

FREQUENCY OF MUSCULOSKELETAL PAIN IN FEMALE TEACHERS

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Abstract

Musculoskeletal pain is very common in our society and most of the time cause of this pain is faulty posture, work load or psychosocial factors. The occupations in which repetitive physical activities or mental stress is involved may cause musculoskeletal pain in body.

Objective: The objective of this study is to investigate the frequency and risk factors causing musculoskeletal pain in neck, upper and lower back, knee and arm regions along with over head reaching among female teachers.

Setting: The study is conducted at School of Allied Health Sciences, Divisional Public School, Lahore Preschool and Learning Alliance, Punjab Collage, National Collage of Arts and Punjab University of Lahore.

Study Design: It was observational study.

Patients: 100 female teachers were taken.

Results: This study revealed a high frequency of musculoskeletal pains among female teachers in Lahore.

Age and working in improper posture were found to be significant risk factors.

Key Points: Female teachers, aging, awkward posture.

Introduction

It is necessary to do work for a successful life but to do work for prolonged time and in inappropriate posture is wrong. Musculoskeletal pain is most common problem in this regard. It includes muscles, tendon, ligament etc.¹ Sometime it is due to occupation.² teachers are mainly the group which faces this pain mostly because being a teacher you have to pass through an extremely stressed situation every day which also has effect on their professional performances.³

Musculoskeletal system comprises of bones and joints, muscles the nerves which supply these muscles, tendons, and ligaments. Ligaments are just like the ropes which prevent the other structure to displace from their site, it allow a certain distance to cover by a joint. Over pressure can cause the breakage of ligaments. A bursa is also the part of this system it prevent from friction between bones. When we talk about musculoskeletal pain we have to consider all these parts.⁴ Major functions of this system s to provide attachment of muscles, give a shape to our body, give protection to vital organs also a source of minerals.⁵

Occupational stress affects the bones, ligaments; tendon etc with acute to severe symptoms and pain may be on the specific area or generalized.⁶ Pain is due to any cause inflammation, injury, fibrosis and neuronal signal delay. If we specify this pain among tea-

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chers then the pain is more prevailed in neck, shoulder, lower back, and knee and leg pain.⁷ Age, the time spend on teaching institute, standing posture and type of work are the risk factors for this pain.⁸ Presenting complains are different in different individuals this includes swelling, pain, lethargic feeling, spasm in muscles and unable to concentrate on any task.⁹

These symptoms may be increased or decreased with passage of time and with the situations. At first the pain may decrease as the stress release but after sometime rest has no effect on pain.¹⁰

One should remember the psychosocial aspects of the musculoskeletal pain. To check the pain the therapist can use history or pain intensity scale. To avoid any problem the therapist should know about any other situation like trauma, osteoporosis and any other systemic disease.¹¹

Physical therapy, correction of posture, changing in working hours and education of the patients are treatment options for this problem.⁹

Durmus and Ilhanli and many other researchers observed the frustration due to work among teachers, this study observed that females teachers feel pain mostly in neck, shoulders and lower back or lumbar area. This is due to anxiety to fulfill the tasks on time, examination load etc and author advised to decrease this loads to prevent from pain.^{12,13} The study of Nilufer, Cavlak and Emine shows that females are more prone to have this pain and most of the women use pain killer.¹⁴ Studies conducted in Hong Kong which evaluates the most common complains of teacher related to their health it includes fatigue, voice problems and also sleep disturbance.^{15,16} Jefferson et al studied about the ratio of pain in different regions results shows that 41.1% is in lower back and lower limb and 23.7% is in upper limb. He also showed that the females and the persons who have experience of more than 14 years are more prone to this pain.^{17,18}

Thomas and Lam explained the frequency of neck pain and risk factor like head down posture etc.¹⁹

Another researcher said that the musculoskeletal disorders are due to occupation which has vibration exposure.²⁰ Another study shows the relationship among the female teachers and knee osteoarthritis. This study told us that the incidence of osteoarthritis of hip is 2.7 for female teachers.²¹ Studies also told us that neck pain is related with repetition of work and elevated and abducted shoulders along with flexed neck.²² Incidence of taking sick leave due to musculoskeletal pain is 8.2% in female employee of Sweden.²³

A review of literature on gender and clinical disease shows disproportionate representation of women receiving treatment for many diseases and conditions report suggests that women with more severe pain, more frequent pain, and pain a longer duration than do men. Gender differences in pain perception have also been extensively studied in the laboratory, and experimentally induced pain ratings also reflect some sexual differences, with women generally reporting lower pain threshold and tolerance than men. However, there is little consensus on whether these apparent differences reflect the way men and women respond to pain, different social rules for the expression of disease, or biological differences in the way noxious stimuli are processed.²⁴

Occupations with high physical work strain, non-neutral postures, prolonged static muscle contractions and repetitive movements are regarded as harbouring an increased risk of musculoskeletal pain.²⁵

Material and Methods

Study Design

This is an observational study.

