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Prevalence of Foot and Ankle Musculoskeletal Condition Among Desk Job Workers

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ABSTRACT:

Background: Desk job workers are widely recognized as being at heightened risk of musculoskeletal disorders (MSDs), particularly in areas such as the lower back, upper limbs, neck, and shoulders. However, there is a lack of substantial research focusing on the prevalence of foot and ankle MSDs within this demographic. To bridge this gap, a study was undertaken to evaluate the prevalence of foot and ankle MSDs among desk job workers and to identify associated risk factors.

Method: A self-administered questionnaire, incorporating the Foot and Ankle Outcome Score (FAOS), was distributed to desk job workers meeting the study's eligibility criteria. Of the responses received, 120 questionnaires were fully completed and included in the analysis, while 25 partially completed questionnaires were excluded. The study employed a convenient sampling method, collecting demographic and work-related information such as age, gender, height, weight, and work experience through a subject intake form. Data analysis was conducted using MS Excel.

Results: The findings revealed that 18.33% of participants reported musculoskeletal issues in the foot and ankle. A gender-based analysis showed variations in prevalence, with 25% of the female participants and 13.88% of the male participants reporting these issues. FAOS scores were significantly correlated with age and working hours.

Conclusion: The study identified that a portion of desk job workers experienced foot and ankle musculoskeletal problems, with older females and those with longer work experience being at higher risk. Special attention should be directed toward these groups. The study recommends implementing ergonomic programs, self-management strategies, psychological health training, and targeted treatment plans to address foot and ankle MSDs.

KEYWORDS: Desk job Workers, Musculoskeletal Disorders, Foot, Ankle, Prevalence

INTRODUCTION

Office employees, who are crucial to the functioning of various organizations, including higher education institutions, have been reported to experience work-related musculoskeletal disorders (WMSDs) in several countries.[1] Musculoskeletal disorders are prevalent worldwide and are the second most frequent reason for work-related disability. The consequences of WMSDs range from symptoms to significant impairment, leading to a decrease in quality of life.[2] Administrative employees are exposed to risk factors linked with WMSDs. To prevent WMSDs in the workplace, it is necessary to identify

significant individual and occupational risk factors connected with symptoms and remove the contributing factors from the work environment.

Mechanical LBP typically arises from damage to the muscles, bones, tendons, ligaments, intervertebral discs, joints, or nerves in the lower back.[3,4,5] Postural imbalance occurs due to changes in the positioning of the feet, as the foot and ankle can adjust to improper balance arising from overlying structures or adaptive slopes.[6] The complex relationship between low back pain and foot conditions involves the interconnected biomechanics of the lower back and foot. By comprehending these relationships, healthcare professionals can develop comprehensive treatment plans that address both areas of the body. Therefore, this study aims at exploring the prevalence of foot and ankle musculoskeletal conditions among desk job workers.

AIM

To find out Prevalence of Ankle and Foot musculoskeletal problems among desk job workers.

METHODOLOGY

120 desk job participants working in companies and banks in Delhi were included on the basis of inclusion and exclusion criteria. This study utilized an observational design. Convenient sampling method was used for participant selection. The Foot and Ankle Outcome Score (FAOS) questionnaire was distributed to participants either in person or via email/WhatsApp, after providing an explanation of the study's nature and purpose. Informed consent was obtained from all participants prior to their involvement.

Inclusion Criteria: Gender both male and female. Age limit is 30 - 40 yrs[12] with normal BMI range (18.5-24.9). Desk job workers having experience of min. 3 year[13] with 4-6 working hours per day.[12,13]

Exclusion Criteria: Subjects diagnosed with neurological, cardiovascular conditions etc. as reported by subject. Pregnant female workers.[14] Any recent trauma.[14] Subjects with psychiatric disorders.[14]

DATA ANALYSIS

Descriptive analysis was done using SPSS version 29.02.0 to calculate mean of age, BMI, gender distribution and prevalence of ankle injury.

RESULTS

The study involved 67 men and 53 women aged 30-40, with an average mean BMI of 22.7. The participants had an average age mean of 35.54, with an average mean of 10.89. They required experience ranging from three to twenty-five years, with an average of 10.89. Demographic details are discussed in table 1.

