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Research Article

### PREVALENCE OF MUSCULOSKELETAL DISORDERS AMONG ACADEMIC FACULTY MEMBERS OF SUPERIOR UNIVERSITY LAHORE

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**Abstract:**

**Background:** Work-related musculoskeletal disorders [WMSDs] are a common health condition and a major cause of disability in the workplace. Awkward working posture is a main risk factor for developing WMSDs. Assessment of exposure level to WMSDs risks can be proper base for implementing interventional ergonomics program in the workplace.

**Methodology:** This is cross sectional study conducted after approval from research committee of Azra Naheed Medical College Lahore. The data was collected from faculty involved in teaching. We used convenient sampling Technique for data collection from a sample of 150 faculty members working with at least 3 years of experience. The subjects were taken from Superior University Lahore, Pakistan. Every one of the subject was requested to fill Nordic pain questionnaire [NPQ], a valid questionnaire to report effects of musculoskeletal disorder. The subjects included were 150. Simple convenient sampling was used for data collection.

**Result:** The entire sample was 150. The number of faculty members and IT workers had experienced more symptoms in wrist & hand 80[53.33%] lower back 100[66.67%] hip/thigh 80[53.33%], and knees 110 [73.33%], during the last 12 months.

**Conclusion:** It was concluded that faculty was not physically fit, as they have low back pain wrist pain and have knee pain. This is because of their overuse as well as bad posture, more working hours and another factor that involved is poor biomechanics during their working hours.

**Key words:** Academics, Faculty, Musculoskeletal disorders.

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**INTRODUCTION:**

Musculoskeletal disorders [MSDS] comprises of physical disability in the tissue of the body this term explain different circumstances that can effect joints muscles and bonds as well as their bio mechanics. These can vary according to their severity. Any uneasiness and pain will interrupt activities of daily livings. MSDS are very common and their risk will be increase according to the age because of increasing age the normal elasticity or ability to bear the routine stress on body is decreased. That is why success lies in early pre caution and change of habits. These MSDS are due to inappropriate sitting leading to spasm are pain in over use area if this over use remain untreated it can lead to permanent pain and disability. [1]WRMD'S are actually the injury to the tissues of the body e.g. muscle spasm, cartilage loss, over- stress on joint, ligaments, tendons , bursa etc. This injury results in loss of normal anatomy of the joints , and changes the biomechanics and physiology that leads to stimulation of the pain receptors and finally pain is provoked in that area of over use. These injuries are mostly found in health care workers, nurses and physical therapists. Among these most of them are Physiotherapy professionals are at height of risk.[2]

In one of the study by Bork et al. shows that there are three types of risks linked with the WRMDS i.e. repetitive movements, poor posture and high level of force on the body tissue.[3] Work related disorders are non-communicable and can be best explained by sustained force on peripheral nerves, over-use syndrome leading to long exposure to work place. These account for 34% of work place illness, incidence found 38 per 10,000 for the full time workers[4].

The common risk factors leading to the development of the health disorders can be related to the data regarding the anthropometric characters, hereditary, age and health status in the community and secondary to the work related is poor posture long standing hours to work, static posture and biological features. Work related disorders occurs due to the mismatch between requirement of specific job and capacity of the body to fulfill it, depending upon the work task, movements , physical fitness level as well as ergonomic of the work place[5]. MSDs in workplace lead to occupational disease. .occupational injuries affect the country and organization, exposure to cold temperature awkward posture cause neck and upper limb related musculoskeletal disorders. The prevalence of musculoskeletal pain in the shoulder, arm and hand is high among slaughterhouse workers..work related musculoskeletal disorder

affects the quality of life, disability and their rate is highest among physiotherapist.[6]

This study was focused to develop awareness campaign among faculty members of the university as the faculty of any institute is key to success for the upcoming generation .Their fitness and being healthy is necessary.

**METHODOLOGY:**

It is cross-sectional [observation] study design. Simple convenient technique was used for data collection from the faculty after approval from Institutional Review Board [IRB] of Azra Naheed Medical College, Lahore. The Sample size was 150, with margin of error 8% ,confidence level 98%.The population size is 20000 as we the number of faculty members is not exactly available. [7]The response distribution is 50%In terms we have selected above the sample “ n” and margin of Error “e” given by:

$$X=Z[C/100]2r[100-r]$$

$$n=Nx/[N-$$

$$1]E^2+x]$$

$$E=\text{sqrt}[N-$$

$$n]X/n[N-1]$$

where the N will be the population size, where r will be the fraction of responses that we are interested in, and last one the  $Z[c/100]$  is the critical value for the confidence level denoted by C All the subjects participating in the study were provided a consent form, which reveals their agreement for the study. They can withdraw from the research any time. After signing the consent form they were asked to fill the demographic data and general information in the self structured questionnaire based on Nordic. Then data was collected by using the Nordic Questionnaire for musculoskeletal disorders assessment.[8]