Settings

The study is conducted at School of Allied Health Sciences, Divisional Public School, Lahore Preschool and Learning Alliance, Punjab Collage, National College of Arts and Punjab University of Lahore.

Study Group

Female teachers of School of Allied Health Sciences, Divisional Public School, Lahore Preschool and Learning Alliance, Punjab Collage and Punjab University of Lahore are included in study group.

Duration of Study

The duration of study is 03 months after the approval of synopsis i.e. from December 2012 to February 2013.

Sample Size

Sample size of approximately 100 female teachers was taken.

Sampling Technique

Convenience sampling.

Sample Selection Criteria

Inclusion Criteria

- Female teachers of age 20 up to 49 years of age.

Exclusion Criteria

- All other patients who are not coming under the above are excluded.
- All other patients who had other degenerative diseases, obesity, Rheumatoid Arthritis and traumatic disease.

Sampling Instrument

The sampling instrument was valid questionnaire. The questionnaire was developed then pilot study was conducted for validity and reliability after peer review it was distributed among female teachers to evaluate the frequency of musculoskeletal pains.

Data Collection Procedure

Approximately one hundred copies of the valid questionnaire were distributed among prospective participants who were recruited by convenience sampling. The questionnaire was distributed and explained to each participant. The completed copies of the questionnaire were collected within one week.

Ethical Issues

There is no ethical issue in this study because the patient is not putting on the experiment and no medication is given which has side effects.

Statistical Analysis

SPSS vol. 17 is used for statistical analysis. Appropriate tables and graphs are used to describe the data and results.

Results

Statistical Analysis

Frequency of teachers' living in age group of 20 – 29

was 21%, age group of 30 – 39 was 38% and age group of 40 – 49 was 41% (Table 1). About 8% of teachers were of upper class, 86% belonged to middle class and 6% of teachers from lower class (Table 1).

Table 1: Showing frequency and percentage of age.

Age	Frequency	Percent
20 – 29	21	21.0
30 – 39	38	38.0
40 – 49	41	41.0
Total	100	100.0

Table 2: Showing frequency and percentage of working hours.

Working Hours	Frequency	Percent
1 to 5	7	7.0
6 to 10	15	15.0
More than 10	78	78.0
Total	100	100.0

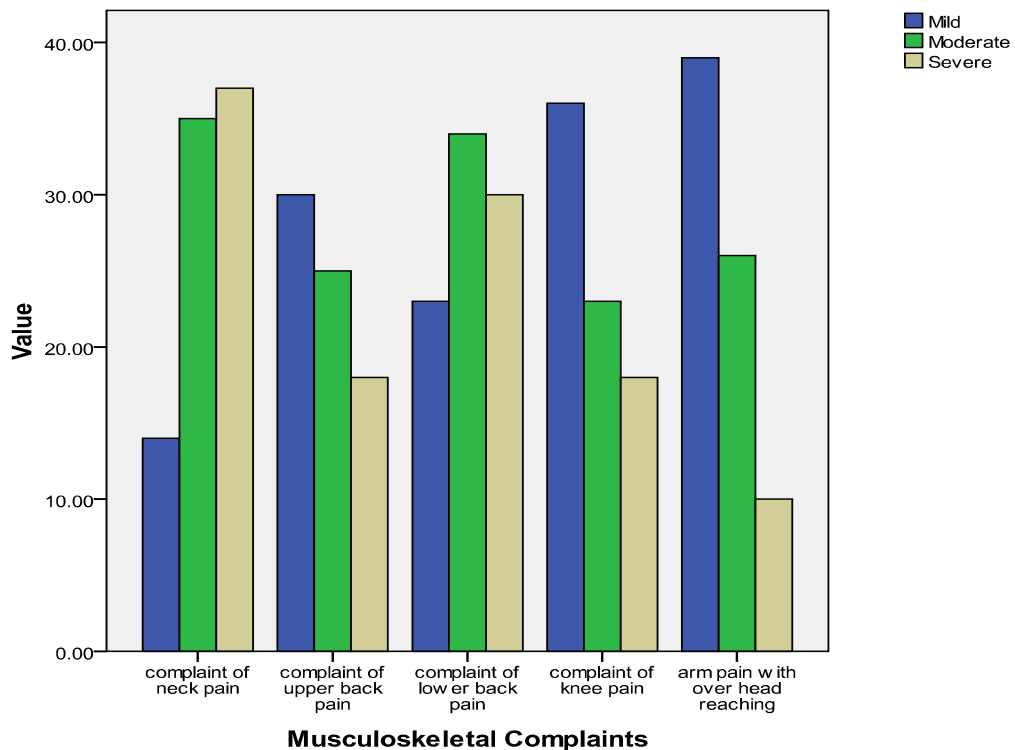
12% of teachers were working for 1 – 5 hours, 58% were working for 6 – 10 hours and 30% were working for more than 10 hours (Table 2).