VARIABLE	NORMAL VALUE	MEAN VALUE
MALE	67	55.83
FEMALE	53	44.17
BMI	18.0-24.9	22.7
AGE	30-40	35.54
WORK EXP.	3-25 Yrs.	10.89

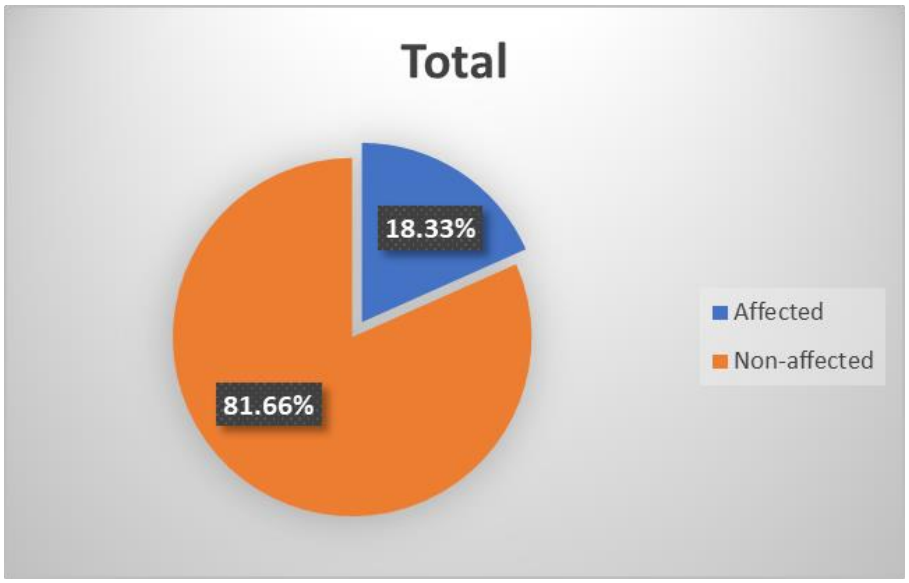
Table 1: Demographic details

Prevalence of Ankle and Foot musculoskeletal conditions:

The study was conducted on 120 participants among affected participants were 18.33% including both genders which are explained in table 2 and graph 1.

	Male	Female	Total
Affected	10	12	22
Non-affected	57	41	98
Total	67	53	120

Table 2: prevalence of affected population



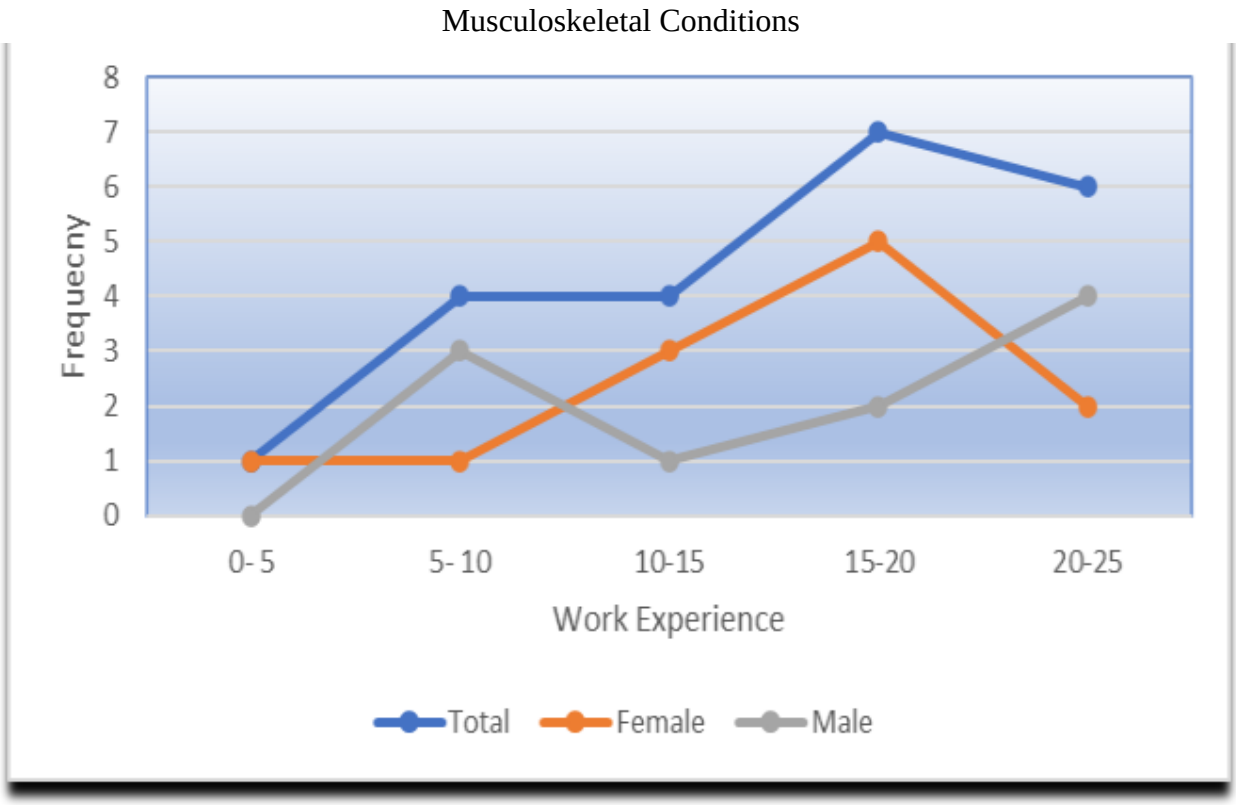
Graph 1: Prevalence of affected population

