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Awareness of Exercises for Work Related Musculoskeletal Disorders Amongst Dentists

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ABSTRACT

Background: Work related musculoskeletal disorders is a broad term which applies to musculoskeletal disorders which occur or existing disorders that are advanced due to working conditions and environment. Dentistry is a profession which is at a high risk for developing musculoskeletal disorders due to their working procedure. Specific exercises that help prevent or reduce such disorders along with ergonomic education and its application ensures good health and optimal functioning. The objective was to check the awareness about the importance of exercises that might be beneficial in reducing and preventing work related disorders among dentists.

Method: A self- made questionnaire was prepared. The questionnaire survey was done among Indian dentists. The subjects participated by filling the google form that included questions regarding their working routing, pain, exercises performed, etc. 160 responses were received. 154 subjects were included for analysis based on inclusion criteria.

Results: 94.2% dentists were aware of the common musculoskeletal problems dentists suffer from. 68.8% dentists started experiencing pain or discomfort after starting practice. 37.7% of study subjects took measures for their problem. 92.2% dentists were aware of the beneficial exercises. 39.6% of 154 dentists performed such exercises.

Conclusion: The study concludes that dentists may be aware of the risks and common musculoskeletal problems the profession has to offer. Knowledge of specific set of exercises that prevent or reduce the work related musculoskeletal disorders is essential. It is recommended that dentists perform such exercise routines regularly to maintain good health.

Keywords: Work related musculoskeletal disorders, Posture, Discomfort, Pain, Exercises.

INTRODUCTION

Work and musculoskeletal disorders are linked when the work environment, tools and working methods aggravate the chronicity and/ or intensity of the disorder. [1] Work related musculoskeletal problems are commonly seen among dentists. [2] The prevalence of musculoskeletal pain found in dental students, hygienists and dentists ranges between 64% - 93%. [3] Common disorders observed are shoulder pain, neck pain, neck pain with radiating pain, upper back pain, low back ache, tendinopathies, repeated strain injuries and carpal tunnel syndrome. [4] Some of the common risk factors associated with musculoskeletal problems are repetitive movements, equipment handling, limited breaks, prolong awkward and static non ergonomic postures, muscular weakness and reduced flexibility. [5] It has been observed that dentists suffer from pain or injury in different areas of the body depending on the position attained while working and the kind of work. [6] Some of the common sites reported are back, neck and shoulder. [7] Constant exposure to risk factors and ignorance in starting stages can aggravate the level of

pain and its conversion to a disabling pain in no time [7] leading to end of career. [6]

"Ergonomics" is a term derived from Greek words 'Ergon' meaning work and 'Nomos' meaning law. It is the best adjustment between man and his work to improve human efficiency and well-being. [8] Awkward sitting and standing positions that dentists frequently acquire with rotation of spine leads to excessive tightening of some and weakening and straining of other tissues, generating high amount of static loads causing pain. [9] Some examples of such positions are sitting for longer durations in bent forward and rotated positions (excess forces occur on low back, leading to muscle strain, flattening of lumbar curve and painful trigger points), sitting with thighs parallel to floor while leaning causes the pelvis to roll backward and flatten the low back curve (increases disc pressure and muscle strain). [5, 6, 10] Further, restricted work area and impaired vision to access the inside of oral cavity puts them under stressful body positions during long hours of work thus putting them at a risk of developing neck and back problems. [11]