The graph 1 shows that mostly female teachers show the severe neck pain and also the lower back pain. The complain of pain with over head activity is mild in many female teachers.

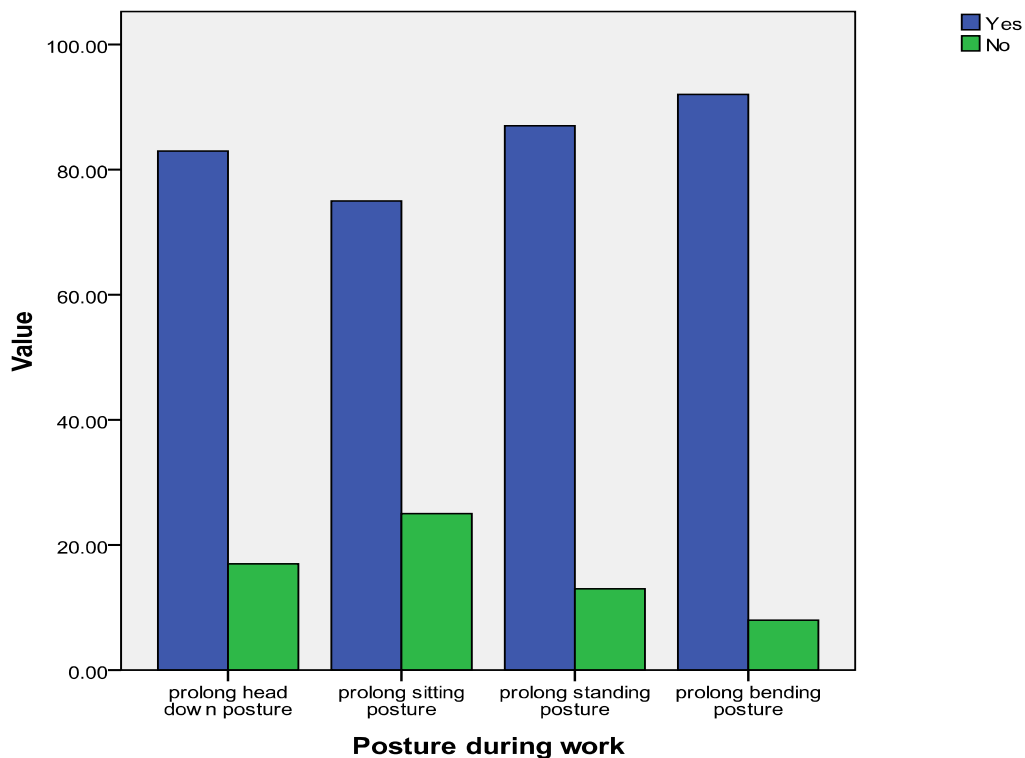
The frequency of musculoskeletal pain was 86% (14% mild, 35% moderate and 37% severe) neck pain, 73% (30% mild, 25% moderate and 18% severe) upper back pain, 87% (23% mild, 34% moderate and 30% severe) lower back pain, 77% (36% mild, 23% moderate and 18% severe) knee pain and 75% (39% mild, 26% moderate and 10% severe) arm pain with over head reaching.

The graph 2 shows the different posture during work and show a high frequency of neck bending posture during work.

Complaint of neck pain was found to be associated with age ($p = .006$) and prolonged head down posture ($p = .000$) (Table 3).



