

ORIGINAL ARTICLE**USE OF COMPLEMENTARY AND ALTERNATIVE MEDICINE FOR WORK RELATED MUSCULOSKELETAL DISORDERS ASSOCIATED WITH JOB CONTENTMENT IN DENTAL PROFESSIONALS: INDIAN OUTLOOK**

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ABSTRACT

Background: High prevalence rates of work-related musculoskeletal disorders (WRMSD) among dentists have been reported. Complementary and alternative medicine (CAM) therapies can be helpful in managing and preventing work-related musculoskeletal disorders. The purpose of this study was to determine if dental professionals are using CAM for work-related musculoskeletal disorders. Who have greater job satisfaction: dentist who uses Complementary and alternative medicine (CAM) or conventional therapy (CT) as a treatment modality for WRMSD

METHOD: Dentists who registered in Uttar Pradesh state, India under Indian Dental Council, Uttar Pradesh branch (n=1134) were surveyed. Data were analyzed using univariate and bivariate analyses and logistic regression.

RESULT: A response rate of 53% (n=601) was obtained, revealing that 82% (n=487) of the respondents suffered from work-related musculoskeletal disorders. The use of complementary and alternative medicine or conventional therapy was reported among 80% (n=390) of the dentists with work-related musculoskeletal disorders. Complementary and alternative medicine users reported greater overall health compared to conventional therapy users (P<0.001). Of those with work-related musculoskeletal disorders, 35.5% (n=172) considered a career change for once, and 4.0% (n=19) reported having left dentistry.

CONCLUSION: Complementary and alternative medicine therapies may improve quality of life, reduce work disruptions and enhance job satisfaction for dentists who suffer from work-related musculoskeletal disorders. It is important that dentists incorporate complementary and alternative medicine strategies into practice to facilitate musculoskeletal health that will enable longer and healthier careers, increase productivity, provide safer workplace and prevent musculoskeletal disorders.

KEYWORDS: CAM, dentist, musculoskeletal disorders

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INTRODUCTION

Work-related musculoskeletal disorders (WRMSD) are problems of the musculoskeletal system that significantly cause workplace problems affecting occupational health, results in a very inflexible work posture (2). Because there is no room for error, a steady hand and a steady, awkward posture must be assumed and maintained. However, maintaining the steady hand and posture come at the cost of the back, neck and shoulder area of the dentist. Studies have shown that dentists have a high frequency of musculoskeletal disorders since decades (3, 4, 5). A recent review of the literature examined the prevalence and risk factors of MSD in dentists suggested that the prevalence of general musculoskeletal pain among dental professionals ranges between 64% and 93% (6). Physical burden on dentist particularly awkward or sustained postures, repetitive movements, static and dynamic loads or force exertions, hand-arm vibration, local tissue compression, excessive amounts of work, long shifts, inadequate rest breaks, long weeks schedule, inadequate workplace support, time pressures, patient responsibilities, excessive emotional demands of the work, fatigue (varying types) and psychological stress appears to place them at a potentially higher risk of WRMSD (7,8,9). The above factors, whether singly or in combination, can result in hazardous personal states such as high levels of fatigue (of varying types) and/or of psychological stress, which entail physiological responses that directly increase injury risk; these states can also induce behavioral changes which increase risk. In addition, hazardous task and job demands, particularly their physical components, can directly increase the risk of acute-onset WRMSDs. Basic operating posture is considered an important occupational health issue for oral health care clinicians. It is generally agreed that the physical posture of the operator, while providing care, should be such that all muscles are in a relaxed, well-balanced and neutral position. Postures outside of this neutral position are likely to cause musculoskeletal discomfort (10). WRMSDs are unavoidable part of the oral health care providers' professional lives (11). Dental professionals have reported work stress and burn-out caused by musculoskeletal disorders, long

productivity, and career of the working population (1). Like all other professionals, dentists are exposed to occupational health hazards which predispose them to a multitude of health problems. The work area (the mouth of the patient) is narrow, and performance of dental treatment working hours and working without an assistant. Some have chosen to leave the profession because of their musculoskeletal pain (12, 13).