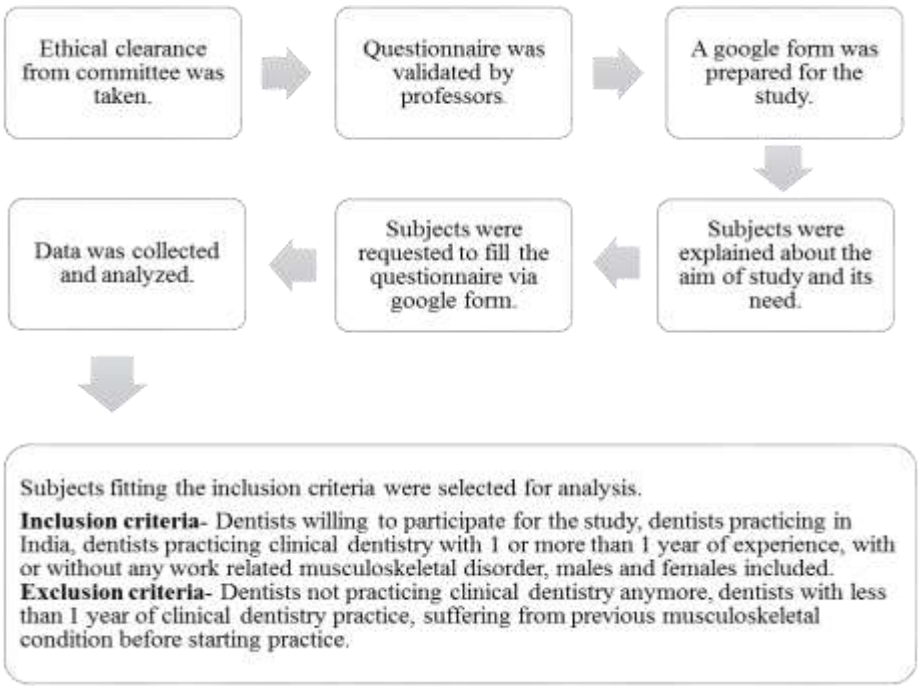
Good ergonomics and exercises plays a role in improving the productivity and prolonging the careers of practitioners. [4, 5] Exercises help prevent muscular imbalance, maintain joint range, relaxes muscle, maintain optimal correct posture, prevent fatigue of muscles and improve blood flow to the tissues. [12] Working on weak and tight structures with exercise improves the muscle's ability to tolerate the daily tasks better. [13] Studies show that dentists tend to be relatively inactive while only a few of them are indulged in some form of physical exercise and appreciate its benefits. [14] Good muscular strength and endurance, flexibility and cardiopulmonary functioning is required to carry out physical work efficiently. [15] The aim of this study was to check the awareness regarding the common musculoskeletal problems seen in dentists and the importance of exercises that might be beneficial in reducing and preventing work related disorders among Indian dentists.

MATERIALS AND METHODOLOGY

Materials:

Questionnaire, google form, laptop, mobile phone, internet, paper, pen.

Methodology:



STATISTICAL ANALYSIS

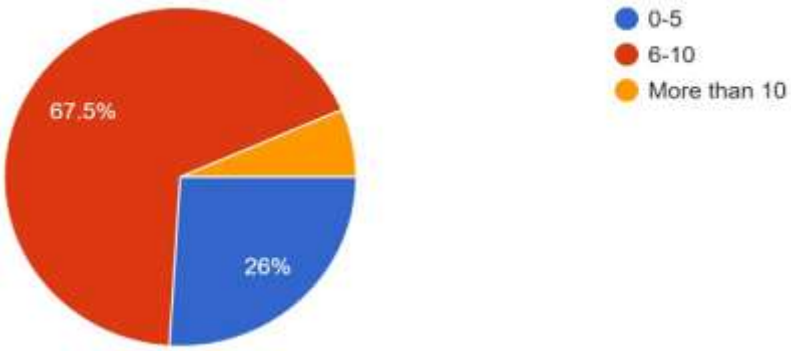
Data was entered in google form and analysis using the same.

RESULTS AND INTERPRETATION

A total of 160 responses were received. 154 responses were analyzed for the study according to inclusion. Out of these 154 responses, 111 were females and 43 were males aged 23 years to 51 years.