Relationship between Years of Experience and Ankle and Foot Musculoskeletal Conditions:

The participants have minimum 3 years of experience we noticed that participants with more experience are largely affected. Broader experience is leading to ankle and foot musculoskeletal which are explained in table 3 and graph 2.

Range	Total	Female	Male
0- 5	1	1	0
5- 10	4	1	3
10-15	4	3	1
15-20	7	5	2
20-25	6	2	4

Table 3: Relationship between Work Experience and Ankle and Foot



Graph 2: Relationship between Work Experience and Ankle and Foot Musculoskeletal Conditions

DISCUSSION

The objective of our investigation is to determine the occurrence of musculoskeletal problems in the foot and ankle regions among office job labourers. Our examination provides insights on the impact of prolonged working hours on the ankle and foot caused by desk job work. The survey was administered to 120 office job employees across different industries, aged between 30-40 years with a minimum of 3 years of work experience.

In our study it is revealed that 18.33% is the prevalence rate of ankle and foot musculoskeletal conditions in desk job workers, revealing sparse prevalence. There are studies which revealed higher prevalence rate of musculoskeletal conditions in Ankle and Foot. Like, an article stated that the prevalence of Ankle and Foot Musculoskeletal conditions are 20.7%.[1.] A study on the prevalence of musculoskeletal disorders among computer and bank office employees in Punjab (India) reported that the prevalence of ankle and foot conditions is 28.2%.[7]

Additionally, in association with gender**,** this study indicates that females have a higher likelihood of developing musculoskeletal conditions compared to males. A previous on work-related musculoskeletal disorders and associated factors among bank also supported our results, revealing that female participants were three times more likely to develop musculoskeletal conditions than males.[8] More research is needed to understand how gender relates to ankle and foot conditions in desk job workers due to inconsistent study findings.

Association with age stated a progressive increase in musculoskeletal disorders from younger to older age.[1]This study was supported by other studies like the study on work-related musculoskeletal problems and associated factors among office workers, which also support our result. A study revealed no such association between age and the prevalence of musculoskeletal disorders.[9]

In association with working Experience our study revealed that the prevalence of Ankle and Foot MSD increases with increasing work experience. Similar observations were reported in various studies, where prevalence increases with work experience. Another on "Perceptions of occupational hazards amongst office workers also revealed the same result as ours.[10]

A study revealed that prevalence tends to be increased with increase in working experience, hence supporting our result.[11]

Our study found that although ankle and foot conditions are less common than other musculoskeletal issues, they can still significantly impact the lives of office workers. Women, older individuals, and those with more work experience are at the highest risk. Other factors such as working hours, body composition, and posture also contribute to the prevalence of these conditions. Regular assessments of ankle and foot health can help in the prevention of these issues.

