ABSTRACT

Introduction: Musculoskeletal Disorders (MSD) are the disorders that have been developed due to disadvantageous work settings and work related issues. It may involve different regions of body like upper extremity, lower extremity, cervical, back regions etc. The onset of these problems need to be known where as it is a common belief that it is caused by overuse. Madrassa simply means the school does in the English language where students gathered to learn and acquire knowledge whether Muslim, non-Muslim, or secular. Usually teachers in madrassa adopted to sit in some positions in which musculoskeletal system is placed under load. The objective of the study is to determine “The Prevalence of Musculoskeletal Disorders among Madrassa Teachers.”

Methods: It was a cross sectional study. 109 madrassa teachers participated in the study; the study was conducted in Karachi. Self-assessment questionnaire was use to collect data. Data was analyzed using SPSS version 20.

Results: A total of 109 madrassa teachers taken part in this research study almost all participants were male. There were two types of madrassa teachers; one is full time teachers (73.4%) and part time (26.6%). (58.7%) madrassa teachers were suffering from discomfort during teaching and 41.3 didn't feel any discomfort, coming to pain regions 37 said they had back pain (33.9%), 35 said they had shoulder pain (35%), 37 said they had knee pain (24.8%) and four said they had heel pain (3.7%).

Conclusion: The result showed that the madrassa teachers have high prevalence of Musculoskeletal Disorders. This comprises different regions of body like shoulder, back, knee and heel. This leads to the conclusion that these teachers are not at all aware of the consequences of MSD nor they are aware of the causes of these disorders. Also this was found that the facilities provided to these teachers were not up to the mark. When it comes to the working environment the technology of ergonomics has proved a lot, in minimizing the development of MSD. There is a need to provide education on ergonomics for madrassa teachers.

Keywords: Madrassa teachers, musculoskeletal disorders, Ergonomics.
INTRODUCTION

Teachers are prone to develop the musculoskeletal disorders because of the awkward postures they acquire during their job [1]. According to Luttmann at el (2004) musculoskeletal disorders are one of the main causes of absenteeism from work or job [2]. Along with this it is the disorder on which considerable amount of public is yearly wasted. These disorders are associated with the nature of work and it may involve any region of body like back, upper limb or lower limb.

The causes may be repetitive trauma. According to Occupational Health & Safety Centre of Canada, musculoskeletal disorders are disorders that are painful and they involve muscles, nerve & tendons. The causes may include frequency of repetition, acquiring bad postures. These disorders are painful at rest as well as at work place. Musculoskeletal disorders do not develop due to a single trauma. They result from repetitive episodes of trauma. They gradually & slowly come into existence. (Canadian Centre for Occupational Health & Safety, www.ccohs.ca/oshanswers/diseases/rmirs1.html assessed on 25 Oct. 2013).

Musculoskeletal disorders are among the leading reasons of work related disabilities and being absent from work [3]. According Hogg-Johnson 50% to 80% of the population in developed countries has had back pain during their whole life span [4]. Also 30% of all the last time claims are due to back disorders. Authors have paid particular attention to analyzing the strength of the association between musculoskeletal disorders and work factors. Because the development of a musculoskeletal disorder may be modified by psychosocial factors, the authors have also reviewed the literature on the relationship of these factors to the presence of musculoskeletal symptoms or disorders [5,6]. Understanding these associations and relating them to disease etiology is critical to identifying workplace exposures that can be reduced or prevented [7]. The symptoms may vary from discomfort and pain to decreased body function and invalidity. Although it is not clear to what extent musculoskeletal disorders are caused by work, their impact on working life is huge. Musculoskeletal disorders can interfere with activities at work and can lead to reduced productivity, sickness absence and chronic occupational disability [8].

The load on teaching is stressful; this affects the performance of school teachers often involve significant use of neck flexion position in the work tasks of school teaching, such as marking of assignment and frequent reading. The work of the school teachers does not only involve teaching to students but also assessing students’ work, preparing lessons and participating in different school committees. These may cause teachers to suffer physical and mental health issues due to the variety of jobs functions. A study shows that teachers are prone to develop the musculoskeletal disorders because of the awkward postures they acquire during their job. There are some ergonomic issues also associated with the causation of musculoskeletal disorders among the teachers [9]. In madrassas one must kneel on the floor, then folds the knees so as the legs come just beneath the thighs and the hips rest on the heel of feet. Ankles are turned outward. The back should be straight. The madrasa teachers’ sitting styles are weird as they can result into the causation of musculoskeletal disorders. Most of the madrasa teachers acquire forward kneeling posture and they sit in this awkward posture for hours.

