

INTERNATIONAL JOURNAL OF CREATIVE RESEARCH THOUGHTS (IJCRT)

An International Open Access, Peer-reviewed, Refereed Journal

“PREVALENCE OF MUSCULOSKELETAL DISORDERS AMONG TEACHERS, TAKING ONLINE LECTURES: A SYSTEMIC REVIEW.”

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ABSTRACT

BACKGROUND : All over the world, musculoskeletal disorders (MSDs) are responsible for considerable human, social and work-related burdens in terms of pain, distress at work, disability and quality of life. The MSDs are important health problems in working population. This study objectified the prevalence of work related musculoskeletal disorders in teachers, taking online lectures in different areas

AIM : To determine the Work-Related Musculoskeletal Disorders amongst the teachers, taking online lectures.

OBJECTIVES : The primary objective of this study was to determine the prevalence of common work related musculoskeletal disorders among the teachers, taking online lectures.

METHOD : The study design adopted was a survey study. A total of 200 samples were collected by the study conducted in different areas. Data was collected by using the Google form and questionnaire paper form using Nordic Musculoskeletal Questionnaire. Descriptive statistics were used to represent the result of the data analysis. XIII

RESULT: The result of the study shows that, participants are falling in the age range 25-40 years are more vulnerable. Most of the participants are working as a teacher, taking online lecture for 35 to 50 hours per week most commonly suffered by WMSDs. In this search, it was found out that most of participants had musculoskeletal disorders with high prevalence of Neck pain. The results indicates the most discomfort of body regions is in the Neck(61%) , Lower Back(60%) , Upper Back(45%).

CONCLUSION : The study represents a strong evidence that WMSDs was common among the Teachers, taking online lectures. The most affected body parts were Neck, Lower Back and Upper Back. The factor used were working hours, working experience and Nordic Musculoskeletal Questionnaire.

KEY WORDS : Prevalence , WMSDs , The Teachers , Online Lectures , NMQs

INTRODUCTION

In 21st century computer system has grown to be everyone's need. Many university or Activity require a laptop literate for enrolment. The application of pc era and the accompanying use of VDT's (Visual display terminal : A computer screen) are revolutionizing the occupational places in India. computer occupational here generated a brand-new genre of occupational fitness trouble like RSI (Repetitive Stress Injuries), CTD (Cumulative Tremor Disease) and occupational overuse syndrome. Computer use causes preferred malaise, eye stress and musculoskeletal problems etc. The common place musculoskeletal proceedings include ache and stiffness in numerous areas of the body like neck, shoulder, decrease, retuned and wrist etc. The rise in computer use and flat light touch keyboard that permit excessive speed typing have ended in an epidemic of injuries of the hands, palms and shoulder.(1) The risk factor related to computer occupation encompasses the combination of biometrical factors such as static muscular, overload, repetitive motions and conditions related to occupation environment. The not unusual musculoskeletal complains encompass pain & stiffness in diverse areas of the body like neck, shoulder, lower back, wrist, hand and palms. The above troubles are more commonly associated with old age but because of many elements along with negative component layout, proximity of the person to the screen and excess of consecutive working hours mean that the above issue can features in both young and old laptop users.(1) The high occurrence of computer associated MSDs reported by way of teacher shows a public health need to pick out intervention with a view to reduce symptom severity and prevent Impairment.(1)

The bulk of literature to be head on Computer Associated MSDs amongst teachers is greater in the developed international location with few studies in an Indian set up. Hence a need become felt to carry out the existing study to determine the musculoskeletal Disorder by using standardised Nordic Question arise among teaching profession.(1) The incidence of musculoskeletal pain has incremented recently in industrialized nations. The effect in musculoskeletal problems representing a leading reason of physical and occupational incapacity amongst men and women under the age of 45 years and the third leading case of incapacity among those 45 years of age or older. The ethology of MSP is now normally regular to be multi-functional encompassing physically, psychological and social effect Age, sex & working with improper role, each day lifting of hundreds and physical strenuous work increases the risk of MSP significantly. Also, in working age, adults, mental elements make a contribution on to each the onset of pain the transition from Acute to chronic and are typically greater strongly associated with pain associated s=disability than the biomedical and mechanical elements, taken into considerations.(2)

The usage of electronic gadgets has in recent years grown to be a vital element within the lives of youth who often use computer to carry out in structural and enjoyment activities. The immoderate use of those devices has been related with several fitness problems, inclusive of obesity, headaches, anxiety, stress, sleep problems, musculoskeletal ache, and reduced physical activity tiers. Studies have shown that extended periods in a static position might also bring about spinal column ache and increase the treat of growing lawsuits in different body elements.(3)