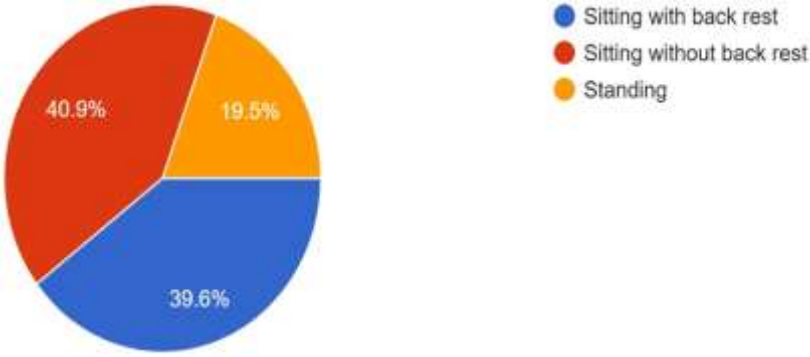
Among the study subjects, the number of practicing years ranged from 1 year to 27 years. 1 year- 3 years (51.94%), 4- 6 years (18.83%), 7- 9 years (11.68%), 10- 12 years (5.19%), 13- 15 years (2.59%), 16- 18 years (3.89%), 19-21 years (3.24%), 22- 24 years (1.29%), 25- 27 years (1.29%).

Figure 1: Hours of working in a day.



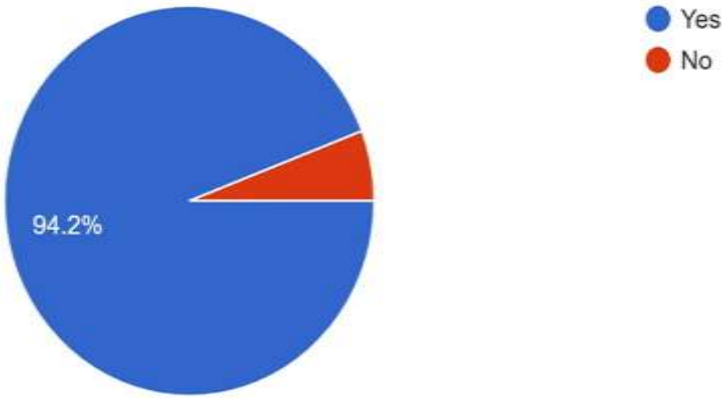
Inference: Among the study subjects, 67.5% dentists worked for 6-10 hours a day, 26% dentists worked for 0-5 hours a day, 6.5% worked for more than 10 hours a day.

Figure 2: Working posture most of the time.



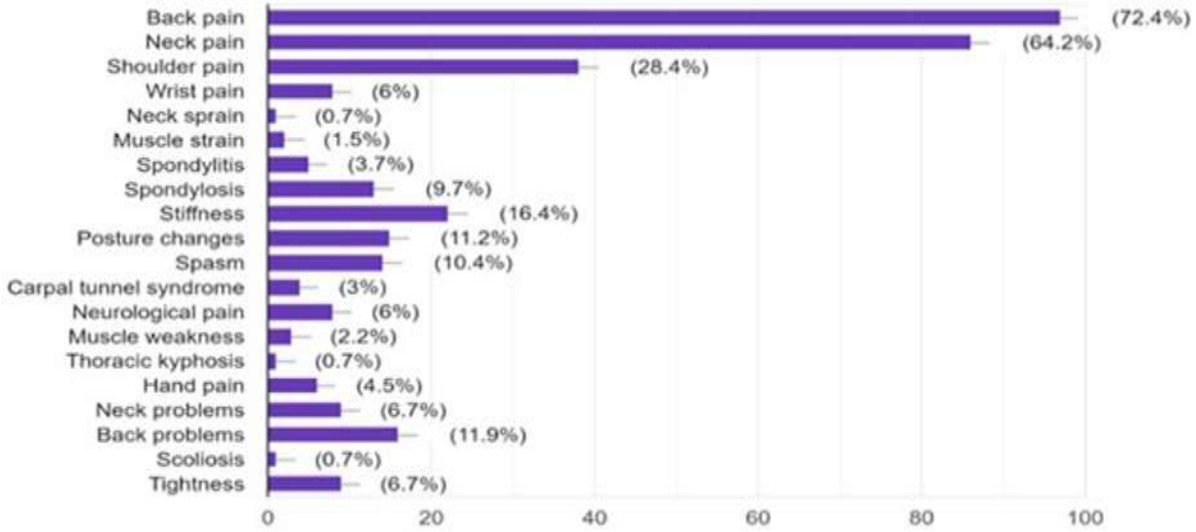
Inference: Among the study subjects, 40.9% dentists sat without back rest most of the time, 39.6% sat with back rest, 19.5% worked in standing position most of the time.

