

Prevalence of musculoskeletal disorder and alternative medicine therapies among dentists of North India: A descriptive study

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ABSTRACT

Aim: Health professionals especially the dental professional are the frequent targets of musculoskeletal disorders (MSD). Complementary and alternative medicine (CAM) can be of some help in managing these MSD especially in. The purpose of this study was to determine the prevalence of CAM therapies as a treatment modality for MSD management among dental professionals of north India. **Materials and Methods:** Registered dentist of North Indian origin, India ($n = 3598$) were included in the study. The questionnaire was sent to all the dentists which consisted of the demographic profile, MSD in the past year, CAM therapies utilization and opinion about CAM therapies. Data analysis was done using SPSS version 21 and data were presented in tabular and graphic form. Test of significance was done using chi-square statistics with $P < 0.05$ considered as significant. **Results:** A response rate of 80% ($n = 2879$) was obtained, and all complained of MDS in some or the other part of their life. The use of CAM was reported among 70% ($n = 2015$) of the dentist who suffered from MSD. Other dentists either used conventional treatment or did not use anything. **Conclusion:** As the name implies, alternative medical systems is a category that extends beyond a single modality and refers to an entire system of theory and practice that developed separately from conventional medicine. CAM should be subject to rigorous scientific inquiry so that interventions that work are systematically distinguished from those that do not. In addition, the use of CAM treatments should be based on evidence of effectiveness and safety as demonstrated in randomized clinical trials.

Key words: Acupuncture, massage, dentist, musculoskeletal disorders

INTRODUCTION

Complementary and alternative medicine (CAM) represent a group of diverse medical and health care systems, practices, and products that are not considered to be part of conventional medicine. Biofeedback, acupuncture, herbal medication, massage, bio-electromagnetic therapy, meditation, and music therapy etc., are some examples of CAM treatments.

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According to the World Health Organization (WHO), health is a state of physical, mental, and social well-being. Given a continuous social interaction between health care providers and their patients, healthy practitioners are particularly important for a successful dental practice and the well-being of patients. The social interaction of a dentist is influenced by the unique work setting and by personal characteristics. There is increasing evidence that unique working conditions in dentistry can significantly affect the health of dentists. A study conducted in US stated that women who sit more than 6 h each day have approximately a 40% higher death rate and men a 20% higher death rate than those who sit less than 3 h a day.^[1] This comes as bad news for dental professional, who usually sit in excess of 6 h during an average 8-h day. With the

advent of the industrial revolution, the number of sedentary jobs has increased, as have the number of musculoskeletal disorders (MSD). Prevalence of low-back pain has increased by 10 folds in 20 decades and nearly one-third of dentists are forced to retire early due to a disability. Many studies on dental professionals report that an average of three out of five dentists experience musculoskeletal pain.^[2,3]

Many occupational health problems are still prevalent in modern dentistry despite advances in Dentistry. MSD have been identified as a significant occupational health issue in the dental profession.^[4] Dentists tend to assume same static postures for the whole day during work. Fixed or constrained body positions, continual repetition of movements and forced concentrated on small parts of the body, such as the hand or wrist. The prevalence of MSD has been reported to be between 60% and 90% for dental practitioners.^[2,3] Lower back and neck are the most prevalent regions for pain in dentists.^[3] Symptoms of MSDs include decreased strength, pain, swelling, and inflammation. Pain is the most common symptom associated with MSDs. It may be accompanied with joint stiffness, muscle tightness, redness, and swelling of the affected area.^[5]

Since the introduction of seated (four-handed) dentistry, dentists work for longer hours without taking a break, and they perform longer procedures. Consider that when you sit in a static operating posture without leaning on your chair's backrest, more than 50% of your body's muscles must contract to hold the body motionless while resisting gravity. The static forces resulting from these prolonged static postures (PSPs) are much more taxing on the body than dynamic (moving) forces.

Many studies have reported CAM therapies, to be effective in managing chronic musculoskeletal pain and other discomfort for the general population.^[6-8] CAM is the term for medical products and practices that are not part of standard care examples include - Traditional Chinese Medicine, Ayurveda, Aromatherapy, Homeopathic medicine, Naturopathic medicine, Herbal medicines, Unani, essential oils, Yoga, meditation etc. Standard care is what medical doctors, doctors of osteopathy, and allied health professionals, such as nurses and physical therapists, practice.

The current research was conducted to learn about the prevalence of MSD in the dentist of North India origin and the utilization of CAM as a treatment modality among them. There is a scarcity of report that links the use of CAM therapies for the management of MSDs among the dentist of Northern India. This study was conducted in Northern India with the aim to determine the experience of MSD among dentist of North India

and use of CAM therapies in the management of MSDs by them.