STANDARDISED NORDIC QUESTINNAIRE is a scale of Musculoskeletal related disorders and symptoms in a working population are common, occurring predominantly in the low back, neck and upper limbs. To help define the problem and its 7 relationships to work factors, increasing interest has been directed in many countries to the development of methods to estimate and record musculoskeletal symptoms. Questionnaire have proved to be the most obvious means of collecting the necessary data.(7) Standardization is needed in the analysis and recording of the musculoskeletal symptoms. Otherwise it is difficult compare the results from different studies. This consideration was the main motive for a Nordic group to start developing standardized questionnaire for the analysis of musculoskeletal symptoms. The questionnaire follow the tradition of some earlier medical questionnaire - eg, for cardiovascular or pulmonary surveys 9 (British Medical Research Council's Questionnaires for chronic bronchitis). The nature of the musculoskeletal symptoms dictates a different structure however.(7) Supported by Nordic council of ministers, A Project was undertaken to develop and test standardized questionnaire on general, low back and neck/shoulder complaints. The text has been translated into four Nordic languages, using a multiple to-and-from technique from the source languages which were Swedish and danish. Translation into English has been guided by native speakers of English, but might require further revision.(7)

So, the need arised Work related musculoskeletal disorders affects many people in the world. There have been many researches carried out for the work related musculoskeletal disorders on many profession but there is lack of study done on teachers, taking online lectures. This study had been done to evaluate teachers, taking online lectures perception of work related factors that may contribute to musculoskeletal symptoms and disorders. As teachers whom taking online lecture involved in prolong sitting and sitting with inappropriate posture during their lectures. These long periods of work can cause musculoskeletal disorders among the teachers. Thus, this study had been done to explore common musculoskeletal complaints among the teaches, taking online lectures.

MATERIAL AND METHODS

The study was approved by Institutional ethical committee.

MATERIALS USED:

- Consent Form
- Nordic Musculoskeletal Questionnaire
- Pen / Pencil
- Paper

METHODOLOGY:

- **STUDY DESIGN** : Survey Study
- **SAMPLE SIZE** :

These Study 200 samples were collected from Teachers taking online lectures (n=200)

- **SOURCE OF DATA** :

200 Teahers taking online lectures between the age group of 25 to 50 years.

- **STUDY POPULATION** :

Teachers Taking online lectures from various colleges, Institutes and Universities of Vadodara City.

- **SAMPLING** : Convenient sample

INCLUSION CRITERIA :

- Age : 21-50 years.
- Both female and male teachers.
- Work experience 6 month or more than of online lectures.
- Working days – 6 days/week.
- Teacher does not taking any medication.

EXCLUSION CRITERIA :

- Age : Below 21 and above 50 years
- Work experience of less than 6 months.
- Pain prevailing due to any accident, injury, surgeries or cardiovascular issue in the past.
- Any acute orthopedic or neurological problems.

OUTCOME MEASURE: Nordic Musculoskeletal Questionnaire (NMQ-E)

PROCEDURE

Each participant was given the questionnaire in form of Google form and Nordic questionnaire paper which was filled by them. Total 200 population are taken who have fulfilled the inclusion and exclusion criteria. Participants were explained about the research and also know about inclusion and exclusion criteria. The form of Nordic musculoskeletal questionnaire distributed and the link of the Google form using the Nordic musculoskeletal questionnaire was circulated among the Teachers, taking online lectures. After receiving a huge amount of responses the participants were recruited according to the inclusion and exclusion criteria of the study. Here we distributed the consent form separately as a soft copy of questionnaire were filled by the participants itself after they were explained about this study and so it was considered that they have given their consent to us.

STATISTICAL ANALYSIS

STATISTICAL METHOD : Descriptive statistics of frequency and percentage were used to analyse and interpret the results. The data was analysed as three sections namely, Demographic data of the participants, Musculoskeletal problems and most painful part of body. The data was tabulated to show frequency distribution.

