



Occupation Related Musculoskeletal Problems among School and College Teachers of Bhuj- Kachchh, Gujarat- A Cross Sectional Study

Dr. Rajkiran Tiku¹, Dr. C. Sunanda Yadav², Dr. Kalpana Ghatpande³

¹Professor, (Department of Physiotherapy)

² Professor & HOD (Phd Department)

³Associate professor (Department of Management)

Tilak Maharashtra Vidyapeeth (Deemed to be University) Pune.

ABSTRACT

This study explores work-related musculoskeletal disorders (WRMSDs) among teachers in Bhuj, Kutch, Gujarat. Musculoskeletal issues are prevalent, impacting the quality of life for many teachers. The study focuses on demographic factors, emphasizing the increased disorders in female teachers due to a positive correlation between teaching experience and working hours. Prolonged static postures and hand activities contribute to musculoskeletal pain, particularly in the neck, upper back, elbow, hips, foot, and ankle for females. Despite a positive correlation between experience and working hours in males, there's a low correlation with pain. The findings highlight the need for targeted interventions to address these issues, recognizing the varying impacts on male and female teachers, thereby improving overall well-being and working conditions.

Keywords:- work-related musculoskeletal disorders (WRMSDs), teachers, quality of life,

INTRODUCTION

Background of study: Musculoskeletal disorders is a broad term which mostly involves inflammatory & degenerative conditions that affects muscles, tendons, ligaments, joints, peripheral nerves & supporting blood vessels. These include syndromes such as tendon pathologies like tenosynovitis, epicondylitis, bursitis, nerve compression conditions like sciatica, carpal tunnel syndrome; degenerative joint disease & other conditions such as myalgia, LBP & others. These are localized pain syndromes which are not related to any underlying pathology. Commonly involved body regions are lower back, neck, shoulder, forearm & hand along with lower extremities which recently are under consideration.² These disorders of muscles, skeletal system & soft tissues which are observed or asserted to be caused due to work are known as work-related musculoskeletal disorders.¹ A great amount of the working community experience muscle or joint symptoms which affects individuals quality of life. The causative factors for these problems usually include workstation activities like vigorous actions, manual working, monotonous activities & job pressure. Demographic features which include age, smoking & gender are also anticipating variables.⁴ Almost all professional work have its risks with which have impact on health & life. The problems of safety & health in the work environment are not solved even after the great advancement in technology. Hence protection of work must be paid attention to because of limited psychophysical capabilities of people in the work environment.¹¹ ergonomic exposure at work. The term 'work-related' disorders is appropriated in order to differentiate occupational disorders where single factor is sufficient to cause the disease.² Symptoms of work-related musculoskeletal complaints involve pain, paresthesia, strain & fatigue along with musculoskeletal system disease which was caused due to workers working conditions. These symptoms can lead to an individual's negative perception of health. In order to quantify prevalence & to evaluate different affected populations, assessment of work-related musculoskeletal complaints is important as data collection.⁷ Work-related musculoskeletal complaints are troublesome at rest as well as at the workplace. Almost in all works, the upper limb is involved hence the upper extremity is mostly involved in work-related musculoskeletal problems, moreover lower limbs & back are also involved where these are utilized in work. Work-related musculoskeletal complaints do not develop within single trauma, it results because of repetitive trauma, and develops gradually & slowly.¹⁰ Lengthened period of static sitting leads to tightness, reduced circulation & pain in joints. Extended duration of ceaseless work increases the risk of musculoskeletal difficulties which have consequences of lifelong disability.¹ Though teaching is said as 'Mother of all professions', it is also regarded as a stressful profession.¹² Education ensures economic growth & technical & scientific developments in any society which in turn, work of teachers have fundamental social value. In order to guide & encourage students to develop & fulfil their academic potential, teachers plans, organizes & implements appropriate instructional program in learning environment.⁹ Teachers working activities involves prolonged standing or sitting working in inappropriate posture, writing with elevated arm on board, hand activities such as writing & typing, etc., these all alone or in combination with others leads to musculoskeletal disorder symptoms.⁴ Musculoskeletal disorders are increased in teachers as their job demands include prolonged period of static body postures for everyday throughout the year which stresses musculoskeletal system.¹⁴ Musculoskeletal pain ranks 6th, 7th & 10th for shoulder, neck & low back pain respectively

as most often reported complaint among school teachers which is due to prolonged desk work , continuous standing , overhead writing on board , prolonged sitting due to frequent reading , preparing lessons & marking assignments & working on computer.⁶

AIM & OBJECTIVE

To study work-related musculoskeletal complaints among school & college teachers of Bhuj

OBJECTIVE:

To analyse musculoskeletal complaints among school & college teachers of Bhuj.

