



CORRELATION OF WORK RELATED MUSCULOSKELETAL DISORDERS AND JOB STRESS AMONG BANK EMPLOYEES IN NEW DELHI POPULATION: AN OBSERVATIONAL STUDY

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Abstract:

Background: Stress has increasingly become a pressing issue in organizations during recent decades. When an individual encounters an opportunity, demand, or resource that aligns with their desires but the outcome remains uncertain and crucial, it puts them in a heightened state. While stress can have some positive effects on workers within an organization, it often exceeds their capacity to cope, leading to negative consequences.

Aims and objective: To find out the correlation between work related musculoskeletal pain disorder and job stress and vulnerable population and create awareness among bank employees in New Delhi.

Materials and Methods: The present observational study was conducted on 60 bank employees in Narela, New Delhi, India, over a period of 3 months from January 2023 to March 2023 to evaluate first Orebro musculoskeletal pain (OMP) and Perceived stress scale (PSS). The range, mean and standard deviation of each parameters were measured by using Statistical Package for the Social Sciences (SPSS) latest version (version 21.0) and Student's t-test was applied for bilateral comparison.

Observation and results: Among the 60 samples of bank employees the range of OMP pain score were 28 - 119 and average score were 76 ± 24.2 . And the PSS pain score ranges from 7 - 28, with an average value of 17.2 ± 4.06 . Significance difference was observed between OMP pain score and PSS pain score level of significance is $p \leq 0.05$.

Conclusion: This observational study explores the correlation between work-related pain disorders and occupational stress among employees working in both public and private banks. The study findings indicate a notable & meaningful connection between work-related musculoskeletal pain issues and job stress, drawing upon comprehensive data collection and evaluation

Keywords: Orebro musculoskeletal pain, Perceived stress scale, Work-related musculoskeletal disorders

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Introduction:

Stress has increasingly become a pressing issue in organizations during recent decades. When an individual encounters an opportunity, demand, or resource that aligns with their desires but the outcome remains uncertain and crucial, it puts them in a heightened state. [1] While stress can have some positive effects on workers within an organization, it often exceeds their capacity to cope, leading to negative consequences. [2] The concept of stress was first introduced to life science by Selye in 1936, where he defined it as the force, pressure, or tension exerted on an individual who resists these forces and strives to maintain their true state. [3] Stress can have a positive impact on employees within any organization, but only up to a certain extent that they can effectively cope with. However, in many cases, stress surpasses the manageable limits, leading to negative outcomes and adverse effects on employees. [3]

Work-related Musculoskeletal Disorders (WMSD) are indeed a significant health concern that has become more prevalent in recent times, particularly with the rise of corporate culture, intense competition, and long working hours. [4] WMSDs encompass a class of musculoskeletal disorders that affect various parts of the body, including tendons, tendon sheaths, bones, muscles, nerves, and related structures in the hands, wrists, elbows, shoulders, neck, and back. [4, 5] These disorders are often referred to by various terms, such as Ergonomic Disorders, Cumulative Trauma Disorders (CTD), and Repetitive Strain Injuries. [6] They develop gradually over time, typically over weeks, months, or even years, due to repeated exertions and movements of the body associated with work-related activities. [7] Hence, the aim of this study is to investigate relation of work related musculoskeletal disorders and job stress in bank employees in Narela, New Delhi population.

Materials and methods:

The present observational study was conducted on 60 bank employees of both sexes from private and government banks (to maximise the sample size for the study with minimal error) in Narela, New Delhi, India, over a period of 3 months from January 2023 to March 2023.

Inclusion criteria: Only bank employees age more than 20 years of both sexes from private and government sector were selected as study materials available in Narela, New Delhi, India.

Exclusion criteria: Subjects with known psychiatric disorders and who are not working in banks were excluded from the study.

Sample size calculation: According to convenient sampling.

Study Procedure: The subjects were anonymised, randomly coded and de-linked from any identity sources (ICMR National guidelines for biomedical and health research involving human participants, ICMR, 2017, sec 5, Box 5.2) [8]. The data collection tools employed in this study were the Orebro Musculoskeletal pain Questionnaire (OMP) [9] and the Perceived Stress Scale (PSS) [10]. Prior to participating, all participants provided formal written consent and were assured of the confidentiality of their information. They were also given the option to decline participation. The Orebro Musculoskeletal pain Questionnaire was administered first, followed by the Perceived Stress Scale. Participants were instructed to circle the appropriate scores, and ample time was provided for completing both questionnaires.