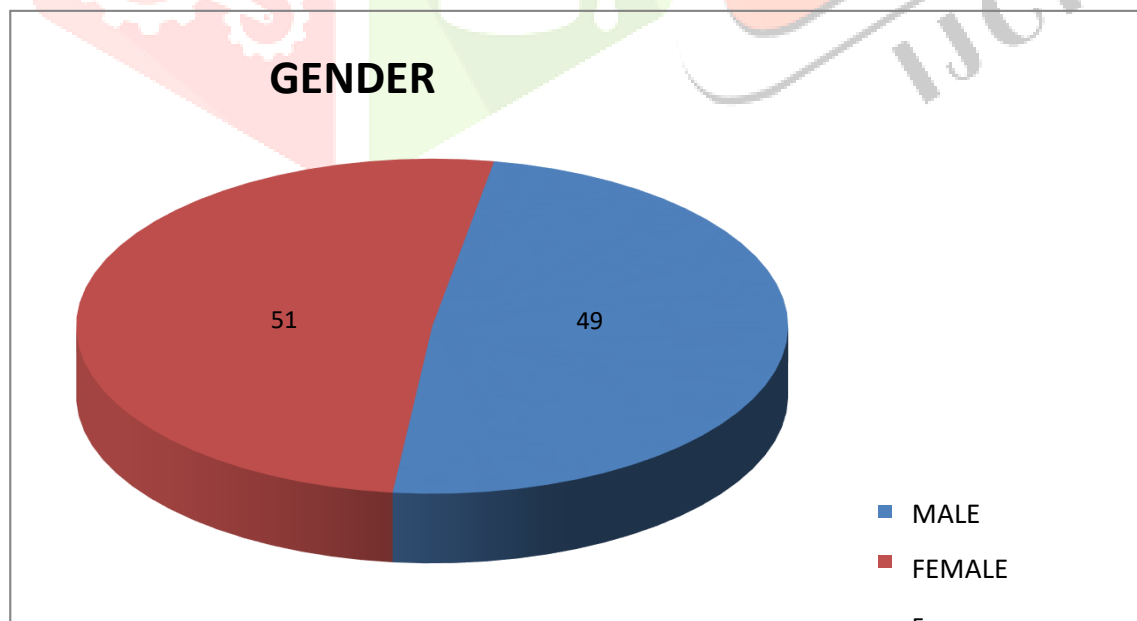
STATISTICAL SOFTWARE : The Statistical software used for the analysis of the data was IBM SPSS 20.0 and Microsoft Word and Microsoft Excel were used to generate graphs, tables etc