To evaluate musculoskeletal complaints among school & college teachers of Bhuj. using Nordic Musculoskeletal Questionnaire.

MATERIALS & METHODOLOGY OF THE STUDY

Research Design

Study Design : Non experimental Survey

Study Type : Cross-sectional Study

POPULATION OF THE STUDY

School & College Teachers of Bhuj Gujarat.

SAMPLE OF THE STUDY

Total sample size of the study was 41 including both Male & Female

INCLUSION & EXCLUSION CRITERIA

Inclusion Criteria :

- Both male and female subjects.
- Subjects age more than 25 years
- Subjects teaching for more than 1 year.
- Subjects involving more than 3 hours of daily teaching.
- Subjects who are willing to participate.

Exclusion Criteria :

- Subjects who had recent trauma / injuries.
- Subjects having Chronic systemic illness & diagnosed musculoskeletal disorders.
- Subjects who are not willing to participate.

Tools used for Data collection

- Nordic Musculoskeletal Questionnaire (OUTCOME MEASURE) Designed in as google form sheet for sample collection Validity - 0 - 20 Reliability - 0 - 23%.²

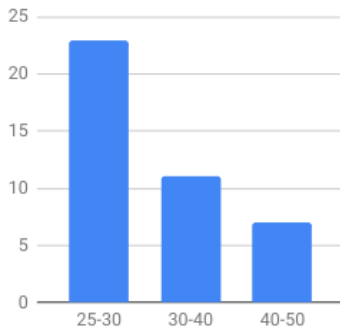
PROCEDURE

Before starting the study, specific criteria were established to determine which teachers could participate. Inclusion criteria are characteristics or factors that make individuals eligible for the study, while exclusion criteria are factors that disqualify them. The criteria might include educational background, years of teaching experience, specific subjects taught, or any other relevant qualifications or characteristics. **Designing the Google Form:** A Google form was created to collect data from the participants. This form included several sections to gather various information: **Basic Demographic Details:** This section collected information about the participants' personal information, such as their name, age, gender, and contact information. **Willingness for Participation:** Participants were asked whether they were willing to participate in the study. This is an important step in obtaining informed consent. This section likely gathered additional information that is relevant to the study, such as educational qualifications, teaching certifications, and any pre-existing medical conditions. **Total Working Experience:** This is an essential part of the study, as it helps in understanding the participants' professional background. It typically includes the number of years the teachers have been working in the education field. **Total Workload in a Week:** This section likely collected data on the average number of hours the participants work per week, which is relevant to understanding their workload. **Nordic**

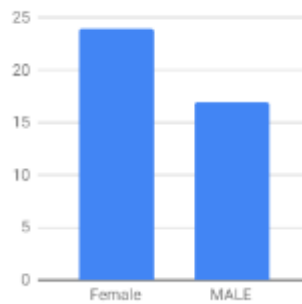
Musculoskeletal Questionnaire: The Google form was divided into three subsections related to the Nordic Musculoskeletal Questionnaire. This questionnaire is the primary tool used in the study to assess musculoskeletal issues in teachers. Each subsection likely addressed specific questions or aspects of musculoskeletal health, and participants were asked to respond to these questions. **Distribution of the Google Form:** The Google form was distributed to school and college teachers in the Bhuj region. This distribution was done through various social media platforms. The details of the study, including its purpose and the importance of participation, were shared on these platforms to encourage teachers to participate. It's important to note that privacy and data protection considerations should be addressed when using online forms and collecting personal information. **Duration of study period:-** Duration of period was from July to September 2023 the data collection started after getting the approval for research proposal from region

RESULT/DATA ANALYSIS

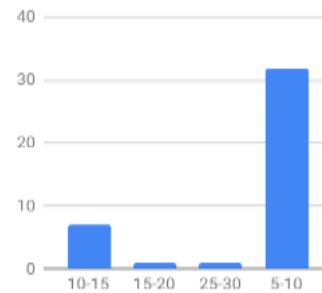
1: Distribution of socio-demographic & other variables of school & college teachers.



