



IMPACT OF ACTIVE STRETCHING EXERCISE OR WORKSTATION EXERCISE AND ERGONOMIC MODIFICATION IN HEALTHCARE PROFESSIONALS WITH MUSCULOSKELETAL DISORDERS

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ABSTRACT

Background: Musculoskeletal disorders (MSDs) encompass a wide range of conditions that affect the muscles, bones, tendons, ligaments, and other components of the musculoskeletal system. These disorders can result from various factors, including repetitive motions, overexertion, poor posture, and prolonged physical stress. MSDs are a significant concern in both occupational and non-occupational settings, causing pain, functional limitations, and reduced quality of life for individuals.

Objective: The objective of the study was to evaluate the impact of active stretching exercises or workstation exercises with ergonomic modification advice on healthcare professionals in musculoskeletal disorders

Design: Observational study

Methodology: This observational study utilized a random sampling method to investigate the effects of workstation exercises and active stretching exercises on musculoskeletal disorders among healthcare professionals. The study was conducted over a duration of 4 weeks, with data collected from Chatrapati Shivaji Subharti Hospital, Swami Vivekanand Subharti University Meerut, Uttar Pradesh. A total of 114 healthcare professionals between the ages of 25-40 participated. Pre- and post-treatment self-administered questionnaires were used to gather data on pain, posture, job satisfaction, and overall health status.

Result: The results showed that neck pain was the most prevalent complaint (62.8%), followed by lower back pain (47.8%). Most participants (66.4%) had not sought treatment for their pain. The majority (55.8%) maintained good posture while working, and 43% reported no discomfort other than pain. After four weeks of exercises,

74.3% of participants reported benefits, with a mild reduction in pain intensity. Overall, 56.9% experienced improved health.

Conclusion: Implementing active stretching exercises and ergonomic modifications can significantly improve musculoskeletal disorders among healthcare professionals, reducing pain, discomfort, and improving overall health. These interventions are crucial for preventing or reducing MSDs, particularly in relation to long working hours and physical demands. Healthcare organizations should prioritize the implementation of these measures to create a healthier and more comfortable working environment.

KEY WORDS: musculoskeletal disorder; active stretching exercise. \

INTRODUCTION: Musculoskeletal disorders (MSDs) encompass various conditions affecting the musculoskeletal system, prevalent in healthcare professions due to ergonomic risk factors. These disorders, such as repetitive motion injuries and cumulative trauma disorders, impact joints, muscles, and tendons, affect occupational health and productivity (1). Work-related MSDs result from the physical demands of a job exceeding the body's capacity, leading to lower back pain, neck, and shoulder disorders (2). The causes include exposure to ergonomic risk factors like high task repetition, forceful exertions, and awkward postures. Individual-related risk factors involve poor work practices, health habits, rest, recovery, nutrition, fitness, and hydration. MSDs manifest as pain, stiffness, swelling, and decreased function, progressing through stages if untreated (5,6,7,8).

MSDs in healthcare workers involve upper extremity, back, and lower limb disorders, with symptoms like pain, weakness, and numbness (3,4). Prevention strategies address both workplace and individual factors. Treatment involves restricting movement, applying heat or cold, exercise, medication, and, in severe cases, surgery (8). Active stretching exercises, promoting flexibility and stress relief, play a crucial role. Workplace stretching programs are advocated for injury prevention (14). In summary, addressing ergonomic and individual risk factors, recognizing MSD symptoms, and implementing effective prevention and treatment strategies are vital in mitigating the impact of these disorders on healthcare professionals.

OBJECTIVE: The study aimed to assess the influence of active stretching exercises (workstation exercises) on musculoskeletal disorders among healthcare professionals. Additionally, it sought to determine the effects of ergonomic modification advice on these professionals facing musculoskeletal disorders. The overarching objective was to comprehensively evaluate the combined impact of active stretching exercises and ergonomic modifications on the musculoskeletal health of healthcare professionals.

METHODOLOGY:

Study Design: An observational study.

Sampling Method: Random sampling method.

Duration of Study: 4weeks (6 days/week)

Sources of Data: Data has been collected from Swami Vivekanand Subharti University, Meerut (U.P), Chatrapati Shivaji Subharti Hospital, Meerut (U.P).

Sample Size: A Total number of 114 healthcare professionals (both male and female) participated in the study.

Inclusion Criteria: Healthcare professionals (Nurses, Dentists, Physiotherapists, Physicians, Surgeons etc.), Age group between 25-40years, Both gender (males and females), No pathological issues, Self- reported health status.

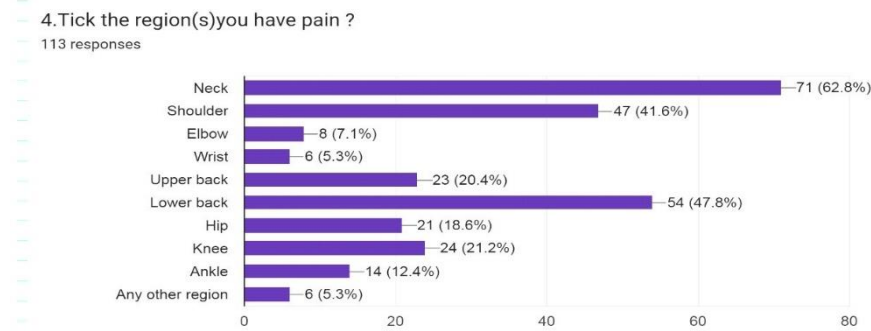
Exclusion Criteria: Age more than 40 years, Pregnancy, those having recent surgery/ injury/ fracture, Degenerative disorder, Bone infection, tumor.

