Assessing Forward Head Posture in Watch Mechanics: The Role of Cranio – Vertebral Angle Measurement – A Pilot Study

Dr Ashish Girdharilal Harwani

Intern
Shri K R Pandav College of Physiotherapy, Bhandara

Abstract
Background: Musculoskeletal Disorder (MSD) are the second largest reason for disability globally. Work-related musculoskeletal disorder (WRMSD) is conditions which are caused or exaggerated by work, though often other activities also aggravate the problems. A watch mechanics work is characterized by long bending and sitting hours, constant forward leaning, and awkward postures. Most of the tasks involve Static posture and repetitive movements that can lead a watch mechanics at a risk of developing musculoskeletal disorder risk. A full time (8 hours daily) watch mechanics with at least 5 years of working experience undergo musculoskeletal disorders.

Aim: The aim of study is to determine the prevalence of forward head posture in watch mechanics community.
Objective: To study the prevalence of forward head posture in watch mechanics workers by using cranio-vertebral angle.

Method: A descriptive cross – sectional study consisting of 15 watch mechanics.

Result: In this study 15 watch mechanics workers were evaluated with mean age of 25 +5 year, with mean working hours 8 + 2 hours and the working experience 25 + 5 years, out of 15 watch mechanics 11 had shown the prevalence of forward head posture that is 73.33% of them had forward head posture.

Conclusion: Based on the result the present study which was conducted in watch mechanics workers concluded that prevalence of forward head posture 73.33 % amongst the population.

Keywords: Watch mechanics workers, musculoskeletal disorder.

INTRODUCTION

Postures refers to the bodys position either while supported during muscular activity or as a result of the coordinated effort of muscle groups working together to maintain stability.(1) Any changes in such attitude of the body result deformity.

Forward head posture is another such alteration characterized by hyperextension of the upper cervical vertebrae and the forward displacement of the cervical vertebrae.(2) this is poor habitual neck posture.

Forward head posture often results from prolonged sitting in improper position or maintaining the same posture with a protracted cervical position. Although no direct correlation exist between forward head posture and neck pain in the cervical region , some studies suggest that forward head posture alters the biomechanics stress on the cervical spine, potentially leading to musculoskeletal disorder such as cervical pain, headache and temporomandibular joint dysfunction.

Watch mechanics workers, who repairs various types of watches manually frequently exhibit forward head posture due to the nature of their work, which requires extended periods of sitting with their head flexes.consequently, the altered biomechanics associated with their tasks contributed to the prevalence of forward head posture among them.

Head and shoulder postural misalignments contribute to muscular imbalances in the shoulder and upper thorax region, leading to the shortening of muscle such as the upper trapezius, splenius capitis, splenius cervicis, semispinalis capitis, cervical erector spinae and levator scapulae.(4)

This posture can alter the position of the scapula on the thoracic wall and reduce its capacity for upward rotation.(5)

To prevent these postural misalignment, its essential to identify any postural abnormalities. Clinical assessment of forward head posture relies on visual observation, which provides only qualitative measurement and is not a reliable method. To obtain quantitative measurements, various objective methods have been employed to assess forward head posture.(6)

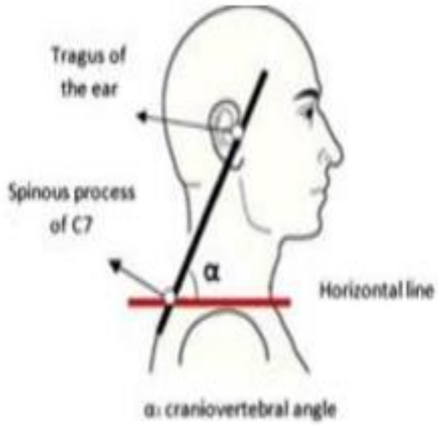


FIG.1 - Photography method to evaluate the forward head posture

Research has shown that watch mechanics are significantly impacted by poor body posture and excessive workload. Twisting, bending, and overreaching result from inadequately designed workstations. Additionally, insufficient lighting at the worksite further negatively affects their health. The stress on specific muscle group and joints due to repetitive movements- particularly in the upper spine, shoulders and upper thorax – combined with prolonged manual handling of heavy work load can lead to postural abnormalities. This in turn often results in musculoskeletal disorder with forward head posture being the most common issue. Identifying the prevalence of forward head posture in this population is crucial to prevent further complication and to initiate as early as possible. (3)

MATERIALS & METHODS

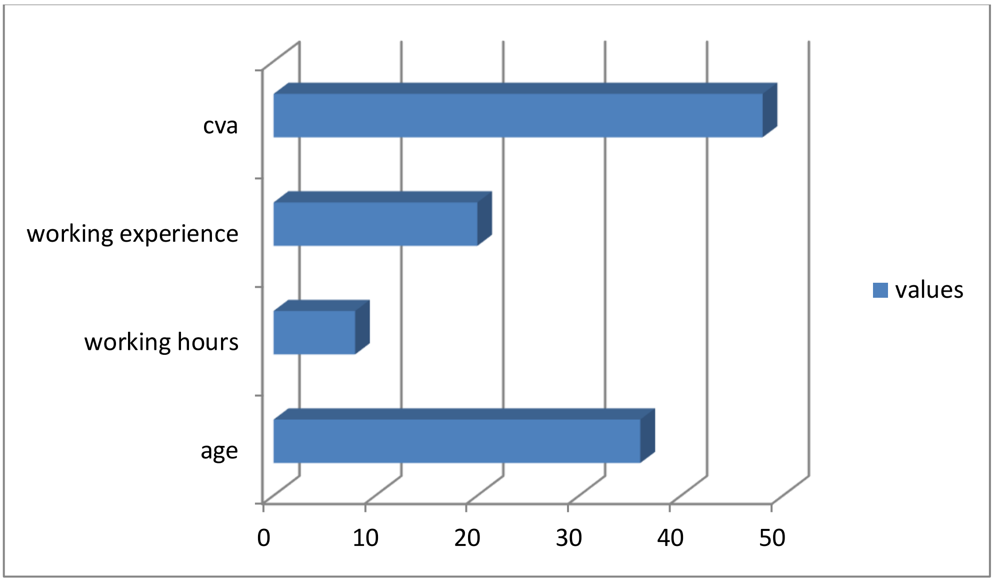
The study was carried out among watch mechanics of different watch shops of Maharashtra after getting ethical approval from institutional review board. Permission for taking watch mechanics as subjects of the study was obtained from the head of the department (HOD) . Using a convenient sampling method of 15 watch mechanics, having more than 5 years of working experience, and full time worker were selected. Neurological deficits, were not included in the study.