The questionnaire was distributed and filled by the subjects. Following criteria was strictly followed for participants to include in this study such as Age group[ 25-60][9] years of male and female faculty members of University, At least with 3 year of experience working in labs and teaching or 5 hours spending on computers, they should have 5 to 7 hours working/teaching job daily.[10] Data from the following faculty was not collected because it was affect the results of this study such as , Pregnant females, faculty having any recent surgery or trauma in last six months , any hereditary diseases like poliomyelitis, disuse atrophy, any Surgical limited range of motion ,Osteoarthritis, Rheumatoid arthritis or any diseases diagnosed previously in last six months. All the subjects were informed about the

nature of the study and data was kept confidential and only is used only for the research purpose only. All the information written by subjects was encoded so that the name of the subjects should be confidential. The data was analyzed by using the SPSS version 21.

There was region wise frequency of all the variables of the questionnaire. Cross tables, frequency tables used for further results to find out the different components of Musculoskeletal disorders.

## RESULTS:

**Table 1: Region wise frequencies of symptoms during last 12 months**

| Region      | Any symptoms in last 12 months [N=150] |     |
|-------------|--|-----|
|             | Yes                                    | No  |
| Neck        | 60                                     | 90  |
| Shoulder    | 50                                     | 100 |
| Upper back  | 40                                     | 110 |
| Elbows      | 50                                     | 100 |
| Wrist/hands | 80                                     | 70  |
| Lower back  | 100                                    | 50  |
| Hip/thigh   | 80                                     | 70  |
| Knees       | 110                                    | 40  |
| Ankle/foot  | 40                                     | 110 |

There were 150 number of participants included in this study. During the last 12 months, faculty members and IT workers had experienced symptoms in shoulder region, [26.67%] upper back region, [73.33%] knee's region, [40%] neck region, [66.67%] lower back [6.67], hip/thigh [53.33%] ankle/foot region [26.67%] elbow region, [33.33%]

and only [53.33%] number of respondents had symptoms in wrist/hand region.

only a small numbers were also present for other pain and discomforts like in back spine as well as fingers only or but that was to less .[Table1]

**Table II: Descriptive statistics for difficulty in performing any activities, due to symptoms in last 12 months**

| Region      | Difficulty in activities in last 12 months [N=150] |     |
|-------------|--|-----|
|             | Yes  | No  |
| Neck        | 60   | 90  |
| Shoulder    | 50   | 100 |
| Upper back  | 40   | 110 |
| Elbows      | 50   | 100 |
| Wrist/hands | 80   | 70  |
| Lower back  | 100  | 50  |
| Hip/thigh   | 80   | 70  |
| Knees       | 110  | 40  |
| Ankle/foot  | 40   | 110 |

During the last 12 months, the included participants that had difficulty in performance of activities due to symptoms in shoulder region, [66.67%] lower back region, [73.33%] knee's region. [40%] neck region

[26.67%] upper back regions [53.33%] hip/thigh region, [26.67%] ankle/foot region, [33.33%] elbows region and wrist and hand region [53.33%].[ Table II]

**Table III: Descriptive statistics for Physician Visit in last 12 months**

| Region      | Seen A physician for this condition, in last 12 months[N=150] |     |
|-------------|---|-----|
|             | Yes   | No  |
| Neck        | 60  | 90  |
| Shoulder    | 50  | 100 |
| Upper back  | 40  | 110 |
| Elbows      | 50  | 100 |
| Wrist/hands | 80  | 70  |
| Lower back  | 100   | 50  |
| Hip/thigh   | 80  | 70  |
| Knees       | 110   | 40  |
| Ankle/foot  | 40  | 110 |

When we summed up result of the faculty members , Number of respondents who had seen physician in last month due to symptoms in their shoulder region [66.67%] lower back regions, [73.33%] knee`s region, [40%] neck region. [53.33%] hip/thigh [26.67%] neck region [33.33%] wrist and hand

[53.33%], during last 12 months. There was also a high discomfort noted in lower back with shoulder the second most effected region. [Table III]

**Table .No.V: Descriptive statistics for Any trouble during last 7 days”**

| Region      | Any trouble during last seven days [N=150] |     |
|-------------|--|-----|
|             | Yes  | No  |
| Neck        | 30   | 120 |
| Shoulder    | 40   | 110 |
| Upper back  | 20   | 130 |
| Elbows      | 50   | 100 |
| Wrist/hands | 50   | 100 |
| Lower back  | 60   | 90  |
| Hip/thigh   | 60   | 90  |
| Knees       | 90   | 60  |
| Ankle/Foot  | 20   | 130 |