Job satisfaction is how content an individual is with his or her job. Thus, job satisfaction of individuals reflects the degree of pleasure or happiness their job in general induces. It can be influenced by a multitude of factors. The term job satisfaction was brought to limelight by Hoppock (1935). Hoppock describes job satisfaction as "any combination of psychological, physiological and environmental circumstances that cause and person truthfully to say I am satisfied with my job". It has been reported that changes in the work environment may increase the career longevity of dentist. Many studies have reported complementary and alternative medicine (CAM) therapies, including yoga, massage and acupuncture are effective in managing chronic musculoskeletal pain for the general population (14, 15, 16, 17, 18). Currently, literature is devoid of any link that connects musculoskeletal pain, CAM and job satisfaction among dentists residing in Uttar Pradesh, India.

Since a large number of dentists all over the world report WRMSD, this study was conducted in Uttar Pradesh, India with the aim to determine if dentist are using CAM therapies to manage their WRMSD and, if so, to determine if CAM therapies are associated with their job satisfaction compared with those of conventional therapy users.

METHODS AND MATERIALS

This cross-sectional study used a survey design with approval by the Teerthankar Mahaveer University (TMU) Biomedical Institutional Review Board. The research meets the standards of the Declaration of Helsinki in its revised version of 1975 and its amendments of 1983, 1989 and 1996. Registered dentists under Uttar Pradesh State Dental Council who are current members of Indian Dental Association (IDA) were recruited to complete an 18 items questionnaire

entitled “Does Use of Complementary and Alternative Medicine (CAM) Therapy for Management of Work-related musculoskeletal Disorder Pain Improve Dentists’ Job Satisfaction?”

The questionnaire was developed based on a review of the current literature and consultation with CAM experts. A pilot study was conducted on dentists working in Teerthanker Mahaveer Dental College and Research Centre. Following these pilot tests, further modifications to the questionnaire were made, which included changes in how questions were phrased, the addition and removal of questions and the configuration of the questionnaire from paper into web-based questionnaire software. The final questionnaire was approved by the Institutional Review Board prior to administration. All dentists who are current members of the Indian Dental Association Uttar Pradesh State Branch, India, and registered under Dental Council of India Uttar Pradesh State were recruited to participate. Subjects were provided with the link to so that they completed the web-based questionnaire.

Dentists who participated in the pilot study, dental students, members of the general public, dental hygienists, dental assistants and others who were not registered dentists were excluded.

Statistical analyses were conducted using SPSS 17. Univariate and bivariate analyses were performed to determine demographic information, locations of musculoskeletal pain, number of CAM or conventional therapy users, types of CAM or conventional therapies most frequently used and work disruption caused by WRMSD. Job satisfaction was assessed using dependent sample t-tests, which were also used to determine career longevity between respondents who used CAM or conventional therapies. Besides, independent sample t-tests were used to determine the respondents’ opinions about CAM and conventional therapies for WRMSD management. Odd ratio was used to investigate the association between having WRMSD and using CAM therapies. To control for multiple comparisons, a Bonferroni correction was used to investigate the opinions of dental hygienists about CAM therapies.

RESULTS

A total of 1,134 surveys were sent electronically and a response rate of 52.99% (n=601) was achieved. This rate is considered adequate according to Diem (2002) for such surveys. The non-respondents were assumed to be similar with the respondents based on the notion that the group under study was a somewhat homogeneous group.

Demographics: The findings showed that the majority of the study participants were males (70.7%) and worked primarily in general dental offices (75.5%). A total of 82% (n=487) respondents reported having WRMSD. The mean duration of pain was 6.1 years (median= 3.5). Other demographic characteristics of respondents are shown in Table 1.

Table 1: Demographics

Variable (n=601)	N	Percent
Age of respondents		
22-30	90	14.9
31-45	163	27.12
46-55	170	28.28
>56	178	29.6
Gender variation		
Male	425	70.7
Female	176	29.2
Education variation		
Bachelor’s	512	85.19
Master’s	89	14.8
Year Degree Earned		
Before 1980	98	16.3
1980–1999	278	46.25
2000–2013	225	37.43
Years working in Dentistry		
<1	20	3.3
1–5	125	20.7
6–10	70	11.6
11–20	104	17.3
>20	282	46.9
General Health		
Excellent/Good	584	97.1
Fair/Poor	17	2.8

Reported location of pain: Figure 1 shows the most frequently reported locations of pain among dentists. Neck and shoulder were the most common sites, but hip and leg the least common.

