ORIGINAL ARTICLE

SELF REPORTED MUSCULOSKELETAL PAIN AMONG DENTISTS

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Abstract

Background: Musculoskeletal complaint is an important health issue among dentists. Given the significance of this topic, we considered it necessary to investigate the prevalence and impact of musculoskeletal disease among Nigerian dentists

Aim/Objectives: To assess the work- related complaints among dentists with the specific objective of finding out the prevalence of neck and back pain among dentists

***Materials and Methods:** A structured questionnaire was sent to two hundred and fifty practising dentists in 3states capitals which were randomly selected from South - Western Nigeria. Participants were drawn from general hospitals, private clinics and teaching hospitals. Participants included general practitioners, specialists in restorative dentistry, oral and maxillofacial surgery, child oral health (pediatric and orthodontists), periodontology and oral pathology.*

***Results:** The response to participate in the study was 66.7% out of which 60% correctly filled questionnaire was analyzed.*

The mean age of participants was 32.8 ± 6.8years (SD) with a male to female ratio of 1.4:1.

Prevalence of back pain was 89.6% while that of neck pain was 81.3%. Back pain was found to be higher in females (91.7%) compared to males (88.1%) while neck pain was higher in males (82.1%) compared with to females (80.0%). Back and neck pain were highest in those who worked 8-12 hours per day.

Back pain was highest(94.4%) in those who had practiced for 6-10 years while those who had practiced for more than 20 years reported the highest percentage of neck pain.

Respondents in restorative dentistry all had back pain at one time or the other over a period of twelve months, while neck pain was highest among respondents in child oral health(91.7%) . 43% of respondents perform their procedures standing, while 38% use the sitting position and 19% alternate between standing and sitting position.

Other work related complaints reported by the dentists include headache, shoulder pain, pain around the wrists and paresthesia of the fingers of the dominant hand

More respondents missed work due to back pain irrespective of the gender.

17 respondents sought medical help due to neck pain out of which 8(47.1%)) received only analgesics while among those who sought medical attention due to back pain, 7(63.7%) received analgesics only.

***Conclusions:** Occupational related health problems among Nigerian dentists were common. There is a substantial need and demand for further training in occupational health and safety among dentists.*

Introduction

Dental practice, like many other professions can be accompanied with hazards/risks. A dentist may be a subject of a wide variety of physical and psychological ailments, which may be induced or aggravated by the work environment, and can disrupt or impair a successful dental practice.

Dentists experience high instantaneous and cumulative physical loads during their work day which seem to put them at risks for occurrence of physical complaints [1-3]. Occupational hazards in regards to

musculoskeletal complaints such as low back, neck and shoulder pain, hand/wrist disorders, carpal tunnel syndrome are highly prevalent among dental practitioners all over the world [4-6]. Most dentists today work in the sitting position treating the patient in the supine position because their work area (the mouth of the patient) is narrower, performance of dental treatment results in a very flexible work posture

Clinical dental procedures involve the application of precise motor skills to complete a series of goal oriented tasks in a dynamic setting. The skills are largely learned by observation and involve intense hand-eye co-ordination. The relationship between the dentist and dental assistant and the patient is physically and psychologically challenging. Time constraints and unexpected procedural challenges often add stress to the environment. Mental stress during the procedures and possible pre-existing pain conditions may also contribute to dental practitioner's pain.

Unruh[10] in a review article on chronic pain literature reported that women are more prone to develop a variety of types of chronic musculoskeletal pain than men. In addition, the number of women entering the dental profession is increasing rapidly, which is dramatically changing the male: female ratio in dentistry. There are a large number of studies [4-8] relating to musculoskeletal complaints among dental surgeons in various parts of the world but to the best of our knowledge no literature was found to assess work related complaints among dentists in a developing country like Nigeria.

Aims and Objectives

This study was conducted to assess the work-related complaints among dentists in our region with the specific objectives of finding out the prevalence of neck and back pain among the various specialties in dental surgery and to identify the risks factors associated with these symptoms.