Participants had experienced trouble in shoulder region, [26.67%] upper back region[13.33%] and lower back region [40%], knee region [90%], neck region[ 20%], hip/ thigh region [40%],ankle and foot region [13.33%] elbow region[33.33%] wrist and hand[33.33%] ,during last 7 days. In these trouble feeling the most high was among knees second was the lower back and wrist and elbows were equally

felled in it but least involved were upper back and ankle. [Table IV]

#### DISCUSSION:

This study finds out the musculoskeletal disorders in different parts of the body. The neck region is mainly studied in computer science faculty and I.T workers. The frequency of shoulder, lower back pain and neck pain was very high in computer science faculty and

I.T worker. Neck and low back were mainly body areas for musculoskeletal disorders in computer science faculty and I.T workers who work for 5-6 hours daily.

Pain or discomfort in neck might be possible due to radiculopathy, or due to constant posture of down neck, and cause stress on the joints. [11]The frequency of pain in the neck, shoulder, lower back, knees and ankle found very high in this study and was almost similar to the figures of past studies, but neck pain rate is very high in department of Computational Sciences in university as compared to other studies, which indicate the neck pain. This research is a first effort in University to find out the musculoskeletal disorders in this specific environment of University.

This study tells us that the most of the symptoms in faculty members are from more than 1 year and many have symptoms last few years, but many were yet able for constant work more and the results show us that the symptoms were may be mild or moderate because very less workers go through with checkups from physician, which ask as a pointer of rigorousness of disorders, and know that very much less faculty members look for medical treatment. When checked their age factor it came to know that workers age between 30-40 are mostly involved in disorders may be due to serious work load and because they have to work on computer and I.T workers who have to do tasks on computer, of working hours 5-6 hours per day.

The increased frequency of shoulder, neck and lower back pain may be due to lot of stress on the joints due to job. I.T workers due to factors such as degeneration of spine, stress and fatigue of paraspinal muscles can also occur so rapidly. Ankle pain ratio is about 26.67% in the faculty members of staff of sports science department and staff spending 5-6 hours daily having age of 30.[12]A research conducted by Choobineh, A., et al. that determined the prevalence of work related disorder in Iranian company.[13] They concluded that results of Nordic pain questionnaire exhibited the highest rate of musculoskeletal disorder. The prevalence of worked related disorder were reported in shoulder[ 73%], back[66.7%]and knee[ 67.1%].there were significant association between risk level and MSK symptoms[  $P<0.05$ .] Nkhata, L., et al.,found that worked related musculoskelal disorder are common in physiotherapy personnal in lusaka Ndola distirct of zambia.[14]

The result of this study showed that there were 120 physiotherapist in which 82[68.3%] suffered from

worked related disorders. This subjects indicated that number of factors lead to musculoskeletal disorder such as performing manual therapy technique[ 93.2%] , working in same position in long hours [ 92.1%] lifting and shifting patients [ 88.6%] treating a large number of patients per day [ 97.5%]. Fahad et al. conducted the research in health care staff and nurses by using NMQ.[15, 16] The results were showing MSDS were common due to transferring/Lifting/shifting. There were clear association found between neck, low back pain and sex of subject and clear problem was present in neck and low back pain. Like that same research was conducted in nurses in which prevalence's of low back, shoulder, neck, and arm pain in the previous month were 54.7%, 42.8%, 31.3%, and 18.6%, respectively.

The prevalence was found among hospital nurses was more as compared to the previous studies. Al-Eisa, E., et al conducted the research between Saudi Arabia[17] and Egyptian physical therapist .there were 200 physiotherapist, 162 answered the questionnaire. The response rate was 81%. 74 % of Saudi and 63.9 % of Egyptian physiotherapist had musculoskeletal injuries. The highest prevalence of body region was low back [23.4%] and neck [25%] in Egyptian physiotherapist. while performing manual technique more than [21.8%] physiotherapists were injured. [17.1%] Egyptian PTs changed their living style. The highest prevalence of body region was low back injury [33%] and neck [ 29%] in Saudi PTs . bending lifting and twisting [21%] lead to musculoskeletal injuries.11% Saudi physiotherapist changed their habit to avoid the musculoskeletal injuries. [18]

### CONCLUSIONS:

It was concluded that faculty was not having physically fit as they have may MSDS including, low back pain ,wrist pain and have knee pain more as compared to shoulder or hands pain which was higher in It workers .This is because of their overuse as well as bad posture, more working hours and another factor that involved is poor biomechanics during their working hours.

### Recommendations:

It is recommended that all faculties should have proper evaluation and assessment so that they can be prevented from more vocation days from duty due to such disorders and quality of life can also can be improved.

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