

INCIDENCE OF OROFACIAL PAIN IN A SELECTED POPULATION AT KING SAUD UNIVERSITY COLLEGE OF DENTISTRY EMERGENCY CLINIC*

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دراسات كثيرة تناولت موضوع الألم وعلاجه. آلام الفم والوجه تعد من أكثر الأمراض شيوعاً ولكن دراسات قليلة تطرقت إلى مدى انتشارها ماعدا آلام المفصل الفكي الصدغي. أسباب آلام الفم والوجه متعددة وغامضة في بعض الأحيان مما يجعل صعوبة عمل دراسة دقيقة عنه.

دراسات متعددة في عيادات إسعافية في الولايات المتحدة والدول الاسكندنافية أظهرت نسبة عالية من أمراض السنينة الإسعافية ناتجة عن آلام التهاب لب السن وما فوق الذروة يتبعها أمراض اللثة. لا توجد دراسة في المملكة عن آلام الفم والوجه ماعدا الدراسة التي قام بها جاكرو وود في ١٩٩٢م وكانت من المفصل الفكي الصدغي وما يتبعه من الاختلال الوظيفي.

أجريت هذه الدراسة في كلية طب الأسنان جامعة الملك سعود في الرياض حيث يوجد موقعان مختلفان للعيادات السنينة الإسعافية التي تخدم جميع أفراد المجتمع بدون مقابل. إن الهدف الرئيس للدراسة الحالية هو تصنيف آلام الفم والوجه في مجموعة من المرضى الذين قدموا لتلقي العلاج في العيادات السنينة الإسعافية في كلية طب الأسنان جامعة الملك سعود في الرياض. وكذلك لمعرفة الاختلافات في العمر والجنس.

المعالجة السنينة الإسعافية في كلية طب الأسنان بجامعة الملك سعود تعنى بالمرضى الذين يحتاجون إلى معالجة سنينة فورية. المريض المراجع يملأ استشارة الاستبيان الصحي الفوري ومن ثم تجرى له المقابلة الشخصية لمعرفة الشكوى الأساسية والأعراض، يجرى فحص سريري وتطلب الأشعة حسبما تقتضي الحاجة وبعد ذلك يعطى العلاج اللازم. هذه الخدمات تقدم من قبل أطباء الأسنان الامتياز والعاملين الموجودين في هذه العيادات مع توافر جميع أنواع الاختصاصات للاستشارة.

تمت دراسة مراجعة على ١٠٤١ مريضاً راجعوا العيادات السنينة الإسعافية بسبب آلام الفم والوجه والذين أعمارهم أكثر من ١٥ سنة. تم تقسيم آلام الفم والوجه حسب منشأ الألم إلى أمراض لب السن، أمراض اللثة، الالتهاب السنخي المنشور آلام المفصل الفكي الصدغي، الآلام الناتجة عن الأمراض العصبية، الآلام الناتجة عن الأمراض العميقة - تراوحت أعمار المرضى بين ١٥ - ٧٩ سنة، احتوى العدد الكلي للمرضى على ٦٥٣ (٧٠,٦٢٪) إناثاً و ٣٨٨ (٣٧,٣٪) ذكوراً. أوضحت النتائج أن أعلى نسبة من المرضى (١,٦٢٪) كانوا يشكون من آلام التهاب لب السن يتبعها آلام أمراض اللثة (٣,٢٤٪). كانت أكبر نسبة للمرضى هم الذين تراوحت أعمارهم بين

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٢٥ - ٣٤ سنة ويشكلون نسبة (٣, ٣٨٪) وكانت من بينهم أعلى نسبة لكل أنواع آلام الفم والوجه. نسبة المرضى الإناث شكلت الأغلبية في كل مجموعات الأعمار. يشتمل الموضوع أيضاً عرضاً لنسب أنواع أخرى لآلام الفم والوجه مع علاقتها باختلاف الجنس والعمر. أظهرت النتائج وجود علاقة بين نوع الألم والعمر وليس مع جنس المريض.