RESULTS

TABLE 8.1 : GENDER DISTRIBUTION

GENDER	MALE	FEMALE
NUMBER OF SUBJECTS	98	102

Table 8.1 : Gender Distribution of Subjects

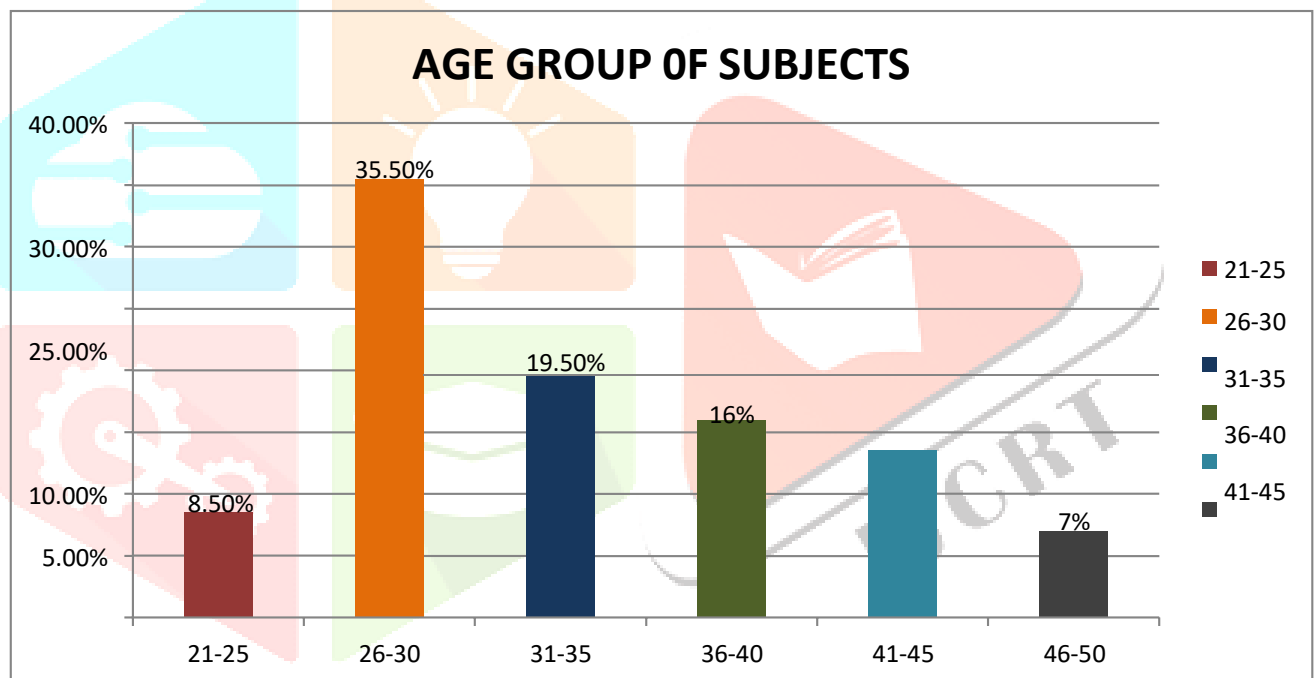


Graph 8.1 : Number of Males and Female

TABLE 8.2 : AGE GROUP DISTRIBUTION

AGE RANGE (IN YEARS)	21-25	26-30	31-35	36-40	41-45	46-50
NUMBER OF SUBJECTS	17	71	39	32	27	14

Table 8.2 : Age Group Distribution of Subjects

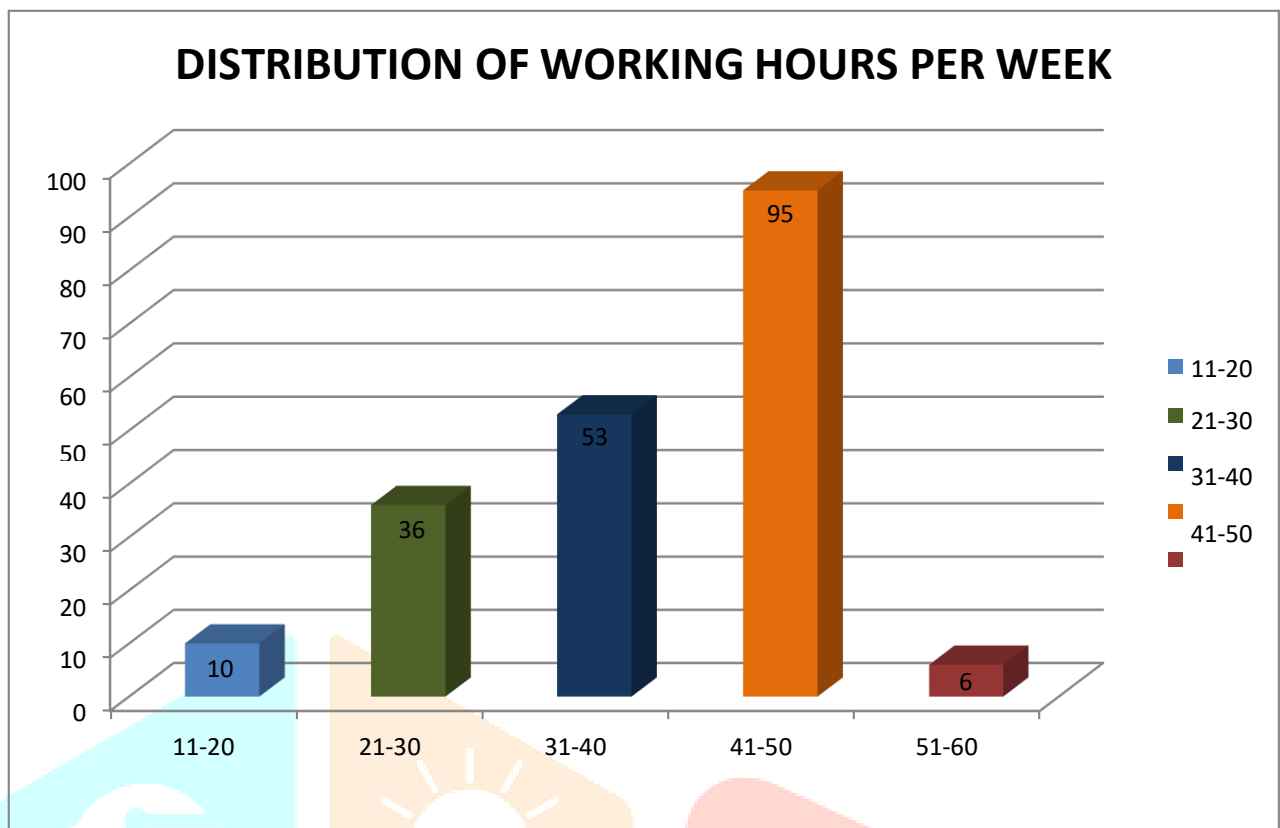


Graph 8.2 : Age Group of Subjects in Terms of Range of 5 Years