Figure 3: Are you aware about common musculoskeletal problems that dentists often suffer from?



Inference: Among the study subjects, 94.2% dentists were aware about the common musculoskeletal problems suffered by them and 5.8% dentists were not aware about the same.

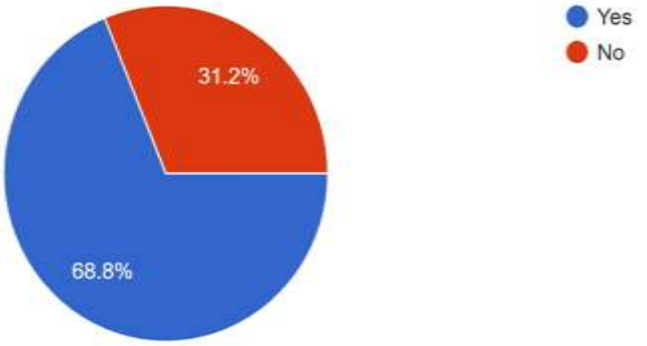
Figure 4: Mention the common musculoskeletal problems you know seen in dentists.



For this question, multiple answers could be given.

Inference: Among the 134 responses, most common problems pointed out by subjects were back pain (72.4%) and neck pain (64.2%) followed by shoulder pain (28.4%), stiffness (16.4%), back problems (11.9%), posture changes (11.2%), spasm (10.4%), spondylosis (9.7%), neck problems (6.7%), tightness (6.7%), neurological pain (6%), wrist pain (6%), hand pain (4.5%), spondylitis (3.7%), carpal tunnel syndrome (3%), muscle weakness (2.2%), muscle strain (1.5%), neck sprain (0.7%), scoliosis (0.7%), thoracic kyphosis (0.7%).

Figure 5: Did you start experiencing any discomfort after starting your dental practice?



Inference: Among the study subjects, 68.8% dentists started experiencing discomfort after starting dental practice whereas 31.2% did not complain of any discomfort.

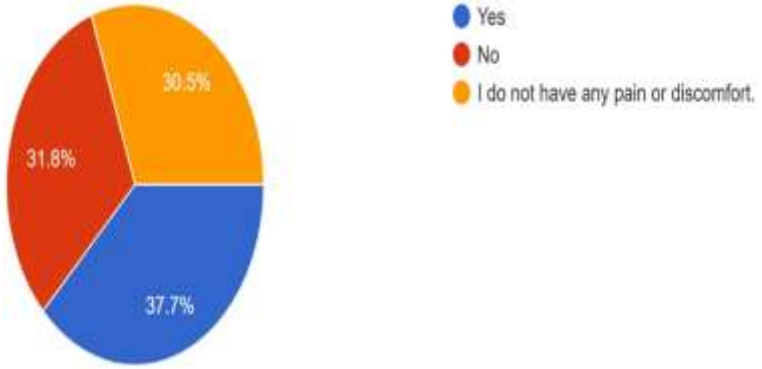
Among the study subjects, 35.1% dentists did not face any discomfort or pain while practicing, 27.9 % dentists started experiencing pain or discomfort after few years of practicing, 20.8 % after many years of practice and 16.2 % experienced pain or discomfort ever since they started practicing.

Table 1: Location and intensity of pain.

SITE	INTENSITY			
	NONE	MILD	MODERATE	SEVERE
Neck	51	64	38	1
Back	88	34	28	4
Hand	138	11	5	0
Others	138	14	2	0

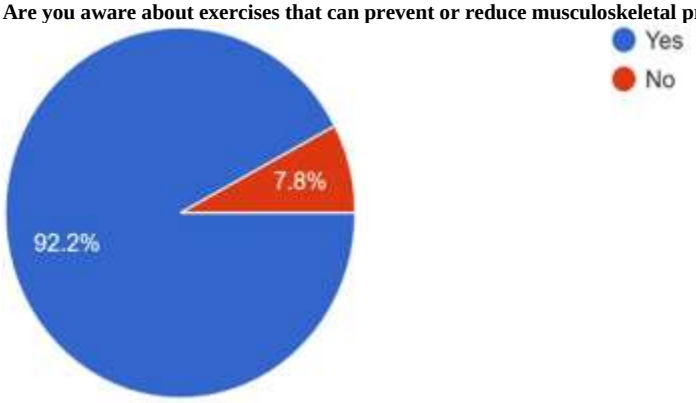
Inference: The most affected site was neck followed by back, hand and others.