أعطت هذه الدراسة بعض النتائج والأسباب لآلام الفم والوجه في العيادات السننية الفورية في المملكة. تقع مسؤولية تشخيص آلام الفم والوجه على طبيب الأسنان الذي يجب أن يكون متمكناً علمياً لعمل هذا التقييم. وعلى مناهج دراسات الأسنان أن تحوي وتركز على هذا الجانب. كَوْنُ الأفراد في العقد الثاني من العمر أعلى نسبة في هذه الدراسة لذا فالوعي الصحي السني يجب أن يبدأ قبل هذا العمر ليتسنى السيطرة على الأمراض السننية في المجتمع.

A retrospective analysis was conducted of patients who attended an emergency dental clinic in Riyadh, Saudi Arabia, complaining of orofacial pain. The age-range was 15-79 years. The non-random sample included 653 (62.7%) females and 388 (37.3%) males. Results showed that the highest percentage of the patients (62.1 %) had pulpal pain followed by those (24.3%) with periodontal pain. Patients in the age- group 25-34 years (38.3%) attended the emergency clinic more often than any other age-group. Results also showed that the age-group 25-34 years had a higher incidence in all pain categories when compared to any other age-group. Female subjects were the majority in all age-groups. The percentage of various pain conditions in relation to gender and age are also presented.

Introduction

Studies of diseases in a society are essential if their etiologic factors, symptomatology, proper treatment and prognosis are to be achieved.¹

Pain and its treatment have been extensively investigated and frequently presented in the literature.² Although pain in the head and face is considered among the most frequent in a population,³⁴ only few publications have dealt with the epidemiology of facial pain,^{5,67} with the exception of pain in connection with craniomandibular and masticatory dysfunction disorders.⁸⁹ The multicausal and often obscure etiology of facial pain raises methodological problems.¹⁰ Reports from several emergency clinics in the United States and Scandinavia showed that a high incidence of dental emergencies were attributed to pulpal and periapical pathosis, followed by periodontally-related conditions.^{7,112} The literature on incidence of facial pain from Saudi Arabia is scarce. The only report on the incidence of facial pain in a Saudi population was published by Jagger and Wood in 1992, which was in connection with temporomandibular joint dysfunction.¹³

The College of Dentistry of King Saud University is one of the main dental centers in the city of Riyadh. It has two locations with emergency clinics

that run on a daily basis all-year-round to serve the community free of charge.

The primary aim of this study was to characterize the distribution of various orofacial pain conditions among patients seeking treatment at the College of Dentistry, King Saud University in Riyadh, Saudi Arabia. Additionally, to determine their relative incidence according to age and gender, as well as to describe the orofacial pain in a sample of patients attending the emergency clinic.

Materials and Methods

An equal number of patients' emergency charts, of year 1992-1993 period with adequate information, were selected from both college locations for this study. Adequacy of information was facilitated by the design of the emergency chart which included a questionnaire to be filled by or on behalf of the patient, clinical interview and examination, provision of emergency treatment by the clinician on duty, dental radiographs and panoramic views and consultations with various dental specialists in the clinics. Only charts of patients, 15 years of age and older, complaining of pain were included. A total of 1,045 patient's charts were reviewed. The following information was obtained: age, gender, nationality, chief complaint (pain), clinical find-

ings, radiographic interpretation and therapeutic modalities used at the time to control pain. The collected data were reviewed, and the primary diagnosis was determined according to the classification scheme of Bell (1989).¹⁴ This classification, based on origin, divides the primary diagnosis entities into seven groups as follows:

1. Pulpal causes: reversible, irreversible pulpitis, pulp necrosis, and periapical pathosis not associated with swelling.
2. Periodontal causes: gingivitis, periodontitis, periodontal abscess, pericoronitis, and periodontic endodontic cases.
3. Disseminated alveolar infections: dry socket, dentoalveolar abscess, cellulitis and any of the previous pulpal conditions associated with facial swelling.
4. Temporomandibular joint disorders: TMJ pain, muscular pain, limitation of mouth openings, trismus, and occlusal dysfunction.
5. Neurogenic disorders: Bell's palsy, trigeminal neuralgia, and atypical trigeminal neuralgia.
6. Visceral causes: sinusitis and salivary gland diseases.
7. Mucosal causes: traumatic ulcer, aphthous lesion, lichen planus, and angular cheilitis.