TABLE 8.3 : WORKING HOURS PER WEEK DISTRIBUTION

RANGE IN HOURS	11-20	21-30	31-40	41-50	51-60
NUMBER OF SUBJECTS	10	36	53	95	06

Table 8.3 : Working Hours Per Week Distribution of Subjects

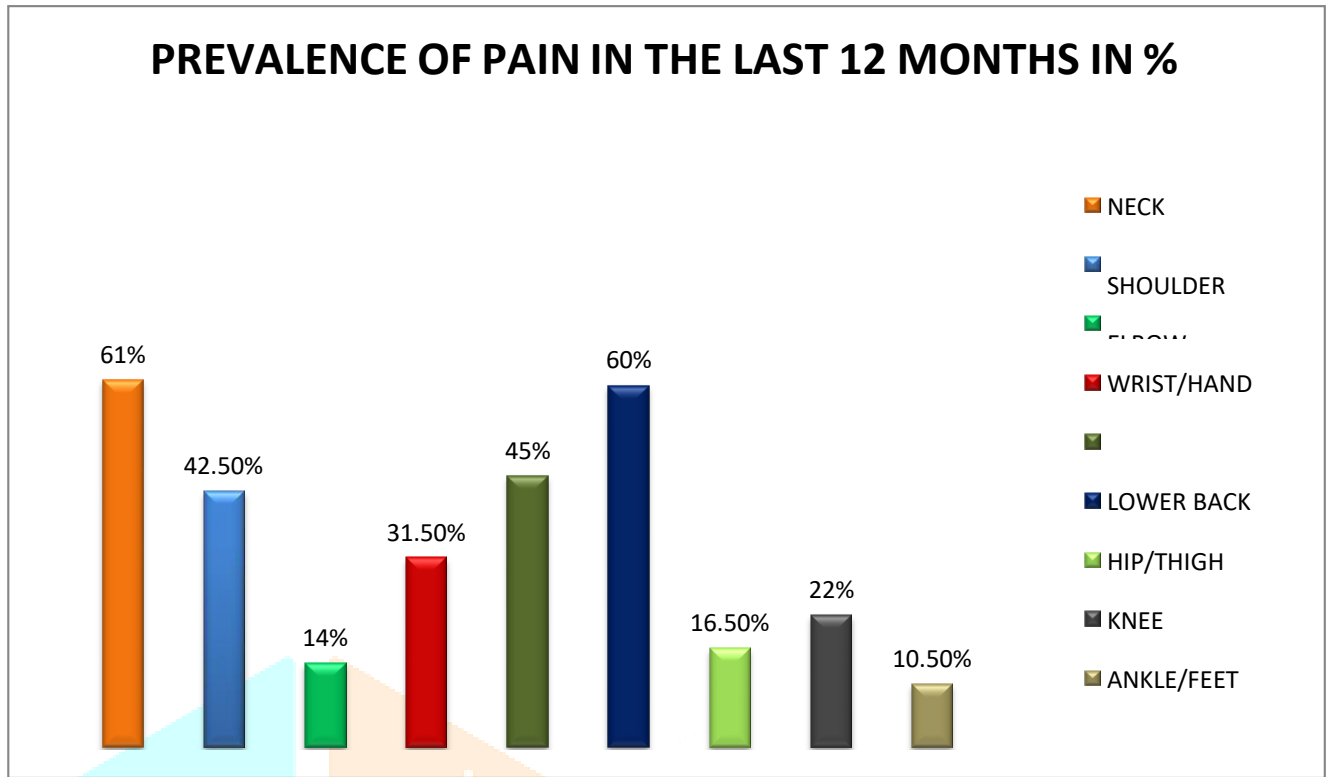


Graph 8.3 : Distribution of Working Hours / Week of Subjects

TABLE 8.4 : PREVALENCE OF PAIN IN THE LAST 12 MONTHS

BODY PART	% NUMBER OF SUBJECTS
NECK	61%
SHOULDER	42.5%
ELBOW	14%
WRIST/HAND	31.5%
UPPER BACK	45%
LOWER BACK	60%
HIP/THIGH	16.5%
KNEE	22%
ANKLE/FEET	10.5%