METHODOLOGY

This cross sectional survey study was done on a sample of 109 madrassa teachers from different madrassas of Karachi. Selection of sample was on convenient sampling. The duration of the study was 6 months. Teachers, students and administrative staff at madrassa who are having at least one year of experience in madrassa were selected. Data was collected through self-assessment questionnaire. This questionnaire was given to 109 madrassa teachers and students. The questionnaires were completed on the basis of answers obtained from the participants.

The analysis to calculate the Prevalence of different musculoskeletal disorders among madrassa teachers was done by SPSS version 20 software. The questionnaire used is a modified form and is based on self-assessment questionnaire. The questionnaire was printed on a white A4 size paper with font size 12 and times new roman format. The ques-
tionnaire used had two sections. First section contained questions related to age, gender, weight, height, BMI working hours etc. Second section contained questions regarding musculoskeletal disorders in different regions of body. The ethical review committee of Isra University had gone through the research proposal of this study and had given the permission to conduct the study.

DATA ANALYSIS AND RESULTS

The response rate was 100%. A total of 109 madrassas teachers taken part in this research study almost all participants were male. There were two types of madrassa teachers; one is full time teachers (73.4%) and part time (26.6%). (58.7%) madrassa teachers were suffering from discomfort during teaching and 41.3% didn’t feel any discomfort.

The participants were divided into eight groups starting from age 21 year to 60 years. Maximum number of participants was found in age group thirty six to forty years that is 26.6%. The weight category was divided into six categories maximum responses were found in the category of seventy to seventy nine kilogram (36.7%). Maximum responses of found in the group six to 10 year experience. The calculated percentage of the group was found to be 56%.

The category of BMI was divided into three groups first below twenty second was between 20 and 25 and third was above 25. The maximum responses were found in the third group (69.2%). Almost all the participants (100%) teaching style was found in sitting position.

When we asked the question about pain region of pain 37 said they had back pain (33.9%), 35 said they had shoulder pain (35%), twenty seven said they had knee pain (24.8%) and 4 said they had heel pain (3.7%). Almost 79 percent of participant had pain during teaching and 21 percent had pain before teaching. 89 teachers are having slow nature of pain (81.7%) and 20 having sudden nature of pain (18.3). The results of visual analog scale used for pain scaling shows that maximum of the participant had medium category of pain that is between two to seven on the VAS this comprises of 73.4%. Participant categorized the pain at eight to ten on VAS are 8.3% and zero to one on VAS are 18.3%. Maximum of participant were found to be in the third category of BMI that is above 25.

| Table 1: Age of participants |
|-----------------------------|
|                             |
| **Frequency**               | **Percent** | **Valid Percent** | **Cumulative Percent** |
| 21 to 25 years              | 17          | 15.6             | 15.6                   |
| 26 to 30 years              | 24          | 22.0             | 22.0                   |
| 31 to 35 years              | 21          | 19.3             | 19.3                   |
| 36 to 40 years              | 29          | 26.6             | 26.6                   |
| 41 to 45 years              | 6           | 5.5              | 5.5                    |
| 46 to 50 years              | 7           | 6.4              | 6.4                    |
| 51 to 55 years              | 2           | 1.8              | 1.8                    |
| 56 to 60 years              | 3           | 2.8              | 2.8                    |
| Total                       | 109         | 100.0            | 100.0                  |

| Table 2: Experience of respondents |
|-----------------------------------|
|                                | Frequency | Percent | Valid Percent | Cumulative Percent |
| 1 to 5 years                    | 17        | 15.6    | 15.6          | 15.6               |
| 6 to 10 years                   | 56        | 51.4    | 51.4          | 67.0               |
| 11 to 15 years                  | 16        | 14.7    | 14.7          | 81.7               |
| 16 to 20 years                  | 15        | 13.8    | 13.8          | 95.4               |
| 21 to 25 years                  | 3         | 2.8     | 2.8           | 98.2               |
| 26 to 30 years                  | 1         | 0.9     | 0.9           | 99.1               |
| 31 to 35 years                  | 1         | 0.9     | 0.9           | 100.0              |
| Total                           | 109       | 100.0   | 100.0         |                    |