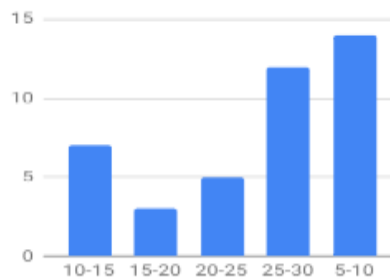
(1) AGE GROUP



(2) MALE VS FEMALE



(3) TOTAL EXPERIENCE IN YEARS



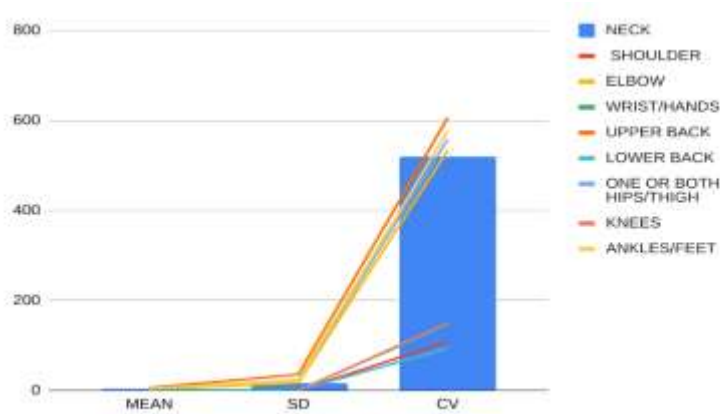
(4) TOTAL WORKING HOURS IN WEEK

Interpretation

(Graph 1) shows sample size of total no.41 participants, maximum no of participation were from 25-30 age group and (Graph 2) shows frequency between female and male participants in the study that is 24 female & 17 males respectively.(Graph 3) shows the total no. of work experience in which maximum experience of participants in the study is between 5-10 years.(Graph 4) shows the total no. of working hours in a week,the working hour is maximum 14 hours in a week of the participants having 5-10 years of working experience.

INTERPRETATION

	NECK	SHOULDER	ELBOW	WRIST/ HANDS	UPPER BACK	LOWER BACK	ONE OR BOTH HIPS/THIGH	KNEES	ANKLES/FEET
MEAN	3.02104123	0.4634	3.254116724	0.325	5.889200162	0.5366	4.177647849	0.317073	4.044887648
SD	15.74841871	0.5049	17.37580663	0.47434	35.7031858	0.5049	23.31190208	0.471117	23.32551249
CV	521.2910884	108.34	533.9638404	145.951	606.2484687	94.0867	558.0150105	148.5831	576.6665113



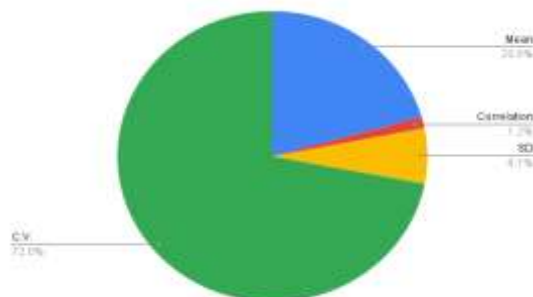
MALE TEACHERS

	TEACHING HOURS	WORKING EXPERIENCE
MEAN	9.642857143	22.52857143
SD	5.447047794	7.785927006
CORR	0.2705126586	
CV	56.48790305	34.56023401

Although there is a positive correlation between years of experience and working hours for males, it is very low, and even with more work experience and hours, there is no significant pain experienced by males.

FEMALE TEACHERS

	TEACHING HOURS	WORKING EXPERIENCE
MEAN	8.541666667	14.375
Correlation	0.5104895105	
SD	2.544886889	7.634660666
C.V.	29.79379772	53.11068289



The more teaching experience and working hours a female faculty member has, the greater the pain experienced.

DISCUSSION

This study investigated work-related musculoskeletal complaints among school and college teachers in Bhuj, Kutch, Gujarat, using the Nordic Musculoskeletal Questionnaire. The findings revealed several key insights: Work-related musculoskeletal complaints are prevalent among teachers, affecting both males and females. These complaints include symptoms such as pain, paresthesia, numbness, and fatigue, as well as specific conditions like tenosynovitis, nerve compression disorders, and degenerative diseases. The nature of teaching, involving prolonged periods of sitting, standing, working in awkward postures, and various hand-intensive tasks, contributes to the development of musculoskeletal complaints among teachers.

