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Work Related Musculoskeletal Symptoms among College Teachers: Cross Sectional Survey

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Abstract: **Developing countries like ours where the growth in the education sector is almost in a geometrical progression while the requisite infrastructure to cater to this tremendous growth is not developed. Teacher is back bone of education system. Teacher role encompasses teaching but not limited to teaching, various other administrative duties are part of routine. Development of work related musculoskeletal disorder (WRMSDs) in this population may have substantial impact on education system. To the best of our knowledge, no studies have explored the occurrence of different musculoskeletal complaints in college teachers. Therefore the aim of this study was to evaluate the frequency of WRMSDs in college teacher population. A cross-sectional design was adopted; The Nordic musculoskeletal questionnaire was used to assess self reported musculoskeletal complaints. College teachers (n=42) attending short term course on yoga for healthy mind and body by UGC human resource development centre and department of physical education University of Mumbai formed the population of this study. Quantitative data were analyzed in percentage form. We concluded from study neck pain is most common WRMSDs in college teacher population. Offering health promotion awareness programs may be suitable solutions. However, further studies are required to assess the relationship between WRMSDs and specific workload- related factors.**

Keywords: **Nordic Musculoskeletal Questionnaire, Work related musculoskeletal disorders, College teachers.**

I. INTRODUCTION

Musculoskeletal disorders (MSDs)" includes a broad spectrum of inflammatory and degenerative conditions affecting the muscles, tendons, ligaments, joints, peripheral nerves, and supporting blood vessels.[1,2] The symptoms of MSDs comprise pain, numbness, tingling, aching, stiffness, or burning.[3] The risk factors associated with MSDs include forceful exertions, repetitive movements, awkward, and/or sustained postures such as prolonged sitting and standing.[2] Globally, WRMSDs causing significant economic burden in terms of lost wages, treatment, and compensation and also responsible for considerable impact on the quality of life.[4,5] WRMSDs increase sickness absenteeism, early retirement and poor productivity at work.[6,7]

Inappropriate use of computer increases the risk of health problems. Working for a prolonged period in an ergonomically deficient workplace can lead to MSDs. Improper workstation design and faulty postures are risk factors related to computer use. Extended period of static sitting postures causes decreased circulation, stiffness, and pain in the joints. Prolonged duration of continuous work increases the risk of MSDs, which may result in long-term disability.[8]

A review on epidemiologic findings suggested that MSD symptoms are associated with the duration of computer use, and risk increases steadily with each hour of daily computer use.[9] The college teachers uses computers for preparing presentations, e-learning activities, research, publication, and so on. The college teachers are also exposed to issues such

as high workload, short pauses for rest, intensive working pace, and high levels of stress. The computer use along with above issues makes the college teachers vulnerable to develop WRMSDs.

One of study on MSDs among university professors in Brazil reported a prevalence rate of 85.7%, which is very high.[10] The college teachers deserve attention, and studies addressing this population to study the pattern of various WRMSDs .

Hence, this study first of its kind study was conducted with the objectives of determination of prevalence of work related MSDs (WRMSDs) among College teachers. This study will be helpful to design prevention tool for WRMSDs among College teachers.

II. METHODOLOGY

The data for this study was collected by cross sectional survey method. A pre validated questionnaire (Nordic musculoskeletal pain questionnaire) used through direct interview method.[11]The researchers explained the questionnaire to each participant .Study setting was short term course on yoga for healthy mind and body by UGC human resource development centre and department of physical education University of Mumbai, December 2018. College teachers attending this course voluntarily participated in this study.

Subjects with pregnancy, chronic systemic illness, recent fractures, or surgeries were excluded from the study. All participants gave the informed consent. The data collected were handled confidentially.