CONCLUSION

This study concluded that a small number of participants were affected by ankle and foot musculoskeletal problems. Desk job workers who were older, female, and had more experience showed higher risks for these disorders and should be given special attention. We recommend the implementation of ergonomic programs, self-management strategies, psychological health training, and treatment plans for ankle and foot MSDs. Furthermore, the use of proper footwear with cushioning and support, footrests, stretching exercises, low-impact activities, and regular health check-ins can help prevent ankle and foot issues.

ETHICAL CONSIDERATION: Ethical was not required for this study.

INFORMED CONSENT: Informed consent was taken prior from the students.

REFERENCES

1. Obinna Chinedu Okezue, Toochukwu Henr, Anamezie, Jjohn Jeneviv Nene, & John Davidson Okwudili et.al, (2020), Work-Related Musculoskeletal Disorders among Office Workers in Higher Education Institutions: A Cross-Sectional Study, Ethiop J Health Sci., September 2020. 30(5): 715-724,
2. Daneshmandi H, Choobineh A, Ghaem H, Karimi M. Adverse Effects of Prolonged Sitting Behavior on the General Health of Office Workers. *J Lifestyle Med*. 2017;7(2):69-75. doi:10.15280/jlm.2017.7.2.69
3. Feldman DE, shrier I , Rossignal M, etal. Risk factors for the development of LBP in adolescence. Am J Epidermal
4. Jugal Kishore Prevalence of Musculoskeletal Disorders Amongst Adult Population of India, Epidemology International, vol. 4, Pg No. 22-26.
5. Chian JJ, Bajwa ZH. What is mechanical BP & how best to treat it? Cure pain headache Rep 2008; 12(6):406-411.
6. Cho CY, Hwang YS, Cherng RJ. Musculoskeletal symptoms and associated risk factors among office workers with high workload computer use. *J Manipulative Physiol Ther*. 2012;35(7):534-540. doi:10.1016/j.jmpt.2012.07.004

7. Mani SB, Do H, Vulcano E, et al. Evaluation of the foot and ankle outcome score in patients with osteoarthritis of the ankle. *Bone Joint J*. 2015;97-B(5):662-667. doi:10.1302/0301-620X.97B5.33940.
8. Dagne, D., Abebe, S.M. & Getachew, A. Work-related musculoskeletal disorders and associated factors among bank workers in Addis Ababa, Ethiopia: a cross-sectional study. Environ Health Prev Med 2020, **25**, 33
9. Wu S, He L, Li J, Wang J, Wang S. Visual display terminal use increases the prevalence and risk of work-related musculoskeletal disorders among Chinese office workers: a cross-sectional study. *J Occup Health*. 2012;54(1):34-43. doi:10.1539/joh.11-0119-oa
10. Ijadunola KT, Ijadunola MY, Onayade AA, Abiona TC. Perceptions of occupational hazards amongst office workers at the Obafemi Awolowo University, Ile-Ife. *Niger J Med*. 2003;12(3):134-139.
11. Mohsen Soroush MD, Hamid Hassani, Musculoskeletal complaints associated with computer use and its ergonomic risks for office workers of a medical sciences university in Tehran, AMHSR original article, vol 13, No. 1, Winter 2015. Agnestifa Dinar, Indri Hapsari Susilowati, Azhary Azwar, Kristin Indriyani, and Mufti Wirawan, (2018), "Analysis of Ergonomic Risk Factors in Relation to Musculoskeletal Disorder Symptoms in Office Workers" in International Conference of Occupational Health and Safety Page 16 (ICOHS-2017), KNE Life Sciences, pages 16-29.
12. Tin -Chi Lin, Association between Sedentary work and BMI in a U.S. National Longitudnal Survey. Am J Prev Med. 2015;49(6):e117-e123.doi10.1016?j.ampere.2015.07.02
13. Surendra Babu Darivemula, Kian Goswami et. al, Work-related Neck Pain Among Desk Job Workers of Tertiary Care Hospital in New Delhi, Indian Journal of Community Medicine, vol. 41(1), 2016 Jan-March.
14. Rajinder Kumar Moom, Lakhwinder Pal Singh et.al, Prevalence of Musculoskeletal Disorder among Computer Bank Office Employees in Punjab (India): A Case Study Procedia Manufacturing, Volume 3, 2015, Pages 6624-6631, September 2015.