Figure 6: Have you taken any measures for your discomfort or pain?



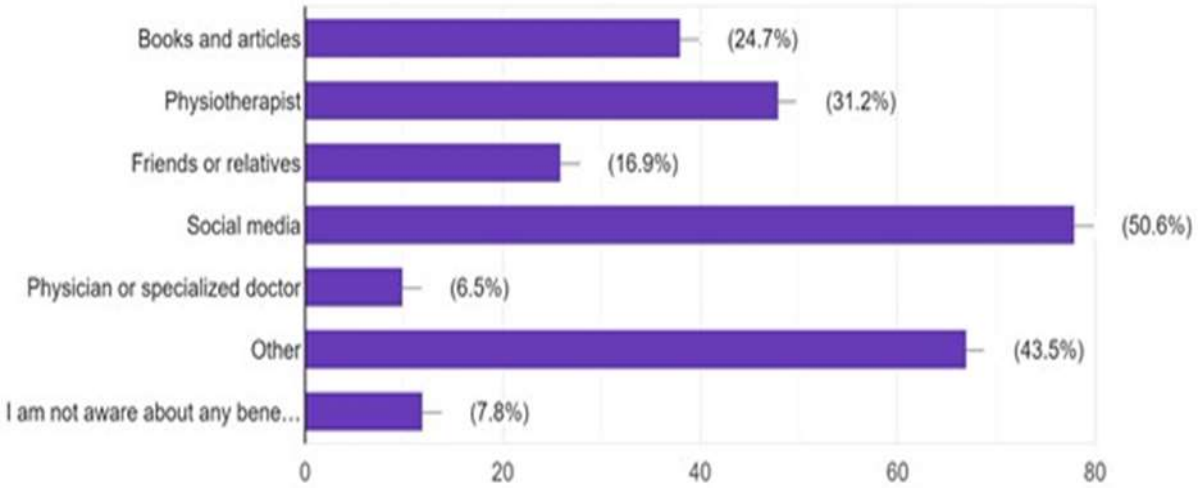
Inference: Among the study subjects, 37.7% dentists took measures for their discomfort or pain, 31.8% took no measures for their discomfort or pain and 30.5% had no pain or discomfort.

Figure 7: Are you aware about exercises that can prevent or reduce musculoskeletal problems?



Inference: Among the study subjects, 92.2% dentists were aware about exercises that could help prevent or reduce musculoskeletal problems whereas 7.8% were unaware of such exercises.

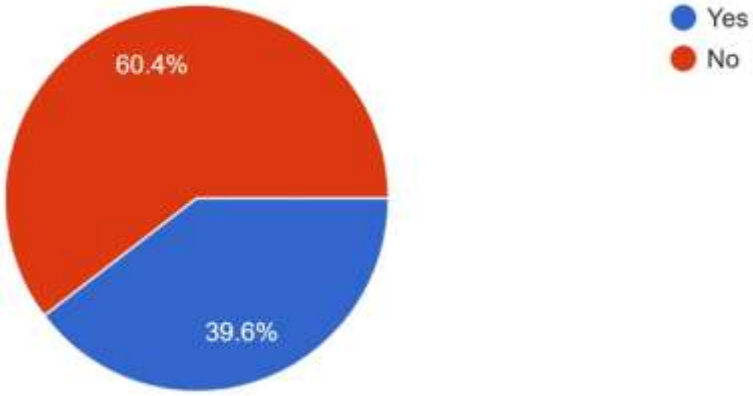
Figure 8: How did you get knowledge about these exercises?



For this question, multiple options could be selected.

