

Association of work-related musculoskeletal symptoms and disability among health care professionals

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Objective: To determine the frequency of work-related musculoskeletal shoulder pain and associated disability among health care professionals in Lahore, Pakistan.

Methodology: This cross-sectional study was carried out on healthcare professionals of Lahore. Convenience sampling was used to collect data from 271 participants. To check disability score of participants, disability of arm, shoulder and hand (DASH) questionnaire was used.

Results: Total 271 participants fulfilled the inclusion criteria. Among them 114(42.1%) respondents were male and 157(57.9%) respondents were female. Mean SD \pm of age was 31.72 \pm 5.538. Frequency of musculoskeletal shoulder pain was estimated through cumulative frequency and that was 63.3 %. The mean of

disability score was 15.66. This study estimated that 30.9 % of total participants had some kind of disability. 68.3% of these health care professionals have no difficulty while performing functional activities, 29.1% have mild, 1.1% have moderate and 0.7 had severe disabilities.

Conclusion: Shoulder pain was among one of the most frequently reported complaints while limitation of work and associated disability was relatively prevalent. This study concluded that the frequency of work-related musculoskeletal shoulder pain was related to functional limitation, disability and decrease in efficacy of work. (Rawal Med J 202;45:661-664).

Keywords: Shoulder pain, disability, health care professionals.

INTRODUCTION

Musculoskeletal shoulder impairments are the most common and major musculoskeletal problems. Shoulder disorder is most commonly reported among working population. Data extracted from the US Health and Nutrition Examination Survey (HANES I) of 1971-1975 confirmed high frequency of musculoskeletal impairments accompanied by the activity restriction limitation of functional activities.¹ Work-related shoulder disorder is marked as usually occurring compensation claim in various sectors of occupation. Prevalence of disability can be tackled either by inhibiting the impairments itself, or by preventing the impairments to change into disability.² Varying prevalence and epidemiology of musculoskeletal shoulder impairments or the factors associated with disability are important to measure as it can directly affect quality of life of a person musculoskeletal impairments and disorder are relatively high in general population but observed to be shortly lived and not incapacitating.³

Working with hands above the shoulder level,

repetitive movements, stretching down, awkward postures lead to increased risk of impairments.^{4,5} Shoulder pain and level of disability are associated with multiple factors of employment: working environment, associated activities, and psychological factors. Shoulder pain is defined as feeling of discomfort that arises from the shoulder joint and extends towards the upper extremity that persists for more than 24 hours.⁵ An impairment or chronic medical condition due to injury that prevents or hinders someone from engaging in gainful activities or leads to functional limitation.⁶ Due to negative impact and decrease in efficiency the complaints due to work in working hours becomes the most highlighted factor for the employees and government.⁷

During work, the health care practitioners were exposed to many injurious factors that lead to increased risk for the illness of employee or discontinuity of the work.⁸ Two previous studies about prevalence and incidence of musculoskeletal pain among hospital physicians reported that annual prevalence of shoulder pain is 38% and 58%.⁹ Most

common disorder have been reported were sub acromial impingement syndrome, tendinitis of the biceps tendon, rotator cuff tear, compression of supraclavicular nerve, tear of the rotator cuff are the most common factor for the irritation and discomfort of the upper limb.¹⁰

According to a systemic review SIS syndrome was highly associated with forceful movement >10% maximal voluntary contraction. Repetitive movement of the shoulder for >2 hours/day above the level of shoulder height associated with SIS.¹¹ Juvani *et al.*, in 2018 discussed the job stress model to indicate the positive link between the work organization, job stress and musculoskeletal disorder.

In an organization at work place an individual was exposed to various psychological and physical ergonomics risk factor that leads towards stress and as a reaction of this stress different types of musculoskeletal strain occurs, including work-related musculoskeletal disorder.¹² Alison in 2015 presented a study that provides evidence of irregular work schedules that have positive relation with musculoskeletal disorder among nurses. Schedule modification can lead to the stable and healthier workplace that will ultimate increase the efficiency and decrease the frequency of sick leaves.¹³ The objective of the study was to determine the frequency of work-related musculoskeletal shoulder pain among health care professionals. The study also estimated the level of disability due to musculoskeletal shoulder pain.

METHODOLOGY

A cross sectional study was conducted using convenient sampling to collect data from different registered hospital of Lahore. The data was gathered from 300 health care practitioners of Lahore that fulfill the inclusion criteria of study. The population of study includes nurses, physicians, physical therapist, lab technologist, dentists, and radiologist from Children Hospital, Nawaz Sharif Social Security Hospital Lahore, and Jinnah Hospital Lahore. The instrument used for data collection was DASH Questionnaire (Disability of arm, shoulder and hand Questionnaire) with excellent reliability that includes 30 items for the measurement of

disability/symptom.