Graph 1: Representing frequency of musculoskeletal complaints.



Graph 2: Representing frequency of posture during work.

Table 3: Crosstab and Chi-Square test showing association between complaint of neck pain and prolong head down posture. Crosstab and chi square test.

Complaint of Neck Pain	Prolong Head Down Posture			P-value
	Yes	No	Total	
None	5	9	14	.000
Mild	13	1	14	
Moderate	30	5	35	
Severe	35	2	37	
Total	83	17	100	

Table 4: Crosstab and Chi-Square test showing association between complaint of lower back pain and prolong sitting posture. Crosstab and chi square test.

Complaint of Lower Back Pain	Prolong Sitting Posture			P-value
	Yes	No	Total	
None	4	9	13	.000
Mild	16	7	23	
Moderate	30	4	34	
Severe	25	5	30	
Total	75	25	100	

Table 5: Crosstab and Chi-Square test showing association between complaint of knee pain and prolong standing posture. Crosstab and chi square test.

Complaint of Knee Pain	Prolong Standing Posture			P-value
	Yes	No	Total	
None	13	10	23	.000
Mild	35	1	36	
Moderate	22	1	23	
Severe	17	1	18	
Total	87	13	100	

Table 6: Crosstab and Chi-Square test showing association between arm pain with overhead reaching and age. Crosstab and chi square test.

Arm Pain with Over Head Reaching	Age				p-value
	20 – 29	30 – 39	40 – 49	Total	
None	13	7	5	25	.000
Mild	8	24	7	39	
Moderate	0	5	21	26	
Severe	0	2	8	10	
Total	21	38	41	100	

Discussion

100 female teachers were studied and a questionnaire was developed and distributed among teachers to evaluate the frequency of musculoskeletal pains.

In this study most of female teachers lie in age group of 40 – 49 up to 41%. This study also reveals that most of female teachers were suffering from musculoskeletal pains and neck and low back were the most frequent sites and the frequency of musculoskeletal pain was 86% neck pain, 73% upper back pain, 87% lower back pain, 77% knee pain and 75% arm pain with over head reaching.

A review of literature on gender and clinical disease shows disproportionate representation of women receiving treatment for many diseases and conditions report suggests that women with more severe pain, more frequent pain, and pain a longer duration than do men. Gender differences in pain perception have also been extensively studied in the laboratory, and experimentally induced pain ratings also reflect some sexual differences, with women generally reporting lower pain threshold and tolerance than men. However, there is little consensus on whether these apparent differences reflect the way men and women respond to pain, different social rules for the expression of disease, or biological differences in the way noxious stimuli are processed.²⁴

In accordance to this research age and working in awkward posture such as prolong head down, prolong bending, prolong standing and prolong sitting posture and long term repetitive physical activities according to previous researches were also found to be significant risk factors. Most of teachers were found to have no fitness activities such as regular exercises.

All these findings were in accordance to these researches conducted by Erick and Smith (2011) and they concluded that the frequency of musculoskeletal disorders among female teachers ranges between 39% and 95% and the most frequent body sites appear to be the back, neck, knee and upper limbs. Teachers appear to be more likely to report suffering from low back pain. Factors such as age, length of employment and awkward posture had been associated with higher musculoskeletal disorders prevalence rates and by Durmus and Ilhanli (2012) who studied the frequency of work – related musculoskeletal pain and he concluded that pain in neck, shoulder, back and low back regions were frequently seen in female teachers.

From literature review and experience it is concluded that most of female teachers were suffering from musculoskeletal pains and age and working in improper posture were significant risk factors. The habit of awkward back postures, long term repetitive physical activities and long term standing must be reduced.

Gender, age, depression and improper posture were found to be significant risk factors. Meanwhile, this study revealed a high prevalence of musculoskeletal pain in female teachers and the level of musculoskeletal pain experienced was severe enough to interfere with activities of daily living and for some teachers resulted in work absence and frequent pain killer usage.

Conclusion

It is concluded that most of female teachers were suffering from musculoskeletal pains and age and working in improper posture were significant risk factors. The habit of awkward back postures, long term repetitive physical activities and long term standing must be reduced.

Limitation

Study had limitation that data was collected from female school and colleges where the teaching staff was female only.

Recommendations

- Researcher recommended that further study should be conducted on comparison of pain threshold among male and female teachers.

- Interventional study should be conducted to prevent this pain.

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