Detailed subjective assessment was taken including demographic data (Name, Age, Gender, Address, And Working Place) Work Experience, Working Hours,etc.

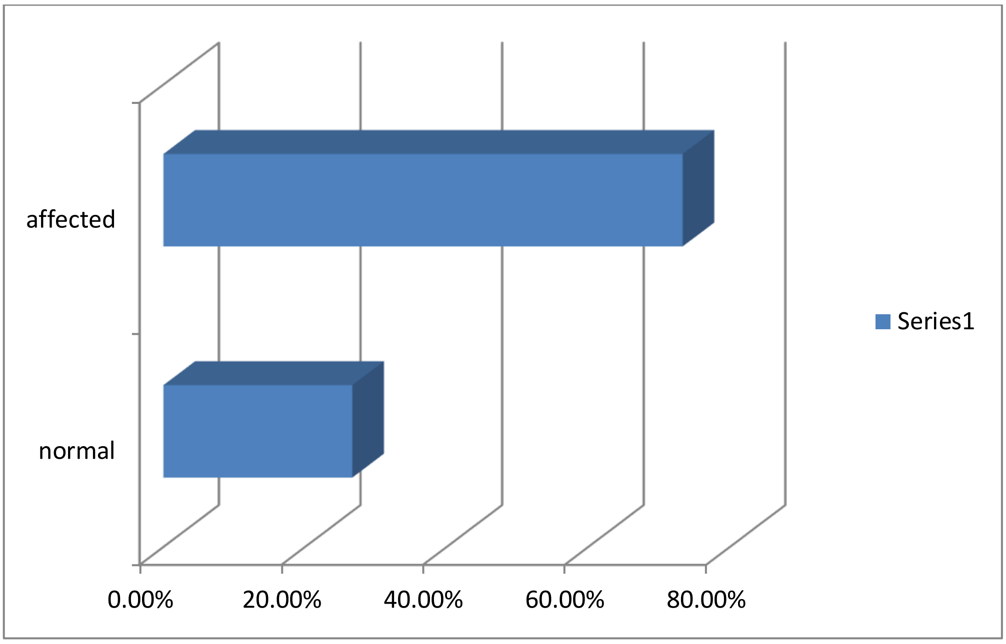
The Cranio-Vertebral Angle were taken to evaluate the forward head posture to check the prevalence of musculoskeletal disorder.

RESULT

In this study 15 watch mechanics workers were evaluated with mean age of 25 +5 year, with mean working hours 8 + 2 hours and the working experience 25 + 5 years, out of 15 watch mechanics 11 had shown the prevalence of forward head posture that is 73.33% of them had forward head posture.



GRAPH.1 - Graphical analysis of watch mechanics based on outcome measure



GRAPH.2 - Percentage prevalence of forward head posture amongs watch mechanics

DISCUSSION

In This study it was found that the prevalence of forward head posture is more in those watch mechanics whom are sitting in bad posture and doing their work for prolong period of time in same. The high prevalence of forward head posture is seen in different occupation with similar posture such as school going students, housewives, office workers, visual display terminal workers, Dentists, call centers, and even though in physiotherapist as per the studies of some articles. A study by shivani goswami et al in her study shown that the 70% of physiotherapist has forward head posture .A study by laila vakili et al shows that prevalence of forward head posture amongst dentist is 85.5%.there is no significant study conducted on watch mechanics workers, as the study shoes the prevalence of forward head posture in watch mechanics is 73.33%which is very high due to their work habits and working environment.

The study was projected to find the prevalence of forward head posture in watch mechanics workers. As per the finding of the present study, out of 15 subjects 11 were found to have forward head posture which is 73.33%of total population.

During study it was found that the participants are more into precise work such as manually repairing the watches which usually demands more focus and work in head down position in a bad posture for prolong period of time result in twisting, bending and repetitive stress of body in which the neck is more involved which causes imbalance of muscle leads to forward head posture. Many studies shown that forward head posture leads several pathologies such as myofascial trigger point, cervicogenic headache, neck pain and reduce lung capacity, severe forward head posture will also affect the dynamic posture. To prevent this and to prevent further musculoskeletal disorder it is necessary to find out prevalence of forward head posture amongst population so we can treat as soon as possible.

CONCLUSION

Based on the result the present study which was conducted in watch mechanics workers concluded that prevalence of forward head posture 73.33 % amongst the population.

Ethical policy and institutional review board statement: The study was approved by institutional review board.

Declaration of patient consent: The author certify that they have obtained all appropriate patient consent forms. In the forms, the patients has/have given his/her/their consent for his/her/their images and other clinical information to be reported in the journal. The patient understand that their names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

Data availability statement: Data are available based upon request from Dr.Gore.

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Conflict of interest: there is no conflict of interest.

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