Statistical analysis: The collected data underwent twice measurements to minimize errors, and the resulting averages were computed. Subsequently, all the data gathered during the study were tabulated and analyzed utilizing SPSS software (version 21.0). To compare the data, a paired Student's t-test was performed, and significance was determined at a threshold of $p \leq 0.05$. The graphical representations and tables were generated using Microsoft Excel and Microsoft Word 2013.



Table/ fig 2: Subject filling the questionnaire

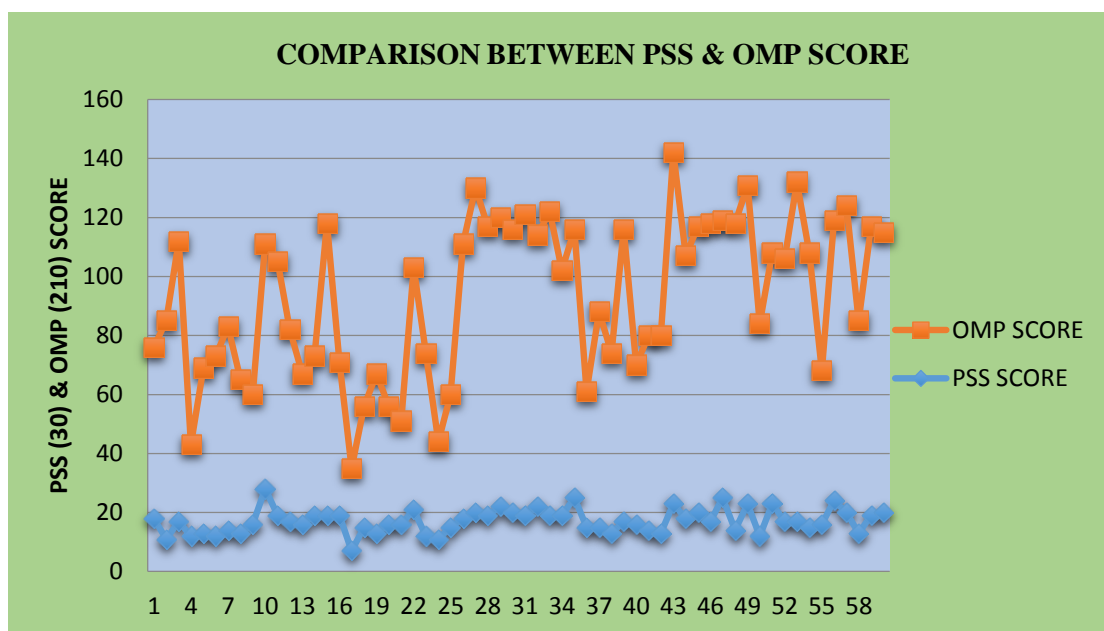
Observation and results:

In the present observational study, the total Orebro Musculoskeletal Pain (OMP) scores were recorded as 4554, while the Perceived Stress Scale (PSS) score was noted as 1031. The mean OMR and PSS scores were 76.07 ± 24.2 and 17.2 ± 4.07 , respectively has been displayed in [Table/Fig- 1].

The data suggests that individuals in the study had moderately high perceived stress levels (mean PSS score of 17.2) and experienced musculoskeletal pain (mean OMP score of 76.07). The significant p-value for the OMP score indicates that there may be a meaningful difference in pain levels between different groups or conditions being compared in the study.

S.N.	Parameters	Range	Mean \pm SD	t- value	p- value
1	Orebro Musculoskeletal Pain score (OMP)	28- 119	76.07 ± 24.2	2.36	0.002*
2	Perceived Stress Scale (PSS)	7- 28	17.2 ± 4.07		

Table/ fig 2: The range, mean with the standard deviation of Orebro Musculoskeletal Pain score (OMP) and Perceived Stress Scale (PSS) on both the gender, Paired student's t-test, *level of significant p-value <0.05.



Graph-1 comparison of OMP scores & PSS scores

Discussion:

Undoubtedly, the quality of life in the contemporary era has been compromised by a multitude of factors. Among these, rapid urbanization, technological advancements, globalization, and an imbalanced work-life

situation stand out as significant contributors, severely impacting the way we live. These factors have resulted in the emergence of early signs of physical and mental health deterioration. Work-related musculoskeletal pain can impact the bones, muscles, ligaments, tendons, and nerves,

leading to either acute, characterized by sudden and severe symptoms, or chronic pain, persisting over the long term. [11] This discomfort can be confined to a specific area or widespread. Among various types of musculoskeletal pain, lower back pain stands out as the most prevalent. Regardless of the specific location, this pain can be incapacitating and significantly reduce work efficiency. [12]

According to MG Kim and Özding S among Korean [13] and Turkish [14] population groups back pain is the most common WMSDs among the job stress subgroup. Job stress was related to the occurrence of WMSDs in Korean male fire fighters and Turkish academicians. It was suggested that the occurrence of WMSDs, a job stress management program may be required.