Table 8.4 : Prevalence of Pain in the Last 12 Months

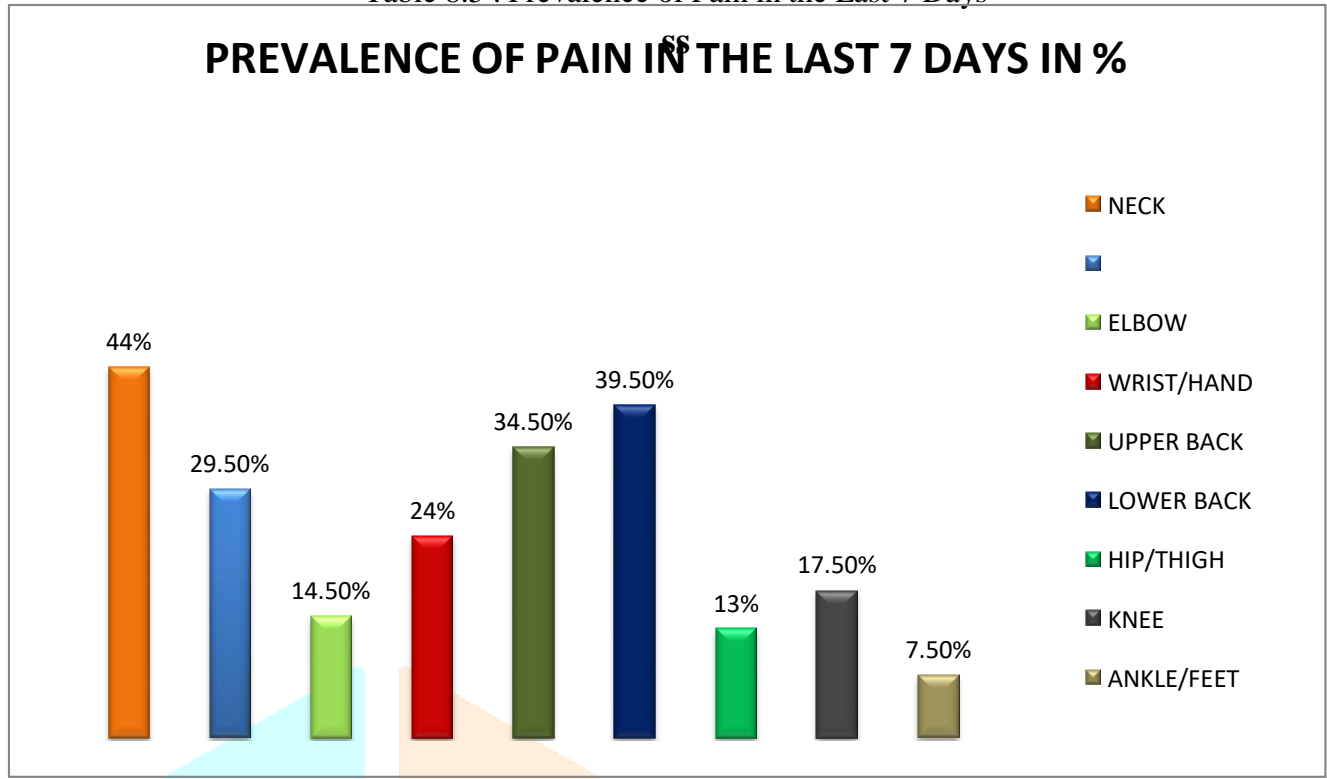


Graph 8.4 : Prevalence of Pain in Different Body Parts Among the Subjects in Past 12 Months

TABLE 8.5 : PREVALENCE OF PAIN IN THE LAST 7 DAYS

BODY PART	% NUMBER OF SUBJECTS
NECK	44%
SHOULDER	29.5%
ELBOW	14.5%
WRIST/HAND	24%
UPPER BACK	34.5%
LOWER BACK	39.5%
HIP/THIGH	13%
KNEE	17.5%
ANKLE/FEET	7.5%