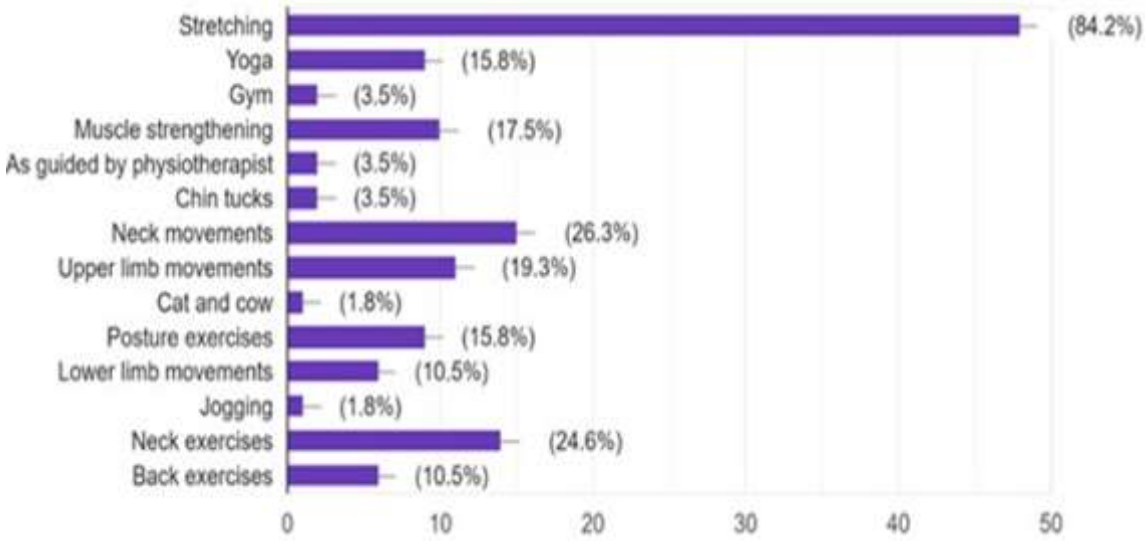
Inference: Among the study subjects, highest response given was for social media (50.6%), followed by others (43.5%), physiotherapists (31.2%), books and articles (24.7%), friends or relatives (16.9%), followed by not aware of beneficial exercises (7.8%) and physician or specialized doctor (6.5%).

Figure 9: Do you perform exercises that help reduce or prevent work related discomfort or pain?



Inference: Among the study subjects, 60.4% dentists did not perform any exercises and 39.6% dentists performed exercises that help reduce or prevent work related discomfort or pain.

Figure 10: What types of exercises do you perform?



For this question, multiple answers could be given.

Inference: Among the 57 responses received, stretching accounted for the highest percentage. Stretching (84.2%), neck movements (26.3%), neck exercises (24.6%), upper limb movements (19.3%), muscle strengthening (17.5%), posture exercises (15.8%), yoga (15.8%), back exercises (10.5%), lower limb movements (10.5%), as guided by physiotherapist (3.5%), chin tucks (3.5%), gym (3.5%), cat and cow (1.8%), jogging (1.8%).

DISCUSSION

A cross- sectional study was conducted in a period of 18 months to study the awareness of exercises amongst Indian dentists due to high risk of work related musculoskeletal disorders. The questionnaire was sampled by 160 dentists. Out of the 160 responses received, 154 responses were analyzed for the study according to inclusion. The aim of this study was to check the awareness regarding preventive and therapeutic exercises for work related musculoskeletal disorders among Indian dentists.

The present study showed that majority of the dentists worked between 6 to 10 hours a day. Among the subjects, majority of them worked in sitting position most of the time while some used standing most of the time. 62.3% of the total responses altered working positions. Studies showed similar result where 72% dentists worked in sitting position, 9% in standing and 19% [2] and 65.6% [16] in sitting and standing. Dental professionals tend to use poor postural positions that can accelerate wear and tear of vertebrae, discs, muscles and ligaments

thereby causing pain. This can be avoided by alternating between sitting and standing postures that will help reduce the load on one muscle group thereby giving rest to the overused muscle groups for a while. [12] In the present study, 77.9% dentists took frequent breaks between work. Among the study subjects, 57.1%, 16.9%, 15.16%, 10.4% dentists took one break, two breaks, did not take any break, took more than two breaks between work respectively. Frequent small intervals throughout the day along with other interventions helps dentists to work more efficiently and add years to career. [4]