Most of the cases with TMJ disorders, neurogenic and visceral pain conditions were diagnosed through consultation with related specialties at the time of examination. The ages of the patients were grouped as 15-24, 25-34, 35-44, 45-55 and over 55 years. Data were analyzed using the chi square (χ^2) test for independence of age-group and gender. Significance was $p < .05$. The cases having expected frequency less than 5 were merged and presented as "others" [Figs. 3,4].

Results

Four of the patients charts were excluded from the study due to insufficient data. A total of 1,041 emergency charts of dental patients were analyzed. The age-range of the patients was 15-79 with a mean and standard deviation of 29.86 and 10.4 years, respectively. Saudi patients comprised 624 (60%) of which 415 (40%) were females, and 209 (20%) were males. Non-Saudi patients were 417 (40%) of which 238 (23%) were females and 179 (17%) were males [Fig. 1].

The highest percentage of patients, 38.3%, was

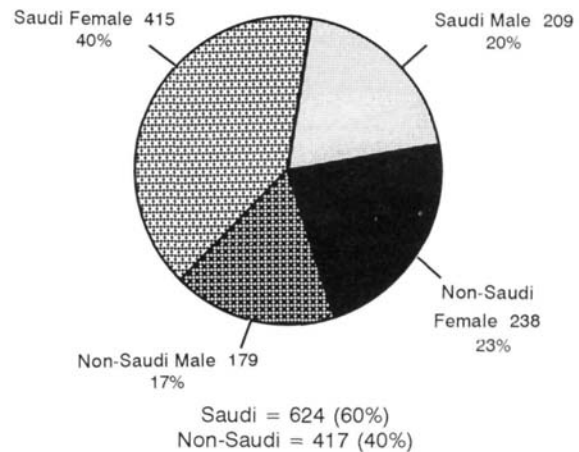


Figure 1. Distribution of patients according to nationality and gender (N = 1041).

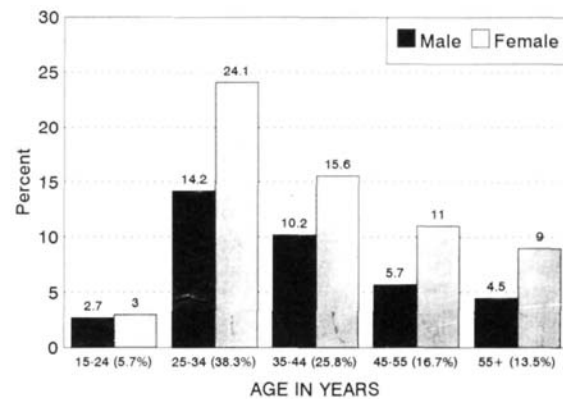


Figure 2. Distribution of patients according to age-group and gender (N = 1041).

among age-group 25-34 years, and the lowest (5.7%) was among age-group 15-24 years. Female subjects predominated in all groups [Fig. 2]. Distribution of primary diagnosis showed that a significantly higher number of patients had pain due to pulpal conditions (62.1%) and periodontal diseases (24.3%) than to disseminated alveolar infection (8.2) at $P < .0001$ (Table 1).

Other pain conditions were seen in 5.4% of the cases (Table 1), and were distributed almost equally between males (5.7%) and females (5.5%) [Figs. 3,4]. These "other pain conditions" comprised related pains of mucosal origin (2.1%), TMJ problems (1.9%), neurogenic (0.8%), and visceral pain (0.6%) as shown in Table 1. Mucosal pain included trauma, aphthae and lichen planus while

Table 1. Frequency of pain conditions in different age-groups in the total sample (N = 1041)

Pain Category	Age-Group					Row Total
	15-24	25-34	35-44	45-55	55 Above	
Pulpal Pain	#	35	262	152	107	647
	%	3.4	25.2	14.5	10.3	8.7
Periodontal Pain	#	10	93	79	38	253
	%	1.0	8.9	7.6	3.6	3.2
Diss. Alv. Inf.	#	8	29	27	15	86
	%	.8	2.8	2.6	1.4	.7
TMJ Problem	#	1	6	5	5	20
	%	.1	.6	.5	.5	.2
Neurogenic Pain	#	1	2	1	3	8
	%	.1	.2	.1	.3	.1
Visceral Pain	#	2	-	3	-	6
	%	.2	-	.3	-	.1
Mucosal Pain	#	2	6	2	6	21
	%	.2	.6	.2	.6	.5
Total	#	59	399	269	174	1041
	%	5.7	38.3	25.8	16.7	13.5