The outcome of the study was to estimate the frequency of shoulder pain and associate disability among health practitioners of Lahore with an expected frequency of 58% based on previous research. The total sample size calculated was 271 assuming 95% confidence level with precision 0.05. Questionnaire was distributed among 350 health care professionals. Basic instruction and information related to research and procedure was addressed to participants. Participants who fulfilled the inclusion criteria of the study were asked to read the instructions and directions carefully and fill the demographic data and body section of questionnaire comprising 30 item disability/symptom scale.

Statistical Analysis: Data were analyzed using SPSS version 21. Percentages and frequency distribution of categorical values were calculated. Descriptive statistics of continuous variables was analyzed. Comparison of different proportion was carried out by using chi square test.

RESULTS

Out of 271 participants, 114(42.1%) were male and 157(57.9%) female and included doctors, allied health science, dentist, nurses, and physical therapist. Frequency distribution of occupation shows 99(36.5%) were doctors, 49(18.1%) were allied health science, 21(7.7%) were dentist and 61(22.5%) were nurses participated in study. During the last week severity of arm, shoulder and hand pain/symptoms were recorded as 99(36.2%) respondents have no pain during last week, 131(48.3%) mild pain, 31(11.4%) moderate pain, 11(4.1%) severe pain.

Table 1. Frequency Distribution for Symptoms in the Last Week Arm, Shoulder or Hand pain.

Symptoms	Frequency	Percent
None	98	36.2
Mild	131	48.3
Moderate	31	11.4
Severe	11	4.1
Total	271	100.0

Frequency of musculoskeletal shoulder pain was 63.3% (Table 1). The descriptive statistics for

disability level using self-report system. Raw score is transformed into 0 to 100 scales. 0 reflects minimum whereas 100 reflects maximum disability. Out of total sample, minimum disability level measured was 0 and maximum 60. The mean of disability score was 15.66 which means the disability level was not significantly high among health care professionals.

We found disability level was 30.9% among the health care professionals. Out of 271 respondents, 175 had no difficulty, 79 had moderate difficulty, 3 had moderate, and 2 had severe difficulty while performing functional activities as shown in (Table 2).

Table 2. Frequency distribution for Disability Score.

Disability level	Frequency (score)
No difficulty 0-20	175
Mild 20-40	79
Moderate 40-60	3
Severe 60-80	2
Unable 80-100	0

Table 3. Bi-Variable association between Pain and Disability.

symptoms in the last week Arm, shoulder or hand pain	Disability/symptom score				Total	P-value
	0-20	21-40	41-60	61-80		
None	93	5	0	0	98	.000*
Mild	92	38	1	0	131	
Moderate	0	30	1	0	31	
Severe	0	8	1	2	11	
Total	185	81	3	2	271	

In this study, 68.3% have no difficulty with performing functional activities, 29.1% had mild, 1.1% moderate and 0.7% severe disabilities ($p < 0.05$). We found an association between pain and level of disability. Out of 271 respondents, 98 have shown no difficulty while 131 respondents have shown mild disability, 31 moderate disability and 11 have severe disability as shown in (Table 3).

DISCUSSION

The shoulder impairments lead towards function limitation and disability. Despite of much advancement in rehabilitation, shoulder impairments and limitation of functional activities remained a

significant factor in lives of working population. Shoulder pain limits a person's exposure to wider world and tends to decrease integration of community.¹³ In a previous systemic review on prevalence and incidence of musculoskeletal shoulder pain among hospital physicians found that annual frequency of shoulder pain was 38% and 58%.¹⁴

The present study showed slightly high frequency of shoulder pain among health care professionals of Lahore that highly affects their efficacy of work during working hours. The overall frequency of shoulder pain among health care professionals including nurses, physical therapist, dentist, allied health sciences and doctors was 63.3%. Another study had shown that limitation of functional activities due to current symptom with associated disability scored as 20%.¹⁵ While present study also shows 20% level of disability among health care professionals of Lahore.

In a previous cross-sectional study it was shown that posture was associated with shoulder disorder and SIS syndrome that was most reported disorder to the physician due to work was occurred when upper arm is flexed at 45° for 15% of the total time exposed and 90% of forceful exertion.^{16,17}

CONCLUSION

This study concluded that the frequency of work-related musculoskeletal shoulder pain was related to functional limitation, disability and decrease in efficacy of work. Despite of many advancement in rehabilitation still shoulder impairments and limitation of functional activities remained a significant factor in lives of working population.

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