This study showed that 94.2% dentists had knowledge of the common musculoskeletal disorders faced by them. Amongst many answers given such as spondylosis, back and neck pain, carpal tunnel syndrome, stiffness, etc.; back pain and neck pain had the highest weight. In this study, 68.8% of the dentists stated that they started experiencing pain or discomfort after starting dental practice. There are various articles showing high prevalence of musculoskeletal disorders felt by dentists after starting practice. [7, 16, 17, 18, 19] Working habits play a crucial role on health. A good pattern of working once inculcated in early years of practice can be maintained in the long run and prevent or reduce pain and other symptoms. [20] So, ergonomic education should be included as a part of dental education system so as to inculcate a healthy practice earlier in the profession. [21]

Among the study subjects, 52.6% did not take any medication even though they had pain or discomfort, 35.1% did not face any discomfort or pain, 9.7% did take medication in the past and 2.6% of dentists were currently on medication. The reason for not taking medication by many could be that intensity of pain might be tolerable or frequency of pain occurring may be less or they might be ignorant to some amount of regular work related pain. The present study reveals most common site affected is neck followed by back, etc. Some studies showed neck as the most commonly affected region [16, 22] whereas some studies observed back to be the common site. [7, 17] Among the study subjects, 59.1% dentists complained their pain was intermittent whereas 6.5 % dentists had continuous pain and 34.4% dentists had no pain while practicing. 46.1% dentists felt pain or discomfort while working with the patient and 20.8% felt pain even at rest. 3.9% of the study subjects complained of sleep being affected due to problem. Four handed dentistry, magnification, saddle seat chair, are some of the ways to a better practice and thus good health. [4, 5] They help maintain right posture and reduce the stress placed on the body structures.

The present study observed that 37.7% dentists of all subjects who took measures for their problem, 36.4% found it beneficial and 31.2% took no measures. The reason for only some dentists taking measures for their problem could be busy schedule and long working hours, lack of motivation, lack of awareness of beneficial exercises. Amongst all the participating subjects; 14.9% had taken physiotherapy treatment in the past for their problem due to work, 3.9% were taking one presently and found it beneficial. Physical therapy helps in treating the pain as well as targets on strengthening of weak muscles and improving posture. 79.2% dentists did not indulge whereas 20.8% were involved in sports or recreational activities. A study reported that only 10.07% subjects were involved in physical activity. [19] Regular exercises or practicing any kind of sports activity has been found to effectively prevent as well as relieve dental work related pain. [16]

Among the dentists who participated in this study, 92.2% were aware of the exercises that help prevent or reduce musculoskeletal problems but only 39.6% performed exercises for the same and found them beneficial. Out of these 39.6%; 31.1%, 26.2% and 14.8% exercised twice, thrice and once a week respectively, 14.8% daily and 13.1% performed exercises more than three days a week. 64.6% of respondents took treatment for their problem as reported

in a study. [17] In the present article, the most practiced exercise seen was stretching. Studies showed respondents took following measures for their problem- exercise 34%, drug treatment 17%, physiotherapy 12%, [2] correct posture, muscle relaxing exercise, medication, rest for a day, etc. [7] Stretching and strengthening of specific muscles can be beneficial and aerobic exercises help reduce stress and improve overall health. [13] The limitations of this study were the small sample size, range of years of practice which may affect results, subjectivity in understanding questions and in responses.

As musculoskeletal disorders are common amongst dentists and can hamper their practice and have a negative effect on health, measures should be taken to prevent and reduce these disorders for the well-being of the professionals.

CONCLUSION

The study concludes that dentists may be aware of the risks and common musculoskeletal problems the profession has to offer. In spite the knowledge of the problems occurring commonly and high prevalence of musculoskeletal disorders due to work, correct measures are not taken by many. Knowledge and practice of specific exercises that prove beneficial in preventing and reducing the work related musculoskeletal disorders may be less.

Declaration by Authors

Ethical Approval: Approved

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Conflict of Interest: The authors declare no conflict of interest.

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