CONCLUSION

The study highlighted that female teachers are more affected by musculoskeletal complaints than their male counterparts. This difference may be attributed to a positive correlation between teaching experience and working hours in females, leading to a higher incidence of complaints. Specific body areas, such as the neck, upper back, elbow, hips, foot and ankle, were more commonly affected by these complaints. In contrast, the shoulder, wrist, and lower back were less frequently reported as problematic areas. These findings underscore the need for targeted interventions and strategies to address and mitigate work-related musculoskeletal complaints among teachers, with a particular focus on understanding the differing impact of teaching experience and working hours on male and female teachers. By addressing these issues, educational institutions and policymakers can help improve the working conditions and well-being of teachers in Bhuj, Kutch, Gujarat, and potentially in similar settings elsewhere.

REFERENCES

1. Phadke SS. Work Related Musculoskeletal Symptoms among College Teachers: Cross-Sectional Survey.
2. Punnett L, Wegman DH. Work-related musculoskeletal disorders: the epidemiologic evidence and the debate. *Journal of electromyography and kinesiology*. 2004 Feb 1;14(1):13-23.
3. Kuorinka I, Jonsson B, Kilbom A, Vinterberg H, Biering-Sørensen F, Andersson G, Jørgensen K. Standardised Nordic questionnaires for the analysis of musculoskeletal symptoms. *Applied ergonomics*. 1987 Sep 1;18(3):233-7.
4. Başkurt F, Başkurt Z, Gelecek N. Prevalence of self-reported musculoskeletal symptoms in teachers. *Süleyman Demirel Üniversitesi Sağlık Bilimleri Dergisi*. 2011;2(2):58-64.
5. Korkmaz NC, Cavlak U, Telci EA. Musculoskeletal pain, associated risk factors, and coping strategies in school teachers. *Scientific Research and Essays*. 2011 Feb 4;6(3):649-57.
6. Abdulmonem A, Hanan A, Elaf A, Haneen T, Jenan A. The prevalence of musculoskeletal pain & its associated factors among female Saudi school teachers. *Pakistan journal of medical sciences*. 2014 Nov;30(6):1191.
7. Lima Júnior JP, Silva TF. Analysis of musculoskeletal disorders symptoms in professors of the University of Pernambuco–Petrolina Campus. *Revista Dor*. 2014;15:276-80.
8. MM K. Work-related musculoskeletal disorders among preparatory school teachers in Egypt. *Egyptian Journal of Occupational Medicine*. 2017 Jan 1;41(1):115-26.
9. Damayanti S, Zorem M, Pankaj B. Occurrence of work-related musculoskeletal disorders among school teachers in the eastern and northeastern parts of India. *International Journal of Musculoskeletal Pain Prevention*. 2017 Jan 10;2(1):187-92.
10. UDDIN S, Muhammad AS, RAJPUT HÍ, CHUGHTAI MR, KHAN MA, BADAR H, PASHA S. Prevalence of work-related musculoskeletal disorders among college teachers of Karachi. *Online Türk Sağlık Bilimleri Dergisi*. 2019 Sep 30;4(3):339-49.
11. Niciejewska M, Kasian S. Musculoskeletal disorders related to the professional work of academic teachers and the quality of their work. In *Conference Quality Production Improvement–CQPI 2019 (Vol. 1, No. 1, pp. 47-54)*.
12. Amit LM, T MALABARBAS G. Prevalence and risk-factors of musculoskeletal disorders among provincial high school teachers in the Philippines. *Journal of UOEH*. 2020 Jun 1;42(2):151-60.
13. Chand RK, Roomi MA, Begum S, Mudassar A. Prevalence of musculoskeletal disorders, associated risk factors, and coping strategies among secondary school teachers in Fiji. *Rawal Medical Journal*. 2020 Apr;45(2):377-81.
14. Unsa Parveen D, Nouman D, Hassan K. THE PREVALENCE OF WORK-RELATED MUSCULOSKELETAL DISORDERS IN SCHOOL TEACHERS OF CLASSES 9TH–12TH.
15. Crawford JO. The Nordic musculoskeletal questionnaire. *Occupational medicine*. 2007 Jun 1;57(4):300-1.
16. Anoop GA, Binoosh SA. A study on musculoskeletal disorders among two-wheeler riders of Kerala state in India. *Kerala Technol Cong KETCON*. 2019;6:411-8