that there is an association between neck pain and Handgrip strength.

DISCUSSION

Neck pain is the most pervasive musculoskeletal issue found in teachers after Low Back Pain. Assessment of handgrip strength is imperative for the assessment of upper limb disabilities and successful exercise remedies[13]. The objective of this study is to determine the association of neck pain with handgrip strength in private school teachers of Lahore.The present investigation planned to discover the relationship of neck pain as estimated by

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Visual Analog Scale (VAS), Neck Disability as estimated by Neck Disability Index (NDI) with hand grasping strength estimated by digital hand dynamometer in lb. (Unit) In 200 participants, the mean age of individuals was 3.357with minimum age was 1.00 and maximum was 6.00. The standard deviation is 1. 86662[14].This result can also be shown in histogram chart.Those individual whose frequency23 and 8.5 had no neck pain, frequency 46 and 19.6% had mild pain, Frequency41 and 51.1% had moderate neck pain, Frequency 48 and 17.6%had fairly severe neck pain, Frequency 29 and 10.7%had severe neck pain, Frequency 23 and 8.5% had worst imaginable pain at the moment. This result can also be shown in pie chart.Mean value of VAPS is 4.2333, standard deviation is 1.28957. Minimum score in the population is 1, whereas the maximum score is 7[15].Those individuals whose frequency 23 and 8.5%look after me with causing extra neck pain, Frequency 66 and 24.3 % without causing extra neck pain, Frequency 24 and 8.8% painful to look after me, Frequency 19 and 7.0%need some help, Frequency 34 and 12.5%need help every day in most aspects of self-care, frequency 44 and 16.2% didn't get dressed. Those who lift heavy weights without generating cervical pain have a frequency of 56 and 20.6 percent[16]. Lift weights with a higher frequency of 20 and 7.4%, but with more pain. Neck pain prohibits me from lifting heavy weights off the floor, Frequency 19 and 6.6 percent prevent me from carrying big weights, Frequency 20 and 7.4 percent can only lift extremely light weights, and Frequency 53 and 195 percent can't lift or carry anything at all[17].This result can also be displayed as a bar graph. Those individuals whose frequency23 and 8.5 had no neck pain, frequency 46 and 19.6% had mild pain, Frequency41 and 51.1% had moderate neck pain, Frequency 48 and 17.6%had fairly severe neck pain, Frequency 29 and 10.7%had severe neck pain, Frequency 23 and 8.5% had worst imaginable pain at the moment[18]. This result can also be shown in a pie chart. Those individuals whose frequency 56 and 20.6%lift heavy weights without causing extra neck pain, Frequency 20 and 7.4% lift weights but with the extra pain, Frequency 43 and 15.8% neck pain prevents me from lifting heavy weights off the floor, Frequency 19 and6.6% prevents me from lifting heavy weights, Frequency 20 and7.4%can lift only very light weights, Frequency 53 and195% cannot lift or carry anything at all. This result can also be shown in a bar chart. In 210 participants, the mean score for vaps is 4.2333 with ranges maximum1 and a minimum of 7. The standard deviation is 1. 28957.This result can also be shown in the histogram table. Those individuals whose frequency31 and 11.4% read as much as with no neck pain, Frequency 47 and 17.3%slight neck pain, Frequency 20 and 7.4%with moderate neck pain, Frequency 18 and 6.6% can't read as much as I want because of moderate neck pain, Frequency 47 and 17.3% can't read because of severe neck pain, Frequency 47 and 17.3% can't read at all[19]. Those individuals whose frequency 5 and 1.8% no headaches at all, Frequency 34 and 12.5% slight headaches that come infrequently, Frequency 40 and 14.7%moderate headaches that come infrequently, Frequency 70 and 25.7%moderate headaches that come frequently, Frequency 52 and 19.1% severe headaches that come frequently, Frequency 9 and percentage 3.3 had headaches almost all the time. Those individuals whose frequency 29 and 10.7 %concentrate fully without difficulty, Frequency 44 and 16.2% can concentrate fully with slight difficulty, Frequency 34 and 12.5% fair degree of difficulty concentrating, Frequency 48 and 17.6% had a lot of difficulties concentrating, Frequency 34 and 12.5%great deal of difficulty concentrating, Frequency 21 and 7.7% can't concentrate at all. Those individuals whose frequency 26 and 9.6% do as much work as I want, Frequency 21 and 7.7%can only do my usual work, Frequency 28 and 103% can do most of my usual work, Frequency 40 and 14.7% can't do my usual work, Frequency 54 and 19.9% can hardly do any work at all, Frequency 41 and 15.1% can't do any work at all. Those people whose Frequency 30 and 11.0%able to take part in the entirety of my recreational exercises with no neck torment by any means, Frequency 25 and 9.2%with some neck torment, Frequency 10 and 3.7% ready to in most yet not all of the recreational exercises due to undeniable irritation, Frequency 30 and 11.0% ready to participate in a couple of my recreational exercises in light of genuine annoyance, Frequency 64 and 23.5% can scarcely do recreational exercises because of neck torment, Frequency 51 and 18.8% can't do any recreational exercises because of neck torment. Those people whose recurrence 30 and 11.0%can drive my vehicle without neck torment, Frequency 13 and 4.8% can drive my vehicle with just slight neck torment, Frequency 43 AND 15.8% can drive as long as I need with moderate neck torment, Frequency 41 and 15.1% can't drive as long as I need on account of moderate neck torment, Frequency 47 and 17.3%can barely drive at all due to extreme neck torment, Frequency 36 and 13.2% can't drive my vehicle at all due to neck torment. Gentle incapacity is available in 6 in which 2 are with mellow, 2 with moderate, and 2 were related with a solid handicap. Moderate inability is available altogether 66 people. Extreme handicap was available in 102 people. Complete incapacity was seen in 35 people. The predominance of neck torment was 20.3%. Among 210 educators, the commonness of NPD and handhold quality was 48.7% and 45.6% separately. There was a huge relationship between the degree of Neck torment and Handhold quality among educators in various tuition-based schools of Lahore. The predominance of neck agony and hand grasp quality among female educators was a lot higher than that for guys. Among the NPD record and handhold quality, two factors were taken. The affiliation was found between them NPD list and hand grasp quality among chose members is hundred percent. The above P esteem chi-square worth is 0.03 which is under 0.05 which shows that there is a relationship between neck torment and Hand grasp quality[20].

CONCLUSION

Instructors' cervical pain and handgrip strength were found to have a significant direct proportional relationship.

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