Table 8.5 : Prevalence of Pain in the Last 7 Days

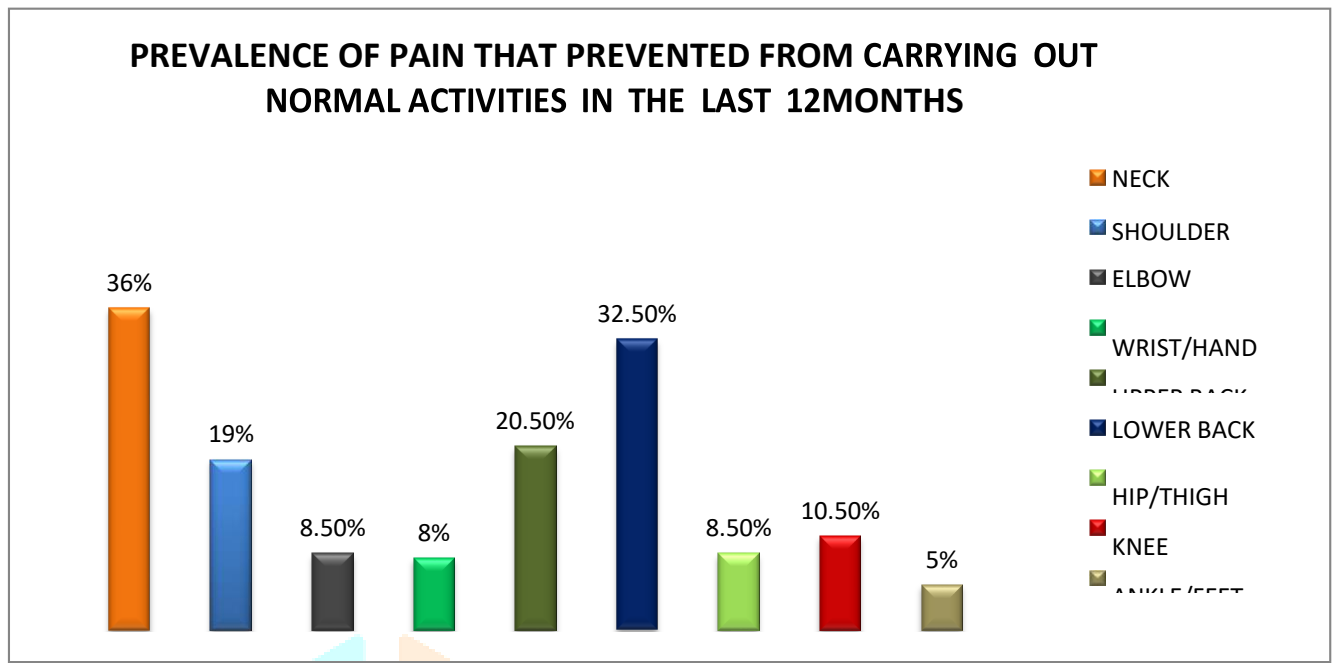


Graph 8.5 : Prevalence of Pain in Different Body Parts Among the Subjects in Past 7 Days

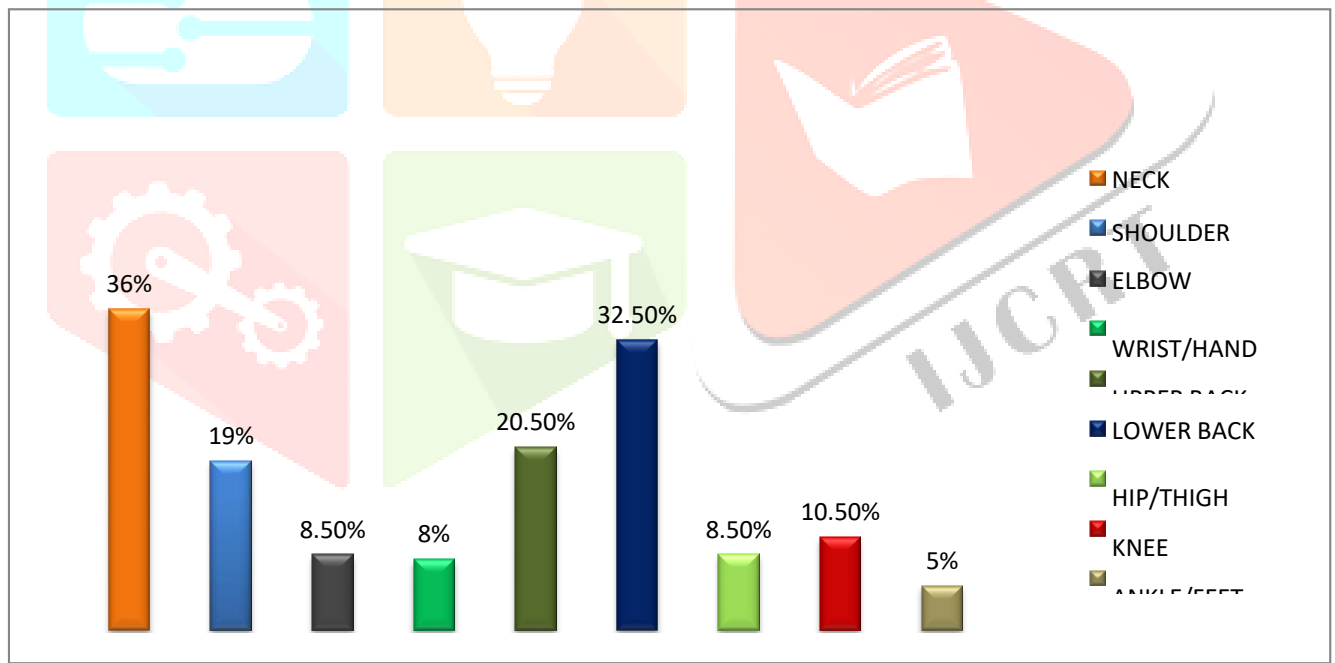
TABLE 8.6 : PREVALENCE OF PAIN THAT PREVENTED FROM CARRYING OUT NORMAL ACTIVITIES IN THE LAST 12 MONTHS

BODY PART	% NUMBER OF SUBJECTS
NECK	36%
SHOULDER	19%
ELBOW	8.5%
WRIST/HAND	8%
UPPER BACK	20.5%
LOWER BACK	32.5%
HIP/THIGH	8.5%
KNEE	10.5%
ANKLE/FEET	5%

Table 8.6 : Prevalence of Pain that Prevented from Carrying out Normal Activities in Last 12Mont



Graph 8.6 : Prevalence of Pain in Different Body Parts that Prevented from Carrying out the Normal Activities Among the Subjects in Past 12 Months.



DISCUSSION

This study represented the “prevalence of musculoskeletal disorders among teachers, taking online lectures. A total of 200 samples were collected by the study conducted in different areas. This study has shown work related musculoskeletal disorders are common in teachers, taking online lectures. Our study shows that high prevalence of WMSDs among teachers, taking online lectures. But unfortunately, no studies specifically looking at teacher’s population whom taking online lectures were found for comparison.