| Table 3: BMI of respondents     |
|---------------------------------|
|                                | Frequency | Percent | Valid Percent | Cumulative Percent |
| Below 20                        | 10        | 9.2     | 9.2           | 9.3                |
| 20 to 25                        | 23        | 21.1    | 21.1          | 30.8               |
| Above 25                        | 74        | 67.9    | 69.2          | 100.0              |
| Total                           | 107       | 98.2    | 100.0         |                    |

| Table 4: Missing System         |
|---------------------------------|
|                                | Frequency | Percent | Valid Percent | Cumulative Percent |
| System                          | 2         | 1.8     | 1.8           |                    |
| Total                           | 109       | 100.0   | 100.0         |                    |
**DISCUSSION**

All the musculoskeletal disorders that develop due to any sort of problem related to work or job that the affected person is doing is called Musculoskeletal Disorders or MSD. Different occupations have different risk factors to develop these MSDs. This study only targets problems about teachers as this is the main topic. Here authors included participants who are teaching students at different levels and each level has their own responsibility and liabilities.

The working procedures that the teachers may employ to convey the knowledge to their students they may have to stand or sit for long hours. Prolong sitting or standing it is known that prolong acquiring of a certain posture may lead to increased pressure on intervertebral discs and when this pressure is increased, lead to disorders associated with intervertebral discs like neck or back pain [10].

The study done in 2006 by Adamson J. et al. had shown that high BMI is associated with hip, knees, ankle & feet pain [11]. High BMI is associated with high prevalence of knee pain, ankle pain or hip pain. The study done in 2009 by Rahman S et al had showed that obesity was associated with pain in different regions of body like back [12].

Ergonomics is a field which makes the environment individual friendly. If the correct use of ergonomics is employed in the working environments the injuries can be minimized. Also if the valuable rules of ergonomics are applied in the working environment of the teachers this can minimize the injuries and disorders caused by work related issues.

The response rate of this study was 100%. The total number of participants in this study was 109. The teacher teaching in madrassa have different category according to the work hours. They can be divided into full time workers and part time workers. The result shows that most of the teachers who participated in the study were full time workers that are they teach for as long as eight hours daily. The teachers most of the time suffer from pain during teaching. The reason may be their sitting posture that was quite awkward. And all the awkward postures may lead to some disorders.

The prolong duration of work without rest can be a cause of developing MSD. Along with this prolong duration awkward postures also play an important role in developing...
Ergonomics is a field which makes the environment in-performance of this person having high BMI, is weak or incapable to about the musculoskeletal disorders they can also develop be a cause of many diseases so if a person is having high BMI causes load on the body joints lead them to deterioration [18, 19]. This deterioration results in the causation of disorder like MSD which is one of the leading problems among the working community.

High BMI itself is dangerous for health. Obesity is said to be a cause of many diseases so if a person is having high BMI that person may develop many diseases. If we talk about the musculoskeletal disorders they can also develop if a person has high BMI. High BMI means that a person is over weighted or obese and if a person has high BMI over all mass of that person would be increased. This means that a person with high BMI has to do more effort to do the same work which a normal BMI person can do with little effort. More effort means more energy consumption and more muscle work. If the musculature or skeletal system of this person having high BMI, is weak or incapable to perform the work this can lead to injury and resulting into musculoskeletal disorders.

Ergonomics is a field which makes the environment individual friendly. If the correct use of ergonomics is employed in the working environments the injuries can be minimized. Also if the valuable rules of ergonomics are applied in the working environment of the teachers this can minimize the injuries and disorders caused by work related issues.

CONCLUSION: The result showed that the madrassa teachers have high prevalence of Musculoskeletal Disorders. This comprises different regions of body like shoulder, back, knee and heel. This leads to the conclusion that these teachers are not at all aware of the consequences of MSD nor they are aware of the causes of these disorders. Also this was found that the facilities provided to these teachers were not up to the mark. When it comes to the working environment the technology of ergonomics has proved a lot, in minimizing the development of MSD. There is a need to provide education on ergonomics for madrassa teachers.