MATERIALS AND METHODS

This project was approved by the Teerthanker Mahaveer University, Human Research and Ethics Committee (27/10c/14). All registered dentist (under Dental Council of India) in North India were contacted via a single mail-out using State/Territory Dental Board listings in 2014. Subjects were mailed the link to complete web-based questionnaire. One-week later, individuals were sent a second email that directed them to a website to complete the questionnaire.

All the registered dentists residing in North India, who are current members of the Indian dental association and registered under Dental council of India with email addresses were included in the study ($n = 3598$). Dental students, members of the general public, dental hygienists, dental assistants, and others who are not registered dentist were excluded.

The questionnaire consisted of 11 domains: Demographic profile of the dentist, location of musculoskeletal pain, opinions and effectiveness about CAM, since when you started CAM, Source of CAM information, type of CAM therapy used, health status after using CAM, vitality, increase in working hours and content feeling with CAM. Respondents were asked to provide information regarding social habits, qualifications and education, work habits and musculoskeletal symptoms. With the aid of a diagram, the body was divided into 11 identifiable regions, and for each region respondents were asked whether they had experienced any MSD in the previous 12-month period and whether the pain had lasted more than 2 days, affected their daily life or required medical attention. Consent was implied by the return of a completed anonymous survey.

Data analysis

Statistical analyses were conducted using SPSS 21 and data were presented in tabular form. Statistical analyses were performed to determine demographic information; frequently reported locations of pain, number of respondents that used CAM, types of CAM. Chi-square analysis was used to investigate the relationship between having musculoskeletal pain and using CAM therapies. $P < 0.05$ was considered as significant.

RESULTS

A total of 3598 surveys were sent electronically to with a response rate of 80% ($n = 2879$) was

obtained. The nonrespondents were assumed to be similar to the respondents.

All the respondents (80%) agreed to suffer from MSDs. So the prevalence of MSD was 80%. Findings of the demographic status of the dentist [Table 1] showed that a majority of the study population was male (70%) and manages their own private practice (79%). A total of 80% ($n = 2879$) reported having musculoskeletal disorder. Neck, lower back, and wrist were the most common sites followed by upper back, elbow/arm, hips, knee, and legs.

Most of the dentists who used CAM used massage and yogic exercise followed by herbal supplements, Ayurveda, Reiki, Homeopathy, Unani, Chiropractic for the management of MSDs. Among the total respondents 70% ($n = 2275$) dentist exclusively used CAM therapies and the remaining used other modes of therapies or did not use any. Dentist's degree of pain decreased significantly after using CAM therapies. Dental personnel experiencing musculoskeletal pain had 10 times more agreement that CAM therapies were remarkably good for MSD management (odds ratio [OR] = 10.7, 95% confidence interval [CI] = 7.7–12.9) than those with no pain, and 8 times favored and liked CAM therapies for MSD management (OR = 7.3, 95% CI = 6.4–10.7) over other therapy. Dentist who believed in CAM therapies had higher odds of agreeing that it uplifted their health status (OR = 5.89, 95% CI = 2.10–7.99), working hours improved (OR = 5.31, 95% CI = 2.1–8.2), improved relation with other colleagues and family member (OR = 3.27, 95% CI = 1.2–6.7) when compared to users of other therapies exclusively. Source of CAM information

for 70% of the dentist was friends or relatives, remaining dentist got the information from internet, newspaper, magazines, books, or social media. All the participated dentist agreed to spread the CAM information to the peer group on one on one basis.

DISCUSSION

Complementary therapy is known by different terms including alternative therapy, alternative medicine, holistic therapy, and traditional medicine and used to treat or prevent illness and promote wellbeing.^[9] Therapies include acupuncture, Alexander technique, Aromatherapy, Chiropractic, Herbal medicine, Homeopathy, Naturopathy, Manipulative and Body based Methods, Nutritional Therapeutics, Yoga etc. Manipulative and body-based methods in CAM are based on manipulation and/or movement of one or more parts of the body. It includes Chiropractic, Therapeutic massage, Osteopathy, Reflexology. Mind-body medicine uses a variety of techniques designed to enhance the mind's capacity to affect bodily function and symptom. It includes Meditation, Hypnosis, Art therapy, Biofeedback, Imagery, Relaxation therapy, Support groups, Music therapy, Cognitive-behavioral therapy and Aromatherapy. Nutritional therapeutics are an assortment of nutrients and non-nutrients, bioactive food components used as chemo-preventive agents, and specific foods or diets used as cancer prevention or treatment strategies. However, the increasing use of complementary therapies has begun to trigger scientific research and some complementary therapies now have some scientific evidence about their safety and effectiveness, as well as a history of traditional use.