In this study, Table no : 8.1 shows gender distribution of 200 teachers out of 98 male and 102 female.

According to table no : 8.2 shows age distribution of 200 teachers which range between 21 – 50 years of age. All these teachers participants were divided in to 6 groups. Those 6 groups are: 21 years - 25 years of age (17) , 26 years – 30 years of age (71) , 31 years – 35 years of age (39) , 36 years – 40 years of age (32) , 41 years – 45 years of age (27) , 45 years – 50 years of age (14).

According to table no : 8.3 shows the categorization of professional working hours per week distribution of 200 participants. The working hours of participants varied from 11 – 60 hours per week. All the participants were categorized in to 5 different groups according to that specific working hours per week. The categories of professional working hours are : 11 hours – 20 hours (10) , 21 hours – 30 hours (36) , 31 hours – 40 hours (53) , 41 hours – 50 hours (95) , 51 hours – 60 hours (06).

According to table no: 8.4 amongst the 12 months mark the prevalence of pain the most affected body part was Neck with 61%, Lower Back with 60%, Upper Back with 45%, Shoulder with 42.5% , Wrist and Hand with 31.5% , Knee with 22% , Hip and Thigh with 16.5%, Elbow with 14 % , Ankle and Feet with 10.5 %.

Similar result can be witnessed in the study done by Melaku Hailu Temesgen, Gashaw Jember Belay, Asmare Yitayeh Gelaw. It was found that in total of 754 teachers participated, among them in previous 12 months self-reported prevalence of shoulder and neck pain among school teachers were 57.3% with regular physical exercise, teaching experience, static head down posture, prolong sitting were factors found to be significantly associated with shoulder and neck pain.(23)

According to table no : 8.5 amongst the 7 days mark the prevalence of pain the most pain appeared to be in Neck with 44% , Lower Back with 39.5% , Upper Back with 34.5% , Shoulder with 29.5% , Wrist and Hand with 24% , Knee with 17.5% , Elbow with 14.5 % , Hip and Thigh with 13% , , Ankle and Feet with 7.5 %.

According to table no : 8.6 amongst the 12 months mark of not being able to carry out normal activities the most pain appeared to be in the Neck with 36% , Lower Back with 32.5% , Upper Back with 20.5% , Shoulder with 19% , Knee with 10.5% , Elbow with 8.5 % , Hip and Thigh with 8.5%, Wrist and Hand with 8% , Ankle and Feet with 5%.

The analysis in this study demonstrates that the highest prevalence of chronic pain is seen in Neck where its prevalence of pain in the past 12 months is 61 % , prevalence of pain in past 7 days is 44% and prevalence of the pain in the past 12 months that prevented from carrying out normal activities is 36%. And also chronic pain in Lower Back where its prevalence of pain in the past 12 months is 60 % , prevalence of pain in past 7 days is 39.5% and prevalence of the pain in the past 12 months that prevented from carrying out normal activities is 32.5%.

In this study , it was observed that wrist and hand, shoulder, neck, knee, ankle and feet disorders next to Neck pain and Lower Back pain may be due to the fact that large percentage of the participants work with their flexed Neck , prolonged sitting, and inadequate posture assumed during sitting and using computers and taking online lectures in their duty hours.

Prolonged sitting reduces body movements making muscles more likely to pull, cramp or strain when stretched suddenly, causes fatigue in the back and neck muscles by slowing the blood supply and puts high tension on their spine, especially in the lower back or neck, and causes a steady compression on the spinal discs that hinders their nutrition and can be contribute their premature degeneration and such changes may lead to , or increase risk of WMSDs.(24)

CONCLUSION

From the outcome of this study, it was concluded that there is high prevalence of musculoskeletal disorders among teachers, taking online lectures. The most common work related musculoskeletal disorders among teachers, taking online lectures are neck pain, lower back ache and upper back pain. The analyse factor used were working hours, working experience and Nordic Musculoskeletal Questionnaire. Further prevalence of musculoskeletal disorders can be taken to find out the risk factors for Teachers, taking online lectures.

LIMITATIONS OF STUDY

1. The study of 200 subjects only including the teachers, taking online lectures between the age group of 21 to 50 years.
2. The study size taken for the study was small.
3. A limited number of factors were selected.

FURTHER RECOMMENDATION

- The study can be further continued with a larger population.
- The study can be further continued by using a different age group.

ACKNOWLEDGEMENT

We wish to state our special thanks and credit to our respectable guide and teacher **Dr. M.TARIK DAL**, ASSISTANT PROFESSOR at Parul Institute of Physiotherapy, Vadodara for her valuable help and guidance, constant encouragement and keen interest shown in this study and without whom this work would not have been possible.