Material and Methods

A structured questionnaire was sent to two hundred and fifty practicing dentists in 3states capitals which were randomly selected from South -Western Nigeria. Participants were drawn from general hospitals, private clinics and teaching hospitals. The self administered questionnaire consisted of questions on biodata(gender , sex, height, weight), questions on specific information on neck and back pain and routine practice posture while working at chair side, frequency of absenteeism from work due to back and neck pain and treatment received if any. Before the data collection, written and verbal consent from each respondent was obtained. Study was conducted without sponsorship from any organization or individuals.

Data were entered into Microsoft excel program and analysed using spss version 16.0 software. The collected data was summarized by calculating frequency and percentage for discrete variables and mean and standard deviation for continuous variables. The analysis was performed using chi-square test to identify the significant difference between the discrete data. Chi square test was performed to find the strength of association between categorical variables and level of significance placed at $p \leq 0.05$

Results

The response to participate in the study was 66.7% out of which 60% correctly filled questionnaire was analyzed. Principal reasons for non-participation were sickness leave, lack of time and refusals. Participants included general practitioners, specialists in restorative dentistry, oral and maxillofacial surgery, child oral health (pediatric and orthodontists), periodontology and oral pathology.

Participants were predominantly male (58.3%) with age ranging from 22 to 55

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years. The mean age of participants was 32.8 ± 6.8 (SD) with a male to female ratio of 1.4:1(Table 1). Prevalence of back pain was 89.6% while that of neck pain was 81.3%

Table:1 Age and Gender distribution

Age group(years)	Male	Female	Total
21-30	33	34	67
31-40	39	20	59
41-50	9	6	15
51-60	3	-	3
Total	84	60	144

The prevalence of back pain was 88.1% among the male and 91.7% in females while that of neck pain was 82.1% and 80.0% in male and female respectively. Among the male, the prevalence of back pain increases as the age increases while that of neck pain increases from age group 31-40 years. However, among the females, the prevalence of back pain decreases with age while that of neck pain did not follow a particular trend.(Table 2)

The married participants reported a higher prevalence of back and neck pain (93.8%, 83.9%) than their single counterparts. (Table 2)

According to the number of years of practice, self reported back pain was highest (94.4%) in those who had practiced for 6-10 years followed by those who had practiced for 11-15 years (90.9%) and least among those who had practiced for 1-5 years (86.6%). Neck pain was highest in respondents who had practiced for 6-10 years and least among those who had practiced for more than 16 years.

Table 2: Prevalence of back and neck pain against Sociodemographic variables

Variables	Back Pain		Neck Pain	
	Yes (n)	No (n)	Yes (n)	No (n)
Marital status				
Single	53	10	49	14
Married	76	5	68	13
No of years of practice				
1-5 years	58	9	52	15
6-10 years	34	2	31	5
11-15 years	20	2	17	5
>16 years	17	2	10	9
Sex & age group				
Male				
21-30years	28	5	27	5
31-40years	34	5	31	8
41-50years	9	0	8	1
>50years	3	0	3	0
Female				
21-30years	32	2	26	8
31-40years	18	2	17	3
41-50years	5	1	5	1
No of working hrs/day				
<4hours	1	2	1	2
4-<8hours	59	13	57	15
8-<12hours	65	1	56	10
>12 hours	2	1	2	1
Posture while working				
Standing up	58	5	51	12
Sitting down	45	9	42	12

Duration of working hours

With regards to the duration of working hours, self reported back pain and neck pain were highest (98.5%, 84.9% respectively) among respondents that work for 8-12 hours , followed by those that work for 4-<8hours(81.9%, 79.2%) and least (33.3%) in those that work for less than 4hours. Only three respondents work for less than 4 hours and more than 12 hours and this did not allow for favorable comparison with respondents in other categories.(Table 2)

Posture used while working

Majority (43%) of respondents stand up while working and they reported the highest frequency of occurrence of back and neck pain compared with those who use sitting position. Those who alternate between sitting and standing reported the least frequency of occurrence of back and neck pain.(Table 2 and Figure 1)

Table 3 showed that respondents in restorative dentistry all had back pain at one time or the other over a period of twelve months, followed by those in oral and maxillofacial surgery (89.2%), then child oral health (87.3%) and least among the oral pathologist (78.6%). Neck pain was highest among respondents in child oral health (91.7%) followed by those in preventive dentistry (81.3%), and least among the general dental practitioners.