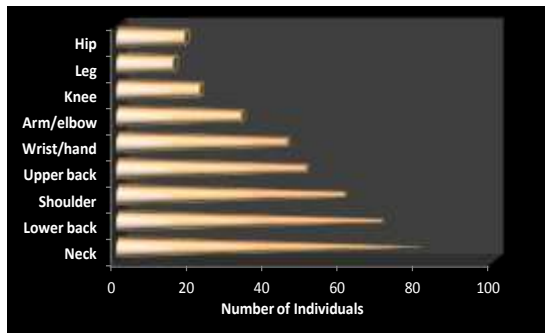


Fig 1: Frequency of reported pain by location (n=487)

Effect on work schedule and career: Figure 2 shows job disruption among dentists as a result of WRMSD. Individuals who used CAM therapies alone, compared with individuals who used both CAM and conventional therapies, had 5 times lower odds of temporarily quitting work for longer than 1 month (OR=4.7, 95% CI =1.3 to 20.8).



Fig 2: Work and Career disruption among respondents due to WRMSD

CAM use to manage WRMSD: Figure 3 shows reported CAM use among dentists. Respondents most frequently reported using both CAM and conventional therapies to manage work-related MSD (76% n=370). Of the 487 individuals who reported work-related pain, 17% (n=83) used CAM therapies alone, 5% (n=24) used conventional therapies alone, and 2.14% (n=10) did not use any therapies at all.

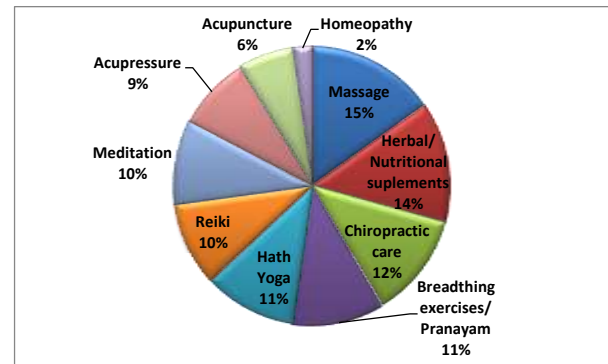


Fig 3: Types of CAM therapies used by respondents in past year (n=487)

Opinions about CAM for WRMSD: Dentists' WRMSD symptoms improved significantly when they used CAM therapies versus conventional therapies ($t(378) = 3.25, p = 0.003$). When dentists who reported work-related pain were asked for their opinions about using CAM for WRMSD management, they were 2 times more likely to agree that CAM therapies were acceptable for WRMSD management (OR=3.3, 95% CI=1.2 to 4.8). Dentist were 2 times more likely to use CAM therapies for WRMSD management compared to conventional therapy (OR=2.4, 95% CI=1.4 to 3.7).

CAM use for WRMSD and reported job satisfaction: Table 2 shows responses about CAM therapies and conventional therapies in relation to their effect on job satisfaction. Individuals who used CAM therapies alone were satisfied with their job as a dentists when compared to users of conventional therapies (OR=2.2, 95% CI=1.5 to 4.1).

Effects of age, gender, race, type of Degree, self-reported health status, and number of years practicing the use of CAM to manage WRMSD: Older individuals were found more likely to use CAM compared to younger individuals (OR=1.06, 95% CI=1.006 to 1.088). Rare CAM users reported poorer health status compared to CAM users (OR=1.5, 95% CI=1.1 to 2.4).

Table 2: Association between Conventional Therapy and CAM Use on Job Satisfaction

Career Variables	CAM vs. Conventional Mean Difference [#]	t(df)
Career Satisfaction	0.88	7.81(334)*
Impact on Career longevity	0.55	7.23(337)*
Health condition	0.61	9.12(335)*
Working efficiency	0.33	5.67(338)*
Job satisfaction	0.78	7.25(336)*

*Indicates $p < 0.001$

**Respondents from both groups were averaged and the difference between means was compared

A Likert scale ranging from 1=strongly agree and 5=strongly disagree was used. The mean difference is between respondents who used CAM therapies compared to conventional therapies. Values indicate stronger agreement for those who used CAM therapies vs. conventional therapies.

Sources of information about CAM:

Respondents were asked to note where they had learnt about the CAM therapy they used/were using. Friends were the most common source of information (57%), followed by family (30.1%) and the media (27.4%). Other sources of information included the patient's physician (19.1%), CAM practitioners (12.9%), the internet (9.3%), their nurses (3%), religious groups (2.4%), personal knowledge (1.8%) and others who used CAM (1.5%).