Questionnaire was divided into three parts, the first part collected the demographic data such as age, gender and also their duration of work, total hours spends during duty. This factor may contribute to develop WRMSDs. The second part we defined WRMSD as work related symptoms (pain, numbness, tingling, aching) that result from a work related illness, excluding others injuries experienced during last one year this indicated chronicity of pain, other question was does this pain was the reason for you to prevent doing daily activities (at home or away from home) and did you consult physician for pain this indicated absenteeism due to WRMSDs. The last phase included pain in last seven days this indicates acute pain.

III. DATA ANALYSIS

Table I: Regions affected with chronic pain

Pain incident in 12 months			
Neck	Knees	Shoulder	Lower back
40 %	38 %	33 %	33 %

Table II: Regions affected with acute pain

Acute Pain		
Ankles	Neck	Lower back
19 %	17 %	17 %

Table III: Regions causing Activity loss due to pain

ADL affection in 12 months		
Neck	Shoulder	Knees
10 %	10 %	7 %

Table IV: Regions require Physician consultation to reduce pain

Physician Consultation		
Neck	Ankles	Knees
17 %	17 %	14 %

IV. DISCUSSION

This survey study documented work related musculoskeletal pain symptoms in college teachers. 42 college teachers participated. The average age of college teacher in this study was 46 years. Average duty time was 7 hours per day excluding travel time.

Their Average Work experience was 18 years in this field, so their pain can be associated with their work. Work related Musculoskeletal Disorders can be define as Disorders of the Muscles, Skeleton system and related tissue which have been empirically shown or are suspected to have been caused by a work place. The term Repetitive strain injury is some time used to describe Work related Musculoskeletal Disorders.

When any individual is exposed to Risk factors they begins to experience fatigue when fatigue outruns their Body recovery System, They Develop a Musculoskeletal Imbalance, Over a time as fatigue Continues to outrun recovery, leads to Musculoskeletal Disorder. Two categories of Risk factors are present in any Work related Musculoskeletal Disorders, 1. Work environment related Ergonomic Risk Factor 2. Individual – Related Risk Factor. [12] In this study, we tried to explore Type 1 Risk factors.

According to data analysis major body region affected in college teachers is Neck. When we tried to explore reasons for the same we could gist following points.

Previous studies in teachers related a number of teaching tasks, such as frequent reading, checking homework, assessing exam work , preparing lessons and improper postures with increase musculoskeletal stress.[13,14,15] Additionally, improper sitting posture, prolonged head down postures, high anxiety levels, high work load, and poor emotional status are other causative factors in teaching that may lead to increased risk of MSDs in this group.[16,17,18]

Several studies concluded that neck pain (NP) is one of the common MSDs among teachers when compared with other working populations (19, 15, 20, 21, 14). Author herself has done prevalence studies in different populations like traffic police(22), white collar workers(23) and physiotherapy students(24). Other population indicates low back pain as one of the common WRMSDs.

Worldwide studies report different prevalence rates of NP in teachers 60% in Hong Kong [19] 57% in China [25], 44% in Sweden [26] and 43% in Turkey [21].When we correlate our study with literature deviations seen in the prevalence rates of NP. Some of the reasons for that may be methodological difference, varied sample size and vague prevalence period.

Literature demonstrated factors like age, length of employment, job satisfaction level, static head down postures and prolonged working hours with computers linked with neck pain. A positive association was found between age and the prevalence of NP [20, 21, 27, 14].

Studies reported a positive correlation between years of employment and prevalence of NP in teachers [25, 20, 28]

Some studies demonstrated a possible association between job satisfaction and the prevalence of NP [19, 21]. In Iranian school teacher study showed that teachers with no and low levels of job satisfaction were more likely to develop NP compared to their colleagues with a high level of job satisfaction. [29]Some studies confirmed that static head down postures and prolonged working hours with computers could be considered a strong risk factor for the incidence of NP [13,21].

Thus in college teachers to prevent occupational related repetitive strain injury of muscles, regular muscular fitness training program which include endurance and flexibility of neck and lower limb musculature should be incorporated in daily duty schedule. Lifestyle modification and ergonomic prevention program at starting and regular interval of services are necessary to avoid long term health hazards.