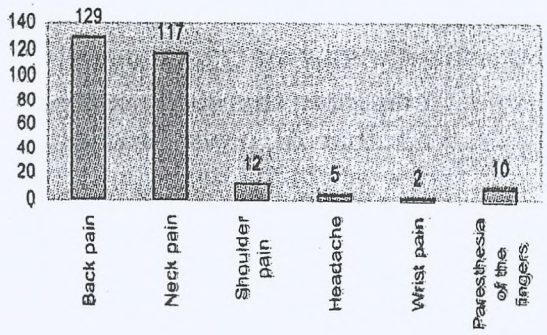

Figure 2 showing different forms of musculoskeletal pain experienced by dentists

Table 3: Frequency of back and neck pain across different specialties

	Back Pain					Neck Pain				
Specialty	Never	1-2ce/yr	3-4ce/yr	Regularly	Total	Never	1-2ce/yr	3-4ce/yr	Regularly	Total
GDP	4	9	4	11	28	7	12	2	7	28
OMS	4	15	5	13	37	9	16	7	5	37
RES.DENT	0	14	2	9	25	5	10	4	6	25
COH	3	14	5	2	24	2	12	6	4	24
PREV. DENT	3	5	5	3	16	3	6	6	1	16
PATHOL	1	10	-	3	14	1	6	4	3	14
Total	15	67	21	41	144	27	62	29	26	144

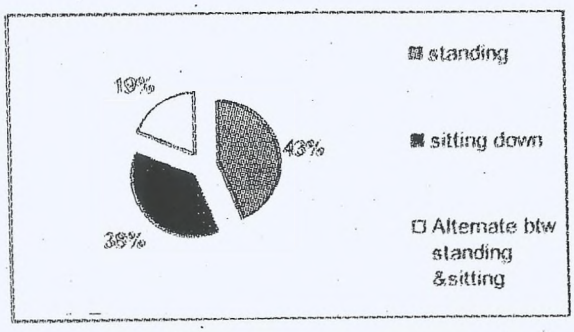

Figure1: showing percentage distribution of posture used by respondents while working

Other forms of work related complaints by respondents are headache, shoulder pain, pain around the wrist and paresthesia of the fingers of the dominant hand (Figure 2)

According to table 4, eleven (11) female and seven (7) male respondents missed work due to back and neck pain . More respondents missed work due to back pain irrespective of the gender.

17 respondents sought medical help due to neck pain out of which 8(47.1%)) received only analgesics while among those who sought medical attention due to back pain,7(63.7%) received analgesics only(Table5)

Table 4: Number of respondents who missed work due to back and neck pain

	Missed work	Neck Pain	Back Pain
Male	Yes	2	5
	No	82	79
Female	Yes	3	8
	No	57	52

Table 5: Number of respondents who sought medical help

Type of Pain	Treatment Received				
	Nothing	Analgesic	Physio	Drug+ Physio	Surgery
Neck Pain	124	8	5	3	1
Back Pain	113	7	3	1	-

DISCUSSION

The age distribution of 22-55 years and male predominance in this study compares favorably with that of other studies [11-13] with age range of 24-70 years and male being predominant .Participants were predominantly (46.5%) from the age group 21-30 years, which is just a decade lower than the study by Chopra and Pandey[13] in which the largest participants were in the age group 31-40 years. The lower age in this study could be attributed to the fact that admission to study Dentistry into the University is immediate post secondary unlike in some countries where a degree in basic sciences is a pre-requisite before studying dentistry and thus accounts for younger people found in the profession in this particular study.