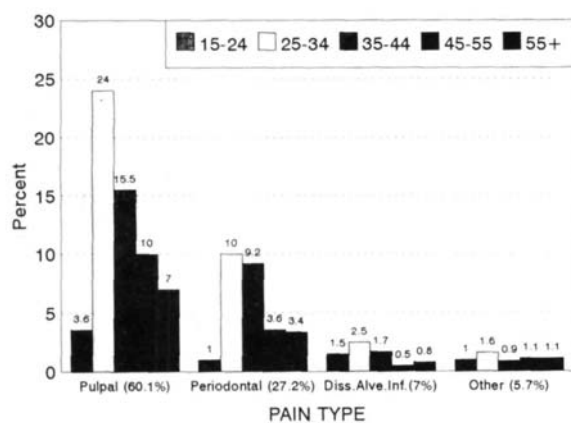


Figure 3. Distribution of male patients according to orofacial pain conditions and age-group (N = 388, 33.3%).

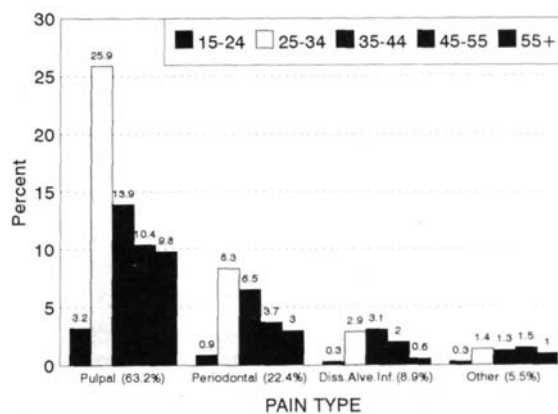


Figure 4. Distribution of female patients according to orofacial pain conditions and age-group (N = 653, 66.7%).

the TMJ-related pain was due to tense muscle and occlusal dysfunction. Neurogenic-related pain, trigeminal neuralgia and neuritis, each were diagnosed in three cases, one case of Bell's palsy and another with atypical facial pain. Visceral causes were diagnosed in six patients, four cases of sinusitis and two of salivary gland disease.

When the primary diagnosis of orofacial pain categories in different age-groups of the entire sample was considered, age-group 25-34 years had relatively more patients than any other age-group in all pain categories (Table 1). A similar 25-34

years age-group dominance was observed when the primary diagnosis of pain conditions among 388 male patients of same age-group was analyzed. Results revealed more patients with pulpal causes (24%), compared to only 10% with periodontal related complaints, 2.5% due to disseminated alveolar infection, while "other pain conditions" were seen in 1.6% of the cases [Fig. 3]. Of the 653 female patients, age-group 25-34 years accounted for the largest number of pulp-related pain, followed by periodontally-related pain. Age-group 35-44 years showed more

patients (3.1%) with disseminated alveolar infection in comparison with other age-groups. The "other pain conditions" were more evident (1.5%) among age-group 45-55 patients [Fig. 4].

The association between pain category and age-group was found to be statistically significant ($p = < 0.04$). The association of pain category and gender was found to be statistically non-significant ($p = 0.31$), however.

Discussion

Pain in the head and face is among the most frequent in any population, and its diagnosis can be complicated.² Patients seeking help for orofacial pain may not be suffering from any dental disorder. The dentist must be familiar with local dental and oral causes of pain as well as numerous other causes.¹²

This retrospective analysis of patients who sought emergency dental treatment for orofacial pain at the College of Dentistry, King Saud University, showed a predominance of females (62.7%) over males (37.3%). More patients in age-group 25-34 attended the clinic (38.3%). The gender finding in this study is in agreement with the Scandinavian study by Widstrom *et al* who reported a relatively higher percentage of females (52.5%) compared to 47.4% of males attending dental emergency clinic although no age-group was presented in their study.