V. LIMITATIONS

College teachers were selected from one area in the current study, which may not be representative of Indian teachers as a whole. Future studies can be designed to address this concern.

Another limitation of the current study was investigating the prevalence of WRMSD in college teachers. It seems that teachers in different levels of teaching might have different working demands and conditions.

Having comparison of teachers from different grade with different working conditions and demands might add heterogeneity in study sample. Consequently study population should be carefully considered.

However, this study finding are important for identifying the teachers' health status and future programming in preventive and management strategies. Future research studies designs are recommended to evaluate the effect of different preventive strategies.

VI. CONCLUSION

Thus in college teachers Region to cause

1. Chronic pain are Neck: 40 % and Knees: 38 %.
2. Activity loss due to pain are Neck and Shoulder: 10 %, Knees: 10%.
3. Acute pain are Ankle: 19%, Neck and low back pain : 17%.

Regions require Physician consultation to reduce pain are Neck and ankle: 17%, Knees: 14%.

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REFERENCES

[1] Punnett L, Wegman DH. Work-related musculoskeletal disorders:The epidemiologic evidence and the debate. J Electromyogr Kinesiol. 2004;14:13–23.

[2] da Costa BR, Vieira ER. Risk factors for work-related musculoskeletal disorders:A systematic review of recent longitudinal studies. Am J Ind Med. 2010;53:285–323.

[3] Bernard B, Sauter S, Fine L, Petersen M, Hales T. Job task and psychosocial risk factors for work-related musculoskeletal disorders among newspaper employees. Scand J Work Environ Health. 1994;20:417–26.

[4] Samad NI, Abdullah H, Moin S, Tamrin SB, Hashim Z. Prevalence of lowback pain and its risk factors among school teachers. Am J Appl Sci. 2010;7:634–9.

[5] Zaza C. Playing-related musculoskeletal disorders in musicians:A systematic review of incidence and prevalence. CMAJ. 1998;158:1019–25.

[6] Maguire M, O'Connell T. Ill-health retirement of schoolteachers in the republic of ireland. Occup Med (Lond) 2007;57:191–3.

[7] Erick PN, Smith DR. A systematic review of musculoskeletal disorders among schoolteachers. BMC Musculoskelet Disord. 2011;12:260.

[8] Karsh B, Moro FB, Smith MJ. The efficacy of workplace ergonomic interventions to control musculoskeletal disorders:A critical examination of the peer-reviewed literature. Theoret Issues Ergon Sci. 2001;2:3–96.

[9] Punnett L, Bergqvist U. Visual display unit work and upperextremity musculoskeletal disorders:A review of epidemiological findings. Arbete och Halsa. 1997;16:1–161.

[10] Lima Junior JP, Silva TF. Analysis of musculoskeletal disorders symptoms in professors of the University of Pernambuco-Petrolina Campus. Rev Dor Sao Paulo. 2014;15:276–80.

[11] Kuorinka I, Jonsson B, Kilbom A, Vinterberg H, Biering-Sørensen F, Andersson G, Jørgensen K. Standardised Nordic questionnaires for the analysis of musculoskeletal symptoms. Appl Ergon. 1987;18(3):233–237. doi: 10.1016/0003-6870(87)90010-X.

[12] Arun Vijay: Work- related Musculoskeletal health disorders among the information technology Professionals in INDIA: A prevalence Study. Int. J. Mgmt Res.& Bus. Strat. Vol.2,No.2,April2013.

[13] Fjellman-Wiklund, C. Brulin, G. SundelinPhysical and psychosocial work-related risk factors associated with neck-shoulder discomfort in male and female music teachers,Med. Problems Perform. Artists, 18 (2003), pp. 33-41.

[14] P. Yue, F. Liu, L. Li ,Neck/shoulder pain and low back pain among school teachers in China, prevalence and risk factors,BMC Public Health, 12 (2012), p. 789.