Chacko E, Bansal I among South Indian [15] population found that job satisfaction includes the comfort level of an employee to work. The comfort level when said it comes to the work place. In this paper some basic ergonomic problems were taken into consideration like the height of the chair and table must be proper if it's not the employee has to stretch themselves. If the chairs are not height adjustable then it may hinder the performance.

According to Malik N [16], the productivity of the work force is the most decisive factor as far as the success of an organisation is concerned. The productivity in turn is dependent on the psychosocial wellbeing of the employees. In an age of highly dynamic and competitive world, man is exposed to all kinds of stressors that can affect him on all realms of life. The growing importance of interventional strategies is felt more at organizational level.

Conclusion:

This observational study explores the correlation between work-related pain disorders and occupational stress among employees working in both public and private banks. The study findings indicate a notable & meaningful connection between work-related musculoskeletal pain issues and job stress, drawing upon comprehensive data collection and evaluation.

The findings of this study prove to be significant and meaningful, revealing a noteworthy correlation between work-related musculoskeletal pain problems and the degree of job stress experienced by the employees. The researchers identify patterns and trends that suggest a possible cause-and-effect relationship between heightened

job stress and an increased likelihood of suffering from musculoskeletal pain.

References:

1. Norka S. Active surveillance of work related musculoskeletal disorders: Occupational Ergonomics, Theory and Application [1996, 490].
2. Lindwall M, Gerber M, Jonsdottir IH, Börjesson M, Ahlborg Jr G. The relationships of change in physical activity with change in depression, anxiety, and burnout: a longitudinal study of Swedish healthcare workers. *Health psychology*. 2014 Nov; 33(11):1309.
3. Selye H. A syndrome produced by diverse noxious agents. *Nature*. 1936 Jul 4; 138(3479):32.
4. Carpenter JS, Andrykowski MA. Psychometric evaluation of the Pittsburgh sleep quality index. *Journal of psychosomatic research*. 1998 Jul 1; 45(1):5-13.
5. Karthik L, Kumar G, Keswani T, Bhattacharyya A, Chandar SS, Bhaskara Rao KV. Protease inhibitors from marine actinobacteria as a potential source for antimalarial compound. *PloS one*. 2014 Mar 11; 9(3):e90972.
6. Van Hooff ML, Geurts SA, Kompier MA, Taris TW. "How fatigued do you currently feel?" Convergent and discriminant validity of a single-item fatigue measure. *Journal of Occupational Health*. 2007 May; 49(3):224-34.
7. Gorji M, Vaziri S, Iran A. The survey job burnout status and its relation with the performance of the employees (Case study: Bank). In *International Conference on Innovation, Management and Service 2011* (Vol. 14, pp. 219-224).
8. Conditions for granting waiver of consent. ICMR National guideline for biomedical and health research involving human participants ICMR 2017; Section 5 (Box 5.2): 53.
9. Brown G. The Örebro musculoskeletal pain questionnaire. *Occupational medicine*. 2008 Sep 1; 58(6):447-8.
10. Cohen S, Kamarck T, Mermelstein R. Perceived stress scale. *Measuring stress: A guide for health and social scientists*. 1994 Jul 15; 10(2):1-2.
11. Jasperse M., Herset P., Dungerey G. Evaluating stress, burnout and job satisfaction in New Zealand radiation oncology departments. *Eur. J. Cancer Care*. 2014; 23:82-88.
12. Wang Y., Liu L., Wang J., Wang L. Work-family conflict & burnout among Chinese

- doctors: The mediating role of psychological Capital. *J. occup. Health.* 2012; 54:232-240.
13. Kim MG, Kim KS, Ryoo JH, Yoo SW. Relationship between occupational stress and work-related musculoskeletal disorders in Korean male firefighters. *Annals of occupational and environmental medicine.* 2013 Dec; 25(1):1-7.
 14. Özding S, Kayabınar E, Özen T, Turan FN, Yılmaz S. Musculoskeletal problems in academicians and related factors in Turkey. *Journal of back and musculoskeletal rehabilitation.* 2019 Jan 1; 32(6):833-9.
 15. Chacko E, Bansal I. Challenges in ergonomics in organizational change-shift from managing the consequences to managing the causes—with reference to banking sector. *ACADEMICIA: An International Multidisciplinary Research Journal.* 2014; 4(11):142-50.
 16. Malik N. A study on occupational stress experienced by private and public banks employees in Quetta City. *African journal of business management.* 2011 Apr 18; 5(8):3063.