The types of herbs or nutritional supplement used by participants were also assessed. We asked participants to write down the names of herbs/remedies used. Herbs and other nutritional supplements used included green tea, essiac tincture, Chinese herbs, sage tablets, *Echinacea montana*, *Cimicifuga racemose*, *Cinnamomum camphora*, chamomile, peppermint, *Cinnamomum*, yeast extract, multivitamins, *Syzygium aromaticum*, *Angelica sinensis*, Snakeroot, *Zingiber Officinale*, Gamma linolenic acid, *Ginkgo biloba*, Ginseng, *Piper methysticum*, *Ephedra distachya*, *Brassica*, Oil of wintergreen, St. John's Wort, *Salix alba*, dry thyme, nettle tea, nettle or nettle seeds mixed with honey, ginseng, *Ginkgo biloba*, minerals (i.e. Zn, Ca, Mg), *Aloe vera* (orally and externally used), papaya tea, beet and carrot juice, paste from olive leaves, a mixture of aloe-honey-rhaki and wine, and angelica herb.

DISCUSSION

The use of CAM has increased steadily over the past 15 years or so, and undoubtedly it has gained medical, economic and sociological importance (20). There are many different types of CAM therapies, including whole medical systems (homeopathic and naturopathic medicine), mind-body medicine (meditation, prayer and mental healing), biologically based practices (dietary supplements and herbal products), manipulative and body-based medicine (chiropractic care and massage) and energy medicine (Reiki and therapeutic touch). The term 'musculoskeletal disorders' is used to describe a wide range of injuries of tendons, ligaments, nerves and supporting structures. It is troubling that MSDs have been shown to appear after only a few years of clinical practice, or even during undergraduate training (21). MSD can also result in lost work time, with a reduction in work days or hours often used as a coping mechanism for this occupational health issue (22, 23). Longitudinal studies have revealed that the risk of developing MSD over a period of time is higher for dental personnel than other professions (24). CAM therapies have been shown to be effective for reducing the risk of and managing chronic musculoskeletal pain in the general population (14, 15, 16). Recent researches have emphasized the use of CAM therapies in daily life (26, 27, 28, 29, 30, 31). In our study, individuals who used CAM therapies alone were less likely to report temporarily quitting work for longer than 1 month. Therefore, dentists who use CAM therapies may reduce work interruptions caused by musculoskeletal pain. The findings of the present study indicated that dentists who do not suffer from musculoskeletal pain experience higher job satisfaction than those who suffer from WRMSD ($p=0.001$). Respondents who used CAM therapies alone were more likely to be satisfied with their job compared to those who used conventional therapies alone. Therefore, dentists who use CAM therapies for the prevention and management of WRMSD may experience higher job satisfaction and longevity than those who use conventional therapies. The most favored CAM therapies among participants of this study were massage, herbal supplements and chiropractic care. To date, no studies have examined the use of CAM for WRMSD among dentists (a population

at increased risk for work-related musculoskeletal pain) and its association with job satisfaction, so the findings of this study could not be compared with other such studies. Similar with other studies, our study reported maximum WRMSD in the neck and shoulder regions. In one study, 52% of primary care patients reported current or prior use of CAM therapies for pain management (25). The majority of the dentists in our study (76% reported using both CAM and conventional therapies in a complementary fashion for the treatment of WRMSD. Dentists with work-related pain who used CAM therapies reported that they are happy in their jobs when compared to conventional therapy users. Respondents seem to be satisfied with the use of CAM. A wide range of reasons contribute to the use of CAM, and perhaps the concept of 'hope' is fundamental in each one of these reasons. Hence, from a professional point of view, health-care staff needs to be aware of such use of CAM and to be able to educate patients appropriately. This will probably necessitate the rethinking of the provision of medical and health-care education, broaden our understanding of the concept of medicine and help us work towards integrating into mainstream healthcare services those CAM therapies for which evidence of effectiveness exists. At the same time, there is a need for considerable increase in the funding for CAM research. Currently only the National Center for Complementary and Alternative Medicine, National Institutes of Health in the USA provides substantial funds for such research, and other organizations and countries would need to follow their example. The current trends of integrative medicine/dentistry and holistic attitude of dentists towards patient care and themselves dictate newer approaches in the improvement of the care. Knowledge of CAM is critically required among the general public and especially dentists so that they can use it as a preventive and treatment modality for chronic pain emerging in their day-to-day-life and prolong their career. Student awareness is needed to enhance ergonomics education.

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