Complementary and alternative medicine therapies have worked against MSDs since decades.^[10]

In severe cases, MSD results in frequent absences from work and finally to early retirement.^[1,11] MSD are a diverse group of disorders with regard to pathophysiology. According to WHO, the burden of MSD can be assessed in terms of problems associated with them, that is the pain and impaired functioning (disability) related to the musculoskeletal system or in relation to the cause such as joint disease or trauma.^[12,19]

Dentists are predisposed to pain or injury in different regions of the body depending on the type of work and the position adopted.^[13] MSD affects the physical, psychological, and social aspects of practitioners. This in turn impacts on their productivity and ultimately reducing the quality-of-life of the practitioners. Risk factors for MSDs include repetitive movements, suboptimal lighting, PSP, mental stress, physical conditioning, poor positioning, genetic predisposition, and age. Many researchers found that the dentist's work posture is an important reason for the development of work-related disorders.^[2,3,14] There is a high prevalence of MSDs in dentists

Table 1: Demographic characteristics of the dentists

Variable ($n=2879$)	n (%)
Age	
25-30	516 (17.9)
31-50	1068 (37.1)
>50	1295 (45)
Gender	
Male	2021 (70.2)
Female	858 (29.8)
Education	
Bachelor's	1929 (67)
Master's	662 (23)
Diploma	288 (10)
Year degree earned	
Before 1980	604 (21)
1981-2010	1264 (43.9)
2010-2014	1011 (35.1)
Practice type	
General/private practice	2246 (78)
Other	633 (22)
General health	
Excellent/good	2332 (81)
Fair/poor	547 (19)

worldwide.^[15] Yogic exercises, massage, meditation, and herbal supplements were the most favored CAM therapies among participants in the current study. The use of CAM therapy for the MSD is reported to be 70% in the present study whereas study from Uttar Pradesh,^[2] Uttarakhand^[3] and West India^[14] reported a different proportion of dentist using CAM therapies. All the previous studies conducted in different parts of India^[2,3,14] (which were the part of this nationwide project) along with the present one have found that CAM users are more satisfied than non-CAM users as far as relief from musculoskeletal pain is concerned.

The prevalence of MSD among dentist differs from region to region. Indian studies from Uttar Pradesh^[2] reported 82%, 90% (Uttarakhand),^[3] 79% (West India)^[14] dentist suffering from MSD whereas present study reports 80% of dentist suffer from MSD. Studies done outside India also reported different prevalence of MSDs. Prevalence of MSDs in dentist in Saudi Arabia (59.2%)^[16] was lower than reports from Australia (87.2%)^[17] and Turkey (94%)^[18]

In the present study, the commonly affected areas were neck (52.1%), low back (41.1%), and shoulders (28.8%). This pattern of distribution was similar to studies from Queensland^[15] and New Zealand.^[20] These results indicate that most of the practitioners adopt positions which frequently result in MSD of the neck and low back regions. However, Szymanska^[20] and Puriene *et al.*^[21] in their series have reported MSD of low back to be the most prevalent musculoskeletal complaint. The difference may be because of the level of ergonomic awareness or use of preventive measures. Use of CAM therapies is in rise in the general population for any ailment.^[22-36]

National health professional organizations have issued guidelines for treating several chronic pain conditions. Some mention ways in which certain complementary health approaches can be incorporated into treatment plans. For example, the guideline for treating back pain issued by the American College of Physicians and the American Pain Society states that nondrug approaches should be considered in patients who do not improve with self-care. Some of the suggested nondrug approaches, such as exercise therapy and cognitive-behavioral therapy, are conventional; others, including acupuncture, massage therapy, spinal manipulation, and progressive relaxation, are complementary.

Recommendations

- Do not use an unproven product or practice to replace conventional care or to postpone seeing a health care provider about chronic pain or any other health problem
- Learn about the product or practice you are considering, especially the scientific evidence on its safety and whether it works

- Talk with the health care providers you see for chronic pain. Tell them about the product or practice you are considering and ask any questions you may have. They may be able to advise you on its safety, use, and likely effectiveness.

If you are considering a practitioner-provided complementary health practice such as spinal manipulation, massage, or acupuncture, ask a trusted source (such as your health care provider or a nearby hospital) to recommend a practitioner. Find out about the training and experience of any practitioner you are considering. Ask whether the practitioner has experience working with your pain condition.

CONCLUSION

Overall, our study suggests that MSD are a reasonably common problem among North Indian dentist, with many reporting that it affects their daily life and requires special attention. Further research is required to further elucidate the epidemiology of this occupational issue, including identifying key risk factors and their impact on employment so that appropriately targeted interventions may be instigated. A thorough understanding of the underlying physiological mechanisms leading to these problems is necessary to develop and implement a comprehensive approach to minimize the risks of a work-related injury. Dentist should be trained in alternative therapies apart from conventional therapies to so that they can do justice to themselves and in turn to the society.

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