Tools used in the Study: The self- administered questionnaire (feedback questionnaire) was developed keeping in mind the work tasks of healthcare workers and the associated risk factors with their tasks.

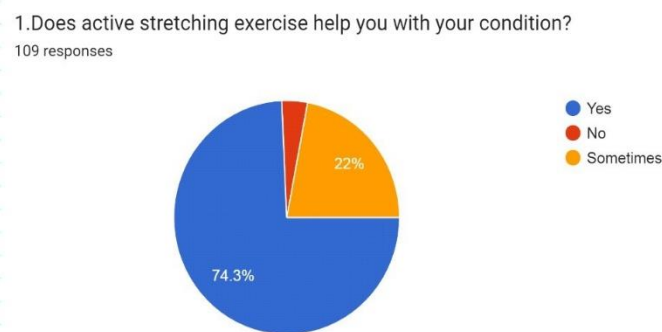
- Socio-demographic details: Name, Age, Gender, Weight, Height.
- Position acquired and their duration like -time spends in one position while working
- Work requires repetitive actions/movement (while treating patients).
- Questions related to the region(s) and intensity of pain.
- Questions related to posture and discomfort (other than pain) while working.
- Assessing job satisfaction, work pressure, colleague support and psychological factors
- The question involves the availability of comfortable furniture.
- Questions related to improvement from the workstation exercise / active stretching exercise, duration of performed exercise and overall health status after treatment.

RESULT: The study, involving 112 healthcare professionals aged 25-40 with musculoskeletal disorders, aimed to evaluate the impact of workstation exercises and ergonomic modifications. Participants, predominantly females (71.4%), showed prevalent MSDs in the neck (62.8%) and lower back (47.8%). The majority experienced pain during work (61.3%) with 66.4% not seeking treatment. Good posture was maintained by 55.8%, while 43% reported work pressure, 27.2% stress, and 21.9% sleep disturbances. Post-intervention, 74.3% reported benefits from active stretching exercises, with neck pain remaining dominant (54.1%). Pain reduction was mild (3 to 2 out of 10) for 30.6% of responders. Comfort after exercises varied, with 56.9% feeling improvement in health. The

study underscores the potential benefits of targeted exercises and ergonomic adjustments in managing MSDs among healthcare professionals.



Shows the region of pain of the healthcare professionals during the time of participation



Shows how active stretching exercise help in their condition

DISCUSSION: The study focused on healthcare professionals aged 25-40 with musculoskeletal disorders, specifically evaluating the impact of workstation exercises and active stretching on participants randomly selected from Swami Vivekanand Subharti University and Chatrapati Shivaji Subharti Hospital in Meerut, Uttar Pradesh. Following a 4-week intervention, involving exercises tailored to their work requirements, ergonomic modifications, and postural advice, the 112 participants, including physicians, surgeons, nurses, physiotherapists, dentists, and lab technicians, reported reduced pain levels and improved health conditions. Prevalent MSDs, particularly in the neck and lower back, highlighted occupational risks. Notably, 55.8% demonstrated good posture, emphasizing the importance of education in preventing MSDs. Ergonomic modifications, such as appropriate chairs and tables, correlated with better outcomes. The study emphasized the need for healthcare organizations to support employees in managing stress and improving psychological well-being. Additionally, it suggested future research on diverse stretching protocols and ergonomic solutions to further enhance MSD prevention in healthcare professionals. In conclusion, the study highlighted the efficacy of workstation exercises and ergonomic modifications in managing MSDs and underscored the significance of holistic well-being support in healthcare workplaces.

LIMITATIONS: The study had several limitations, including small sample sizes and the absence of a control group, which may restrict the generalizability of the findings. Additionally, reliance on self-reported measures introduced potential bias. The study's limited geographic scope and the potential for selection bias further contribute to the constraints of its outcomes.

RECOMMENDATIONS: The study's recommendations for future research focus on improving the robustness and applicability of findings. Key suggestions include increasing the sample size and introducing a control group for more reliable outcomes. The study advocates for a long-term follow-up to gauge sustained benefits from the active stretching exercise program and ergonomic modifications. Furthermore, the research proposes exploring synergies between the active stretching program and other interventions like massage therapy, acupuncture, or cognitive behavioural therapy, customized for treating musculoskeletal disorders in healthcare professionals. The integration of technology-based interventions, such as wearable sensors and mobile applications, is suggested to monitor and offer feedback on workplace postural habits and ergonomic practices. Lastly, the study encourages a comparative analysis of different exercise programs (e.g., aerobic exercise, resistance training) to assess their effectiveness in enhancing musculoskeletal health among healthcare professionals.

CONCLUSION: In summary, the research findings emphasize the significant association between specific physical demands, such as long working hours and inappropriate posture, and reported musculoskeletal disorders (MSDs) among healthcare professionals. The study suggests that incorporating active stretching exercises, coupled with ergonomic modifications, can notably alleviate MSDs, reducing pain and discomfort while enhancing overall quality of life for healthcare workers. The effectiveness of these exercises is further augmented by ergonomic adjustments, which mitigate physical stress and injury risks.

The research underscores the preventive value of such interventions, particularly for healthcare professionals prone to MSDs due to their work nature. Regular implementation of active stretching exercises, combined with ergonomic modifications, not only benefits the well-being of healthcare workers but also positively influences their work performance and productivity. The study concludes by recommending healthcare organizations prioritize the integration of workstation exercises and ergonomic modifications into their occupational health and safety programs. This proactive approach is anticipated to not only decrease the occurrence of MSDs but also foster a healthier and more comfortable working environment for healthcare professionals.

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