



A Survey to Assess The Knowledge of Working Characteristics and Ergonomics Among Dental Students and Its Practice in Their Clinical Postings.

KEYWORDS

Ergonomics, work related musculoskeletal disorders, work environment, occupational hazards

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ABSTRACT

Ergonomics is the science which proposes the provision of working conditions that promote workers welfare and facilitates the performance and productivity of labour. It is important to investigate reasons for the difficulties encountered during learning process and identify the health hazards committed during clinical practice. It is of crucial value to promote occupational health training and prevention programs regarding ergonomic postures. This study was conducted to assess the knowledge of ergonomics among dental students and its practice during clinical postings and prevalence of Work-related Musculoskeletal Disorder (WMSD) amongst dental students. Possible correlations with the working environment and ergonomics taught in our dental college was also sought.

INTRODUCTION

Ergonomics is the art and science that proposes the provision of working conditions that promote workers welfare and facilitates the performance of labour. It includes the design of work spaces, environment, and the equipment used in the work place (Caruso et al, 2008). In relation to dentistry, ergonomics tends to reduce cognitive and physical stress, prevents work related diseases, thereby improving productivity, with better quality and greater comfort for both the dentist and the patient (Castro et al, 1999).

Rising et al (2005), reported that more than 70% of dental students reported with neck, shoulder, and lower back pain by the end of third year of dental school due to the inadequacies in their knowledge of ergonomic posture during clinical practice. These WMSD's would begin to appear at the beginning of their clinical practice as students and continue to affect them for the rest of their professional lives. Dental education can thus play a vital role in training the dental students, helping them to adopt adequate knowledge related to ergonomic posture (Valachi B, 2003). Sartorio et al. (2005) found that occupational health programs were not being carried out in a satisfactory manner and adequate training activities were not being promoted. Injury prevention and dental ergonomics education is still in its budding stages in India. With this in mind, the aim of this study was to analyze the knowledge, practice, and condition of work place regarding ergonomics among dental students in our dental institution.

Another beneficial outcome for introducing ergonomics to the students' curriculum is the updating of dental equipment in our clinical setup. On the contrary, still missing are some basic organizational measures for improving the general conditions for clinical work and education such as: assistance, use of rubber-dam, organization of patients' visits (Lydia G et al, 2012).

Therefore, the main objective of the study was to assess the point prevalence of WMSD among dental students in their clinical and non-clinical years. The other objective of the study was to correlate the prevalence of WMSD of the students with the work characteristics during their training years. In addition to this, students' understanding of ergo-

nomics and their ability for self-application during dental practice were also assessed. It is very essential to obtain information which may improve the understanding of contributing risk factors in the case of work related diseases thereby preventing early manifestation of WMSD (Saad A Khan et al, 2003).

OBJECTIVES OF THE STUDY:

The objective of the study was to assess the level of knowledge of the dental students on the principles of ergonomics and how they could apply this knowledge in order to develop relevant skills for healthy professional working posture. Also to observe any correlation among knowledge, practice, and condition of work place scores.

MATERIALS AND METHODS:

Sample selection: 100 students from A B Shetty Memorial Institute of Dental Sciences were selected randomly. A written informed consent (Annexure I) was obtained from each student prior to starting the survey. A structured questionnaire form (Annexure II) was filled by the student as well.

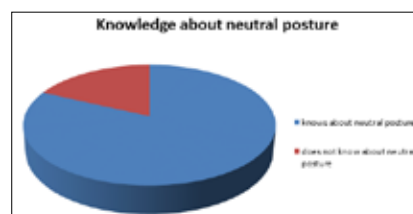
METHODOLOGY

A self-administered questionnaire study was conducted among 100 dental students. Analysis of variance was used to compare mean of knowledge, practice of clinical posture, and condition of work place.

RESULTS

Among the total sample size of 100, 42 were male and 58 were female. Among the subje study, 82% reported to know the correct neutral sitting posture in practicing dentistry (Figure 1).

FIGURE 1

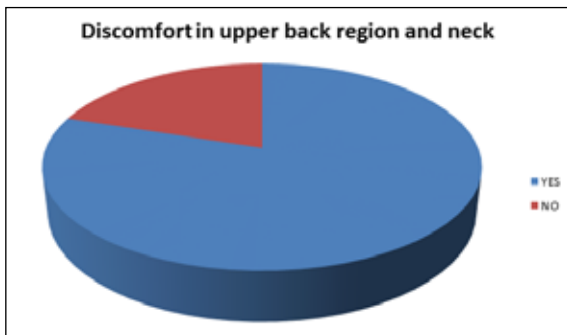


Surprisingly, most of the students (70%) perform torsion of the body and cervical flexion to improve vision and prefer direct vision while working.

Adjusting the height of the chair was found to be a common practice, a total of 86% students reported that they often adjusted the chair prior to their work.

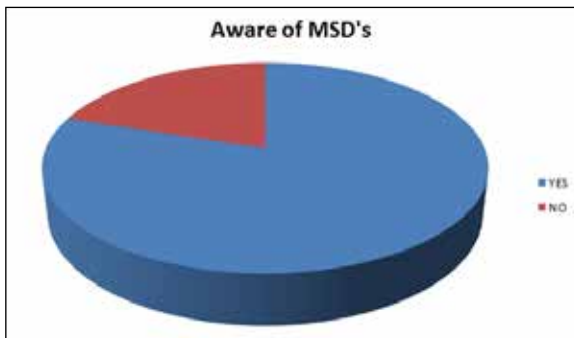
The ability to reach the instrument without making strenuous movement was reported by 70% students. Discomfort at the neck and upper back region was reported by 81% of students (Figure 2).

FIGURE 2



Among 100 students, 80 knew about work related musculoskeletal disorders (Figure 3).

FIGURE 3



DISCUSSION

The present study investigated the knowledge of working characteristics and ergonomics among dental students and its practice in their clinical postings.

The level of knowledge about ergonomics was good (82%) among the students. Majority of the students believed that ergonomics prevents musculoskeletal disorders, provides

comfortable working, and improves productivity and quality of their work.

Most students (82%) in our study responded that they adopt upright back position when they begin to work, with feet flat on the floor (89%) and with their legs slightly separated. Good positioning of our feet and legs broadens the support base of our body, avoiding possible changes in the circulatory system such as varicose veins, edema, pain, and inflammation because of muscle compression in the lower extremities impeding the venous return. The lower limbs are the second most likely body region to experience pain because of poor positioning during sitting and working, with reported pain occurring within the lower limbs and 81% with the neck and upper back.

A very high percentage of students (70%) perform torsion of the body and cervical flexion to improve vision and prefer direct vision while working with their patient. A total of 86% students reported that they often adjusted the chair height prior to their work.

70% students reported that they had to make strenuous movements to reach their instruments. The study identified three body regions with the highest prevalence of WMSD amongst students in clinical and non-clinical years. The neck, upper back and lower back regions showed the highest prevalence of discomfort in comparison to other body regions.

Frequent stretch breaks can help prevent detrimental physiological changes that tend to

develop while working in static or awkward postures. Stretching can serve to:

- increase blood flow to muscles
- increase the production of joint synovial fluid
- reduce the formation of trigger points
- maintain normal joint range of motion

CONCLUSION

The ergonomic posturing was not appropriate in a large percentage of our dental students who took part in this study. This indicates that they are subject to develop WMSD's in the future. It is necessary to find out reasons for the difficulties encountered during their learning process. It is very important to promote occupational health training and prevention programs regarding ergonomic postures. Attention should be given to changing destructive postural habits and selecting equipment suitable to good posture.

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