The primary diagnosis of cases in this study showed that pulpal causes were responsible for emergency visits followed by periodontally-related causes. These findings are in agreement with other reports from Scandinavia and the United States.^{7,12} Widstrom's report showed that pulpal (64%) and periodontal diseases (19.9%) were the main reasons for emergency visits. An army recruit hospital in the United States reported that pulpal emergencies were 53% compared to periodontally-related emergencies of 20%.² Similar findings were reported by Al-Shammery *et al*¹⁷ which showed that treatment for caries-related conditions in Riyadh were the main reason for dental visits followed by periodontally-related causes. In addition, Al Yahya *et al*¹⁸ reported that caries-caused pulpitis and the related pain were also the major reasons for endodontic treatment of their sample. Another study from Jeddah by Farsi in 1992 found

that extraction of teeth was due to caries in 57.5% of the patients, followed by periodontal diseases (24.1 %).¹⁷ According to the present study, cases with pulpal pain among male patients were 60.1 %. This was in agreement with Farsi's report which showed that 60.85% of teeth extraction among male patients was due to caries.¹⁷ The same cause was true of female patients who were 63.2% in this study compared to 64.50% in Farsi's report. However, periodontally-related cause of pain among male patients were higher (27.2%) as compared to Farsi's report (21.82%). The same observation was found among females in the present study, (22.4%) as compared to Farsi's report (15.22%).¹⁷ Pain due to periodontal causes in male patient was higher than in females in this study. This is also in agreement with Farsi's report which stated that males had a higher percentage of extraction than females due to periodontal diseases.¹⁷

Patients in age-group 25-34 constituted the largest proportion of the population in the study. This could reflect on the higher incidence of all pain categories. Pulpal pain was 25.2% whereas periodontal pain was 8.9%. Patients in the second and third decades had the highest percentage of tooth extraction in Farsi's report. Our findings agreed with this. Cawson¹⁸ stated that the majority of the elderly are edentulous, and according to Burt *et al*¹⁹ the percentage of edentulous patients linearly increased with age starting at 35 years and above. The same fact was emphasized by Al-Shammery *et al*¹⁵ and Farsi¹⁷. This might explain the less frequent incidence of pain categories related to teeth in this study, in patients above 35 years, as teeth might have been extracted already and therefore fewer teeth were at risk.

The less frequent causes of pain, categorized in this study as "other pain group", and which included TMJ pain, mucosal lesions, neurogenic, and visceral pain, were seen more often among the elderly because of the tendency towards chronicity. About half of the patients with mucosal lesions were 45 years of age or older. This might be attributed to mucosal changes with advancement of age. Several studies revealed that there are significant epithelial differences and atrophic changes as age advances.^{18,20,21} In addition, Freedman²² indicated that traumatic ulcers are the most common ulcers in the elderly and may be related to over extended dentures. He also stated that aphthous

lesions are not uncommon among the elderly and this may be due to psychological or nutritional disorders.

The number of temporomandibular joint-related complaints in our study was in agreement with comparable data from the study of TMJ dysfunction by Widstrom *et al*, Jagger and Wood¹³ and Al-Shammery.¹⁵

In this study, neurogenic pain formed only 0.8% of the total sample. Katusic *et al*²⁶ reported an incidence of 4.3 per 100,000 of the general population with trigeminal neuralgia in Minnesota, USA. In this study, it was observed that neurogenic pain included cases other than trigeminal neuralgia. In fact trigeminal neuralgia comprised only 0.3% of the sample. The high incidence of trigeminal neuralgia among this population requires further investigations.

Orofacial pain due to visceral causes has not been reported to any significant extent in the literature. In our study, 0.6% was ascribed to pain of visceral origin.

Conclusion

This study has shed some light on the factors surrounding orofacial pain diseases in Saudi Arabia. Our emergency dental clinic treats a diverse and large target population. However, this study did not have a representative sample of the general population.

The diagnostic responsibility for orofacial pain conditions rests mainly on the dentist because of the frequency with which such complaints are related to the teeth, mouth and masticatory system. A general practitioner should be well-informed to manage orofacial pain conditions. It is recommended that dental undergraduate curriculum reflects adequate instructions in this important topic of orofacial pain.

Results of this study indicated that subjects in the second and third decades of life showed the highest percentage affected in all pain categories. Therefore, dental health awareness in a community should be instituted prior to this age to control dental diseases in a society.

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