[15] E.Y. Chong, A.H. ChanSubjective health complaints of teachers from primary and secondary schools in Hong Kong,Int. J. Occup. Saf. Ergonomics, 16 (2010), pp. 23-29.

[16] Abdulmonem, A. Hanan, A. Elaf, T. Haneen, A. JenanThe prevalence of musculoskeletal pain & its associated factors among female Saudi school teachers,Pak. J. Med. Sci., 30 (2014), pp. 1191-1196

[17] D. Durmus, I. Ilhanli, Are there work-related musculoskeletal problems among teachers in Samsun, Turkey? J. Back Musculoskelet. Rehabilitation, 25 (2012), pp. 5-12.

[18] N.I. Samad, H. Abdullah, S. Moin, S.B. Tamrin, Z. Hashim Prevalence of low back pain and its risk factors among school teachers,Am. J. Appl. Sci., 7 (2010), pp. 634-639

[19] T. Chiu, P.K. LamThe prevalence of and risk factors for neck pain and upper limb pain among secondary school teachers in Hong Kong,J. Occup. Rehabilitation, 17 (2007), pp. 19-32

[20] M.A. Darwish, S.Z. Al-ZuhairMusculoskeletal pain disorders among secondary school Saudi female teachers,Pain Res. Treat. (2013),878570

[21] N.C. Korkmaz, U. Cavlak, E.A. TelciMusculoskeletal pain, associated risk factors and coping strategies in school teachers,Sci. Res. Essays, 6 (2011), pp. 649-657

[22] ShwetaS.DevarePhadke, RajakRevati, RaufIqbal, Work related Musculoskeletal symptoms among Traffic Police: Cross sectional survey using Nordic Musculoskeletal Qestionnaire, International Journal of Recent Research in Interdisciplinary Sciences (IJRRIS), 2015,vol.2, issue 2, 26-29.ISSN 2350-1049

[23] Shweta S. D. Phadke, ShwetaMundra. " Work Related musculoskeletal symptoms among White collar workers: Cross Sectional Survey" , Paper Id 176, Oral presentation in the International Conference on, Humanizing Work and Work Environment 2015 , 6th to 9th December, 2015 at, IIT Bombay.

[24] Amisha A Angle, ShwetaSatishDevarePhadke, 'Common Musculoskeletal Problems in Under Graduate Physiotherapy Students- A Prevalence Study', European Journal of Biomedical and Pharmaceutical Sciences, (ISSN 2349-8870), Year 2018, Vol.5, Issue-2, 1017-1020. SJIF- 4.382.

[25] T. Chiu, K. Lau, C. Ho, M. Ma, T. Yeung, P. CheungA study on the prevalence of and risk factors for neck pain in secondary school teachers,Public Health, 120 (2006), pp. 563-565

[26] Fjellman-Wiklund, G. Sundelin Musculoskeletal discomfort of music teachers: an eight-year perspective and psychosocial work factors,Int. J. Occup. Environ. Health, 4 (1998), pp. 89-98

[27] N. Rahmani, M. Amiri, M.A. Mohseni Bandpei, H. Mohsenifar, M.R.Pourahmadi Work related neck pain in Iranian dentists: an epidemiological study,J. Back Musculoskelet. Rehabilitation, 26 (2013), pp. 9-15.

[28] Y. Ono, T. Imaeda, M. Shimaoka, S. Hiruta, Y. Hattori, S. Ando, F. Hori, A. Tatsumi Associations of length of employment and working conditions with neck, shoulder and arm pain among nursery school teachers,Ind. Health, 40 (2002), pp. 149-158.

[29] Fatemeh Ehsani, Mohammad Ali Mohseni-Bandpei, César Fernández-De-Las-Peñas, Khodabakhsh Javanshir,Neck pain in Iranian school teachers: Prevalence and risk factors,Journal of Bodywork and Movement Therapies,Volume 22, Issue 1,2018,Pages 64-68,ISSN 1360-8592.

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