REFERENCES

[1] Magdy A. Darwish, Shatha Z, Al-Zuhair. Musculoskeletal pain disorders among secondary school saudi female teachers. hindawi publishing corporation pain research and treatment.2013;article id 878570, 7 pages.

[2] Luttmann p, jager p.m, griefahn p. B. Protecting workers’ health series #5, preventing musculoskeletal disorders in the workplace. 2004; Available at http://www. who.int/occupational health/publications/musculoskeletaldisorders/en/)

[3] Abaraogu uo, olawale o, odebiyi d.o, ezeukwu oa eze ma ci. Self-reported work organization indices [factors] are associated with prevalence of work related musculoskeletal disorders among bottling workers. Across sectional study. Continental J. Applied Sciences 01/2012; 7(2):28-34.

[4] Hogg-johnson s, cole d., cote p. & frank j.w. “what we know about the timing & site of interventions for soft tissue injuries of the low back, neck & upper extremity.” Institute for work & health, available at http://www.iwh.on.ca/Http://www.usi.edu/riskmgt/ergonprevntdisorders.as. Assessed in jan. 2014)

[5] Paulien m bongers, cornells r de winter, michel aj kompier and vincent h Hildebrandt. Psychosocial factors at work and musculoskeletal disease. Scand J Work Environ Health. 1993 Oct;19(5):297-312.

[6] V bihari, C kesavachandran, BS pangtay, AK srivastava, N Mathur. Musculoskeletal pain and its associated risk factors in residents of national capital region. 2011;15(2):59-63.

[7] Lipscomb j, Trinkoff a, Brady b. Health care system changes and reported musculoskeletal disorders among registered nurses. Am J Public Health. 2004 August; 94(8): 1431–1435.

[8] Lambert va and lambert ce. Nurses’ work place stressers and coping strategies. Indian j palliet care.2008;14:38-44.

[9] Samad nia, abdullah h, moin s, tamrin sb, hashim z. Prevalence of low back pain and its risk factors among school teacher. American journal of applied scienc-
es.2010; 7(5): 634-639.

[10] Susan J. Hall. Basic biomechanics. 5th edition; 2007.

[11] Adamson J. Ebrahimi S, Dieppan P & Hunt K. (2006). Prevalence and risk factor for joint pain among men and women in the west of Scotland twenty-07 study.” Ann rheum dis. 2006; 69: 520-524.

[12] Rahman S, Karppinen, Arjas P.L. Solovieva S & Junturinen V. The association b/w obesity & low back pain. A meta-analysis. American journal of epidemiology. 2009; 171(2): 135-154.

[13] Palmer K.T. Walker-Bone K. Prevalence and occupational associations of neck pain in the British population. Scand J Work Environ Health. 2001; 27(1): 49-56.

[14] Beyen T.K., Mengestu M & Zele Y.T. Low back pain & associated factors among teachers in Gondar town, North Gondar, Amhara region Ethiopia. Occup Med Health Aff 2013, 1:5.

[15] Lawrence I. Musculoskeletal disorders in Nigeria nursery schools: work related risk reduced. Advances in life sciences and technology. 2012; 5:12-15.

[16] Li L, Yue and Liu F. Work-related musculoskeletal disorders among school teachers in China, prevalence and occupational factors. Inj Prev 2012; 18: A162.

[17] Korkmaz N.C., Cavlak U, Telci E, a, Universities P, Tedavi F, Yükselokulu R, Rektorluk binasi, Kati B, Denizli. Musculoskeletal pain, associated risk factors and coping strategies in school teachers.” Scientific research & essay. 2011; 6:649-657.

[18] Rogers MW, Wilder FV. The association of BMI and knee pain among persons with radiographic knee osteoarthritis: a cross-sectional study. Bmc musculoskeletal disorder. 2008; 9:163-8.

[19] Grotle M, Hagen KB, Natvig B, Dahl FA, Kvien TK. Obesity and osteoarthritis in knee, hip and/or hand: an epidemiological study in the general population with 10 years follow up. Bmc musculoskeletal disorder. 2008; 9:132-6.

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