The high prevalence of musculoskeletal complaints among dental surgeon with back pain being the highest in this study is consistent with what most studies have reported even though higher values (89.6%) obtained in our study far exceeded 37-55% reported in other countries [7,12,14]. Possible explanation was that back pain was only self reported and no physical examinations were carried out. However, Leggat and Smith [15] in their own study conducted among dentists in Queensland, Australia reported a higher prevalence of neck pain

In this study, more females reported back pain while more males reported neck pain. This could be due to the fact that females are more involved in domestic activities and have greater social responsibilities which have been associated with back pain. In the study by Shrestha and others [11], back and neck pain was higher in females than male while Marshal and others [16] in their own study conducted among New South Wales dentist, a higher prevalence of neck and back pain was found in males than females.

As the age increases, the prevalence of back pain increases in the male respondents while that of neck pain increases from age group 31-40 years. This could be attributed to the fact that this age group (31-40 years) constitutes the highest percentage of the working class and it is at this time that most men work very hard and leave a landmark in their chosen profession and moreso, there is tendency to have back pain with ageing. Among the females however, the prevalence of back pain decreases with age while that of neck pain did not follow any particular pattern. Across the various age groups, neck pain occurs more often in male than female.

Higher prevalence of back and neck pain reported by married participants compared with the single ones may not have been occupational related only, there may have been other factors contributing such as the stress of domestic work at home.

In this study, dentists who had worked for 6-10 years reported higher rates of back pain than those who had worked for more than 10years and this is consistent with other studies [7,16] . An investigation of Thai dentists revealed that less experienced dentist were more likely to suffer from musculoskeletal pain than their experienced counterparts. Possible explanations were that experience dentists are probably better at adjusting their working position and techniques in order to avoid musculoskeletal problems compared to their less experienced counterparts or they simply developed coping strategies to deal with the pain. Also, dentists with longer number of years may be more involved in administration and thus put in less number of hours per day. However, dentists with longer working experience (greater than 16 years) in this study suffer the least from neck pain compared with their less experienced counterparts. This is contrast to the

findings of Pagali and Jowkar [17] who stated that prevalence of pain and discomfort were more likely to increase with advancement of age and service time of the employees.

Considering the length of time, the longer the time spent working per day, the higher the frequency of self reported back and neck pain. This is similar to the findings of Marshal and others [16] who reported that the significant increase in frequency of pain reported was associated with longer working periods of working without taking a break.

The fact that specialists in restorative dentistry reported the highest rate of back pain was not surprising because this group of specialist usually spend a much longer time in the sitting position working on patients compared with other specialists.

Standing up while working resulted in a higher frequency of back and neck pain in this study, while Ratzon and others [18] in their own study concluded that those working only in the sitting position had a more severe low back pain than those who alternated between the sitting and standing positions.

Ten percent(10%) of those who had back pain missed work while 4.2% missed work due to neck pain. This is far less than 21.6% and 24.6% reported by Al-Wazzan [19]. In total, more females missed work due to musculoskeletal pain as against males. This is in agreement with the findings of other studies[20,21] which reported that women have greater prevalence of back pain and are more likely to miss work as a result. Overall, the proportion of those who missed work as against self reported pain is small. This is a possible indication that the type of musculoskeletal pain experienced by dentists is not of a severe nature or the fact that most people might have used analgesic a practice of self medication in this environment.

CONCLUSION

Musculoskeletal disease remains a major occupational health problem for dentists in this environment. Back and neck pain may interfere with daily activities while a considerable proportion of dentists had sought medical attention. Further research is recommended to elucidate the impact of musculoskeletal disease on dentists especially with the cessation or reduction of clinical practice, and also to identify effective measures for reducing musculoskeletal disease among them.

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